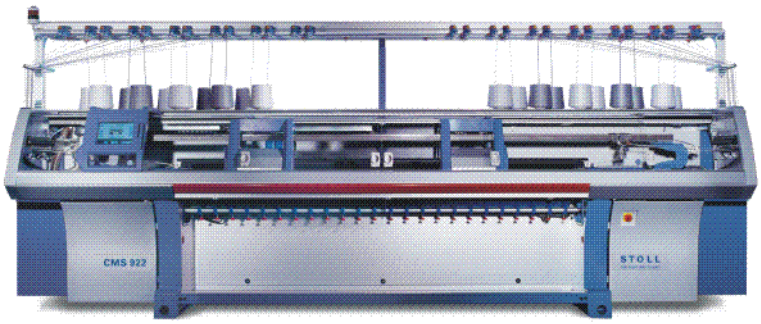
STOLL

THE RIGHT WAY TO KNIT

Operating instructions

	Type	Computer type	Component type
CMS 933	771 773	OKC	000 - 003 000 - 002



CE

STOLL
THE RIGHT WAY TO KNIT

Date: 2012-08-21
Translation of the original operating instructions
Operating system of the machine: V_OKC_002.007.000_STOLL (or higher)
H. STOLL GmbH & Co. KG, Stollweg 1, D-72760 Reutlingen, Germany

End User Licence Contract (03/2001)

Licence terms in business transactions with entrepreneurs for the use of the STOLL software

Licenser: H. STOLL GmbH & Co. KG, Stollweg 1, D-72760 Reutlingen / Germany.

§ 1 Licensed object and scope of use

(1) The licenser grants the licensee a not exclusive right to use above-mentioned STOLL software according to the following terms and conditions. The licenser shall provide the licensee with a copy of the object code for the licensed programs. The licence material also includes a program description in printed form. In the following text, the licensed programs and the program description are altogether referred to as "licensed software".

(2) The licensed software is only intended to be used with the STOLL knitting machine with which the software was delivered and can only be run in connection with this knitting machine. Any other form of use of the licensed software is not permitted.

(3) The approved use covers the storing of the licensed programs in one data-processing machine, the execution of the programs, the processing of the data stock, as well as the production of copies of the programs to the extent that this is required for contractual use. All rights to the copies shall remain with licenser.

(4) Additional usufructuary and exploitation rights of the licensee do not exist. The creation of back-up copies, the testing and inspecting of the programs , the processing of the data stock as well as a decompiling are only permissible if this must be imperatively permitted due to legal regulations.

(5) Licence material handed over in printed form, in particular the program description is only allowed to be reproduced with the written consent of the licenser.

(6) After having informed the licenser previously in writing, the licensee is allowed to transfer his right of use together with the knitting machine mentioned in Par. (2) in the scope and with the limited conditions resulting from the Par. (1) to (5) entirely to a third party. These conditions must be expressly pointed out to the third party. The transfer within the framework of continuous obligation (e.g. rental, leasing) is not permissible. With the transfer, all the rights of use of the first licensee shall expire, including any rights to copies and adaptions. If these were not handed over to third parties, they must be destroyed.

(7) Neither the licensee nor the subsequent user has the right to use licensed software in whole or in part on more than one data-processing machine at the same time or distribute any reproduced sections of the licensed software in its original version or in altered adapted versions.

§ 2 Period of use

The granting of the usufruct mentioned under § 1 is provided for an indefinite period of time for the entire economic service life of the licensed software.

§ 3 Safeguarding of the licensed software

(1) The licensee must ensure that no form of improper use of the licensed software is carried out at his company and that the obligations in accordance with § 1 are also observed by his employees and personnel as well as by other persons working with the package.

(2) The licensee agrees not to change any protective annotations, such as copyright annotations or any other reservations of rights and agrees to transfer completely into specifically made copies of the licensed software. The licensee is only allowed to use the programs or program sections of other producers included in or related to the licensed software if the licensee accepts the licence terms applicable for such use.

§ 4 Warranty

(1) The contracting parties are in agreement that, based on the present state of technology, it is not possible to develop programs so that they run without any errors for all application conditions. For the licensed software, the licenser shall hand over to the licensee a program description based on the most recent status in each case that refers to the proper use and conditions of use for the programs. Specific characteristic features shall not be guaranteed unless an agreement to the contrary is reached in individual cases.

(2) The licenser guarantees that the licensed software is usable within the meaning of the program description issued by him and applicable at the time of delivery to the licensee; an irrelevant diminishment of the usability shall not be taken into account. The licenser also guarantees that the data carrier being used is free of material and manufacturing defects and that the data has been properly recorded on the data carrier. If the licensee operates the licensed software in connection with hardware and software products that do not come from STOLL, the licensee is obliged to furnish proof that a determined error has its cause in the licensed software.

(3) If the licensed software proves to be useless or defective within the meaning of Par. (2), the warranty is carried out by replacement delivery versus the return of the defective software. If the software delivered on a replacement basis also proves to be useless or defective and the licenser is not able to restore the usability or eliminate the error within a suitable time limit, the licensee can demand, according to his choice, a reduction of the licence fee or reimbursement of the licence fee versus the return of the licensed software.

(4) Any further warranty, in particular for guaranteeing that the data or the licensed software comply with the requirements and purposes of the licensee shall be excluded.

(5) The warranty period amounts to twelve months, starting with the date of delivery of the licensed software to the licensee.

§ 5 Liability limitations

(1) The licenser shall be liable for damages that were caused by a culpable infringement of an essential contractual obligation, for which the licenser is responsible, in a manner endangering the achievement of the contractual purpose. The liability is limited to the contract-typical damage the occurrence of which the licenser had to expect based on the circumstances known to the licenser upon the conclusion of the contract. In any case, the liability is limited to two times the amount of the licence fee paid by the licensee.

(2) In case of virus contamination, the licensee is responsible for providing proof that the licensed software was contaminated with the virus.

(3) The licenser shall not be liable for insufficient economic success, lost profits, remote damages and consequential damages and for damages from the claims of third parties with the exception of claims resulting from the infringement of protective rights of third parties.

(4) For the recovery of data, licenser shall only be liable within the framework of Par. (1) and only if the licensee stored this data in machine-readable form on a daily basis, the corresponding data carrier is available and the data can be reproduced at reasonable expense.

(5) The aforementioned liability limitations do not apply to damages that have been proved to be based on premeditation or gross negligence on the part of licenser or on the lack of guaranteed characteristics, as well as to any claims based on the product liability law.

§ 6 Final provisions

(1) Alterations and supplements of this contract require the written form for their legal validity.

(2) Should any individual provisions of this licence terms be void or become void, the validity of the other provisions shall remain unaffected. The void provision must be replaced by a lawful provision that comes as close as possible to the economic purpose it is being used to pursue.

(3) This terms and the legal relations between the licenser and the licensee are subject to German law exclusively.

(4) Place of fulfilment and jurisdiction in business transactions with businessmen is D-Reutlingen / Germany.

Installation of the programs

The exact installation instructions for the software are contained in the manual.

Software license for Windows XP

The license number is located on the left or on the right control cabinet.

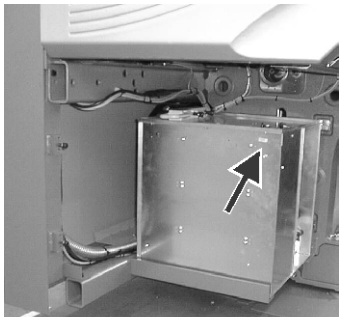


Fig. 1 Software license for Windows XP on the left control cabinet

Table of contents

1 About this document

This chapter contains information on:

- Function of this document [-> 9]
- Target groups of this document [-> 9]
- Information in this document [-> 10]
- Symbols in this document [-> 12]

1.1 Function of this document

This document explains how to operate your knitting machine.

This section contains the information about:

- Operation
- Maintenance in normal operation
- Elimination of faults
- Maintenance
- Troubleshooting

1.2 Target groups of this document

The individual chapters of this document are directed at persons with different tasks and qualifications:

Target groups and qualifications	Chapter	
everybody: Knowledge on the applicable safety guidelines at the workplace	1	About this document
	2	Description of knitting machine
User: Knowledge of the basic principles of flat knitting	all the above-mentioned chapters	
	3	Producing with the knitting machine
	4	Adjusting knitting machine
	6	Maintenance of the knitting machine
	7	Repairing the knitting machine
Technician: Knowledge of the current electrotechnical safety guidelines and completed professional training in the field of textile mechanics	All chapters	

Allocation of target groups and chapters

1.3 Information in this document

This document contains all information on assembly, operation, servicing and maintenance of the knitting machine.

Additional information is provided by the following separate documents:

Document	Information contained
Spare Parts Catalog	Illustration of all spare parts with their order numbers
Manual for the STOLL pattern preparation unit	Using the STOLL pattern preparation unit
ASCON instructions STIXX instructions	Special attachments for measuring and controlling stitch length
Stoll-knit report 2 (SKR2)	Software for operational and machine data acquisition
Order Management Software (OMS)	Software for the distribution, control and management of knitting orders

Overview of the documents for the knitting machine and STOLL pattern preparation unit

Additional information is available via:

- the Stoll branch office or Stoll dealer in your country
- the Stoll helpline:
  - Tel: +49-(0)7121-313-450
  - Fax: +49-(0)7121-313-455
- E-mail: helpline@stoll.com
- Internet: http: //www.stoll.com
- Training courses at the Stoll training centers

Type plate

Some information and descriptions depend on the component and computer type. There may be differences in the design depending on the manufacturing date of the machine. The type plate and the table, which are located on the front page of these operating instructions, indicate which machine model is concerned.

Machine type plate

The second column of numbers in the "Type" field indicates the component type. In the above example the machine in question is the component type "000".

1.4 Symbols in this document

Some information in this document are marked with special symbols to make it easier to access this information quickly.

* The additional equipment of your machine can deviate from this description depending on the machine type (type of machine, scope of supply, special equipment).

Background information is provided here.

Tips for optimal procedure are provided here.

DANGER

A warning is given here!

A warning protects you from death or injuries and the knitting machine from serious damage.

➜ Always read warnings carefully and observe them exactly.

One-step action

Carry out an one-step action:

✔ Condition for the following action.

➜ Carry out one-step action.

Multi-step action

Carry out a multi-step action:

✔ Condition for the following actions.

1. Carry out first action.
2. Carry out second action.
   ▷ Result of the action carried-out.
3. Carry out third action.

- or -

➜ Carry out the alternative action for point 3.

▶ Result of the action sequence.

CAUTION

If something fails to function properly:

Information on the possible causes is provided here.

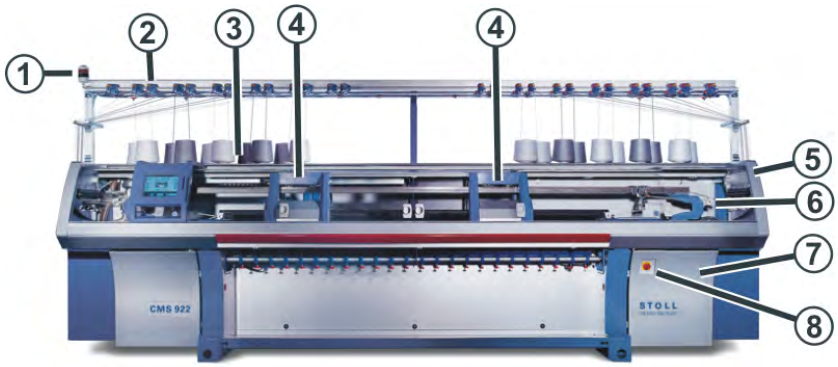
➜ To solve the problem, carry out the action described here.

2 Description of knitting machine

This chapter contains information on:

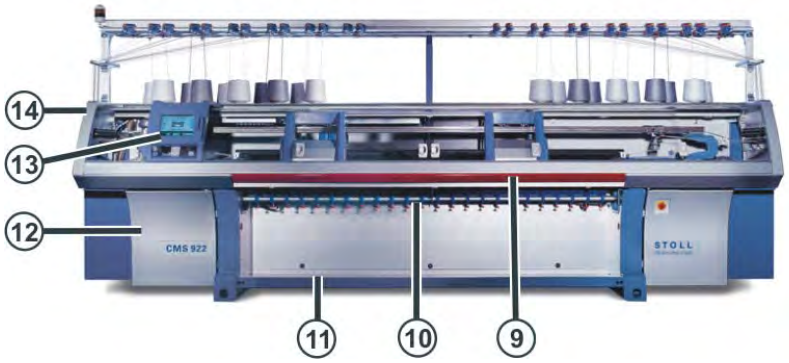
2.1 Components of the knitting machine

2.1.1 Front side



	Label	Explanation
1	Signal light	It displays the operating state of the knitting machine
2	Yarn control unit	Tensions and controls the thread.
3	Bobbin board	The bobbins are placed on it.
4	Carriage	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
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 a safety door. You have to forbid everyone from reaching out into the running machine.
7	Control (right-hand side of the machine)	It controls the carriage run and the racking of the needle bed.
8	Main switch	Switching on and off of the machine. EMERGENCY-STOP switch.

Overview machine elements 1



	Label	Explanation
9	Engaging rod	It activates and stops the carriage run.
10	Fabric take-down (main take-down, auxiliary take-down)	Main take-down: Pulls the stitches away from the needle downwards to the fabric container. Auxiliary take-down (special attachment): Grasps the fabric directly under the needle bed.
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	Control (left side of the machine)	It controls the knitting process. It saves the data of the knitting program. It controls the needle selection and the motors in the carriage.
13	Touch screen	The touch screen enables communication with the machine control
14	USB connection	Connection for a removable data carrier, containing knitting programs, operating systems and machine data. Recommendations: Use USB Memory Stick. Also possible: Floppy disk drive, CD drive, DVD drive, external hard disk.

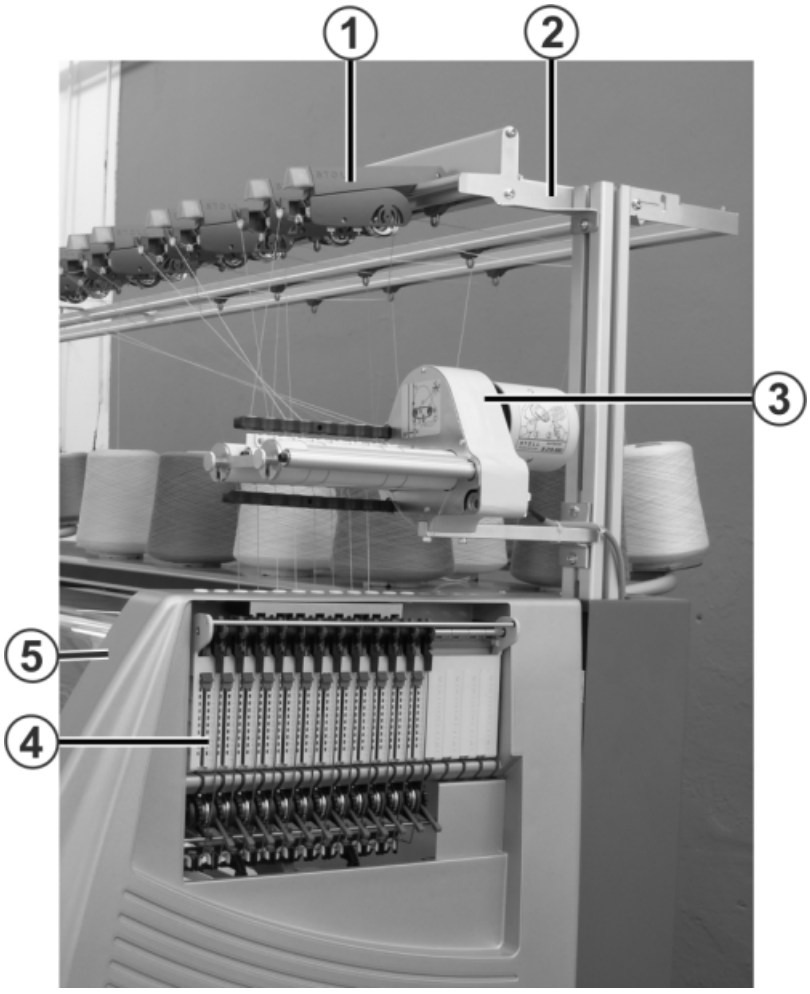
Overview machine elements 2

Inside

	Label	Explanation
1	Carriage	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 carrier	It gets pulled by the carriage over the needle bed and leads the thread into the needle.
4	Yarn carrier rail	Four rails are attached to the upper part of the needle bed. The yarn carrier glides on this rail.

Overview machine elements 3

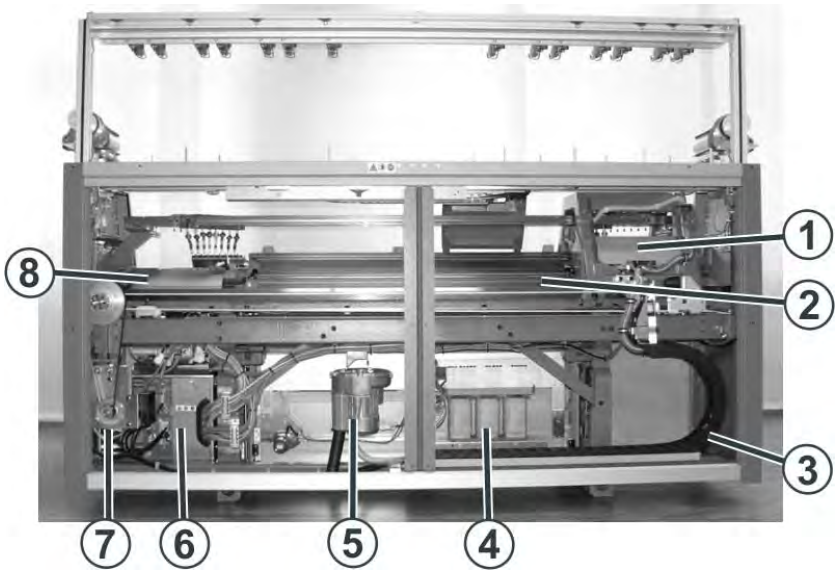
2.1.2 Lateral view (right)



	Label	Explanation
1	Yarn control unit	Tensions and controls the thread.
2	Yarn guide system	On this the yarn control units and the friction feed wheels are mounted.
3	Friction feed wheel (special attachment)	It pulls the thread from the bobbin and feeds it to the yarn carrier with a constant tension.
4	Lateral yarn tensioner	It monitors and tensions the thread.
5	Safety door (left, right)	The reversing position of the carriage is secured by the safety door.

Overview machine elements 4

2.1.3 Rear side



	Label	Explanation
1	Carriage	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.
6	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.

Overview machine elements 5

2.2 Yarn guide

The yarn guide has the following tasks:

- Guiding knitting yarn
  - from the bobbin to the yarn carrier
  - as friction-free as possible
  - without the threads touching or crossing over each other
- Controlling knitting yarn for
  - yarn end
  - Yarn breakage
  - Knots
- Controlling yarn tension
- Preventing sagging threads with yarn tensioning

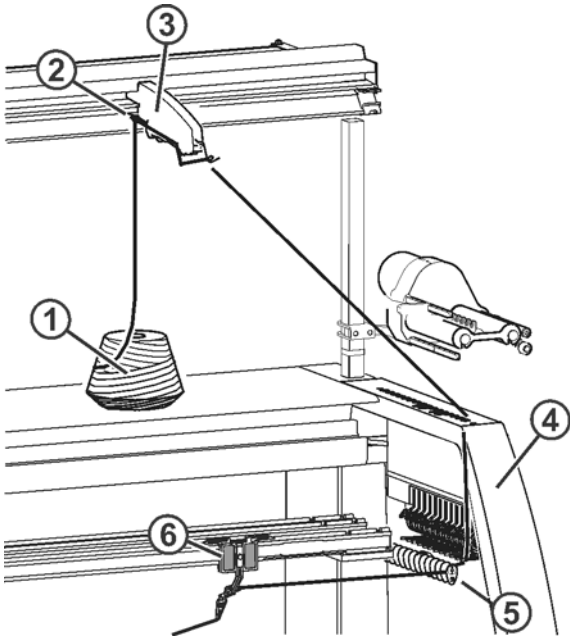
2.2.1 Courses of yarn

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.

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

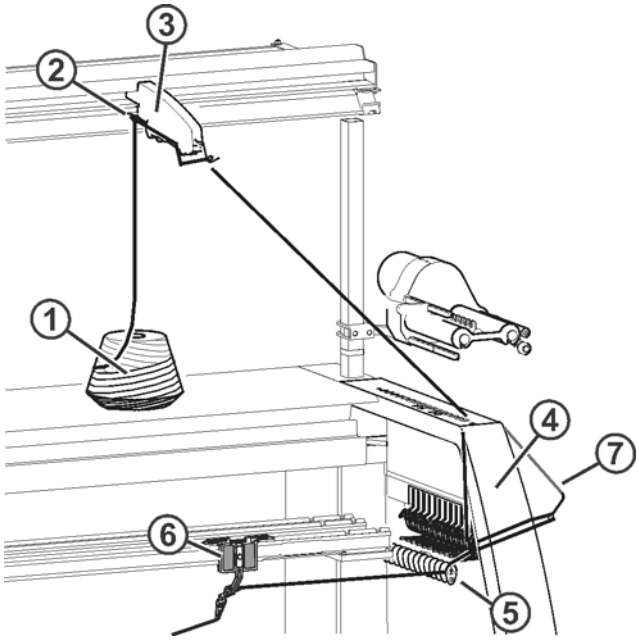
Determining the course of yarn

The following pictures show the four possible courses of yarn.



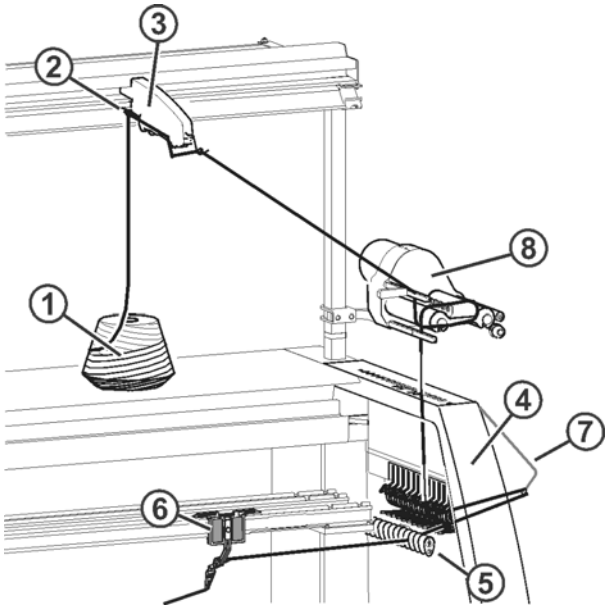
Course of yarn 1

1 Bobbin
2 Yarn guide bracket
3 Yarn control unit
4 Safety door
5 Yarn deflector
6 Yarn carrier



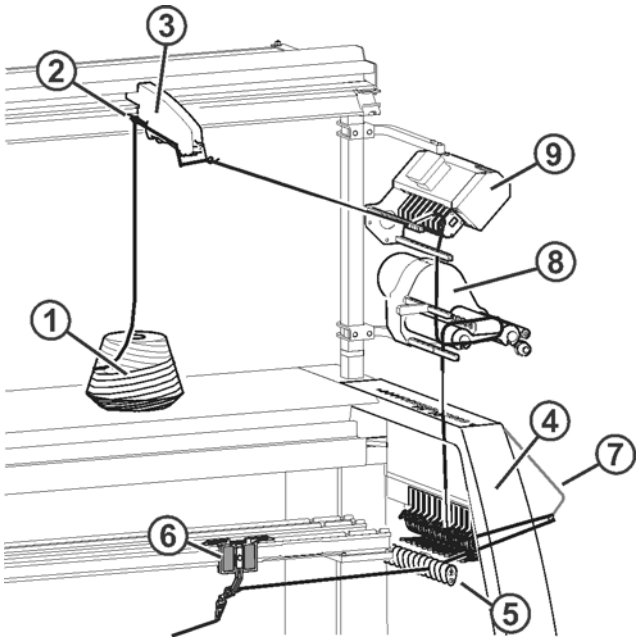
Course of yarn 2

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



Course of yarn 3

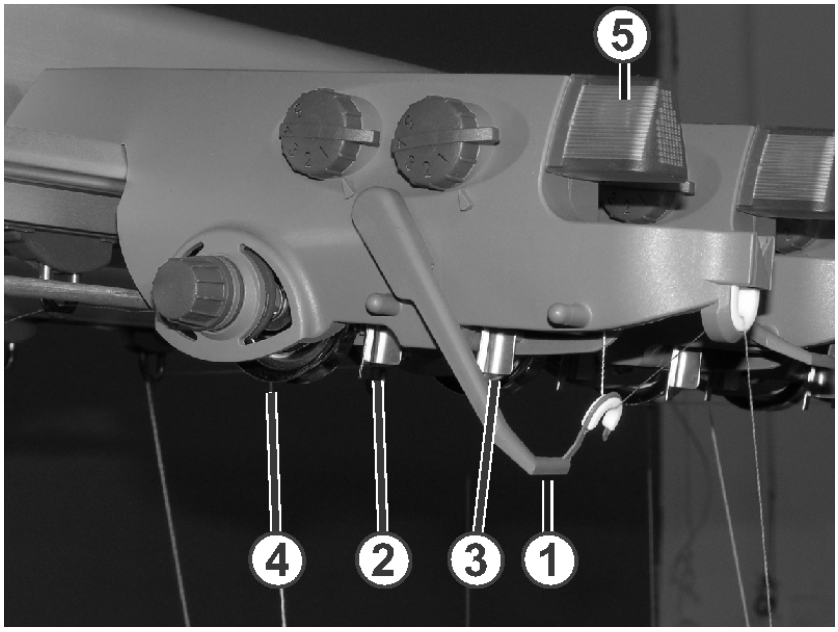
1 Bobbin
2 Yarn guide bracket
3 Yarn control unit
4 Safety door
5 Yarn deflector
6 Yarn carrier
7 Lateral yarn tensioner
8 Friction feed wheel



Course of yarn 4

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

2.2.2 Yarn control unit



Yarn control unit

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

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

The yarn break control (1) monitors the yarn ends and switches off the machine in case of a yarn breakage or end. The error is indicated by the LED (5) on the yarn control device, the signal light and on the touch screen.

In the case of large knots in the yarn, the knot detector switches off the knitting machine. The error is indicated by the LED (5) on the yarn control device, the signal light and on the touch screen.

In the case of small knots in the yarn, the machine knits a programmed number of rows at reduced speed.

The yarn brake setting (4) regulates the yarn tension and prevents the thread from hanging through.

2.2.3 Lateral yarn guide *

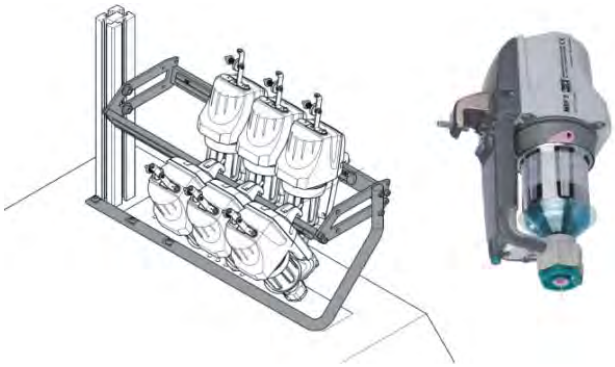
The friction feed wheel, the active thread clamp, the lateral yarn tensioner and the permanent brake work together.

Lateral yarn guide

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

Friction feed wheel * The friction rollers of the friction feed wheel (1) reduce the yarn tension.

Storage feed wheel MSF 3 * The feed wheel serves for intermediate storage of the thread. The cylindrical coiling and the separately positioned thread layers offer a more even thread tension when yarn is being drawn off than when drawing off the bobbin. Peaks in tension are caught up and compensated by the feed wheel.



Storage feed wheel MSF 3

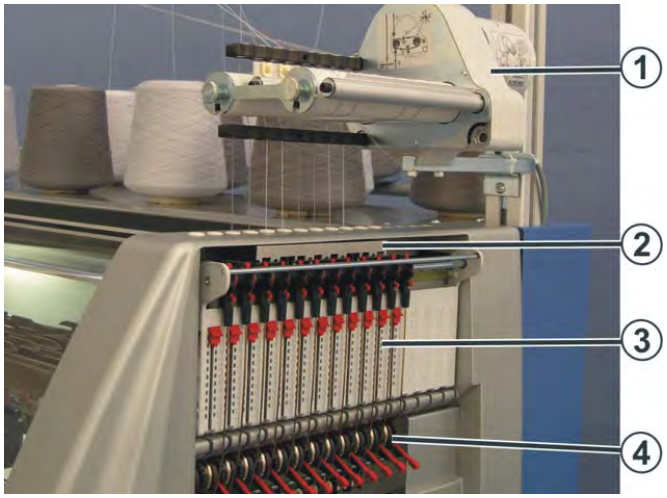
According to use up to 6 feed wheels can be inserted on each machine side.

Further information:

- Symbols in this document [-> 12]

Active thread clamp

The active thread clamp is found under the friction feed wheel. It is integrated in the lateral safety door. The thread clamp is positioned in such a manner that each track of the friction feed wheel is arranged corresponding to a track of the thread clamp. In all there are 8 tracks available.



Lateral yarn guide

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

In the case of a friction feed wheel sometimes a problem appears:
When a thread is not knitted over a longer period of time it is possible that the friction feed wheel releases some threads because of the friction and thereby the lateral yarn tensioner swivels so mush outwards that the machine stops. This hinders the thread clamp. If the yarn tensioner swivels over the angle by approx. 45 degree, the clamp closes automatically. If the thread is knitted again the yarn tensioner swivels inwards and the clamp is open.

Lateral yarn tensioner

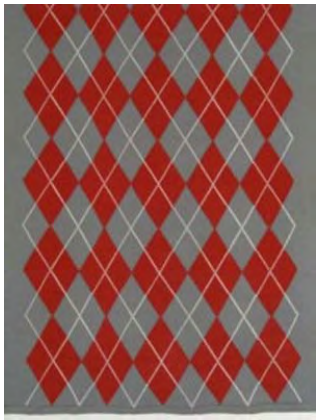
The lateral yarn tensioner has two tasks:

Function	Description
Control the thread	Switch off the knitting machine in case of a thread break or yarn end.
Tension the thread	When the yarn carrier moves on the yarn tensioner, it can hold the threads that are not yet being knitted in a tensioned state. The yarn tensioner swivels and holds the threads tensioned.

In the case of a yarn breakage the side yarn tensioner swivels outwards and switches off the knitting machine. On the upper end of the yarn tensioner a magnet is fixed that releases a contact in the lateral safety door without touching it.

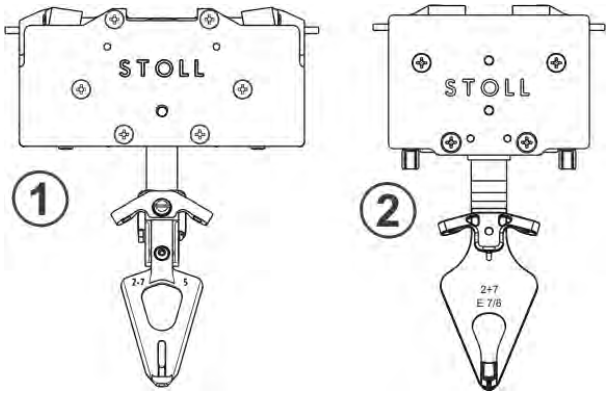
2.2.4 Intarsia yarn carrier *

Intarsia yarn carriers can be installed to produce intarsia patterns.



Pattern with 21 intarsia yarn carriers

Depending on the machine type, the intarsia yarn carrier type 1 or 2 will be inserted.

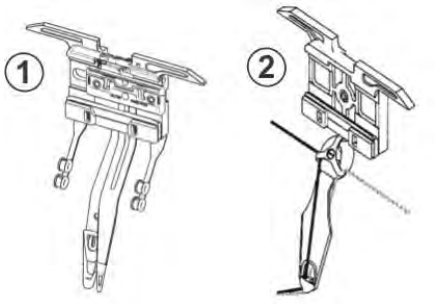


	Intarsia yarn carrier	Machine
1	Type 1	CMS 830 C CMS 520 C CMS 730 S CMS 830 S
2	Type 2	CMS 933 CMS 822 CMS 740 CMS 730 T CMS 530 T CMS 530 CMS 520

Further information:

- Symbols in this document [-> 12]

2.2.5 Plating yarn carriers *



Plating yarn carrier

1	Double bow yarn carrier	All gauges except E 3, E 4
2	Double eyelet yarn carrier	E 3, E 4

It is possible to knit color and quality platings with these yarn carriers.

Colored plating pattern

Further information:

- Plating – the different possibilities [-> 211]
- Symbols in this document [-> 12]

2.3 Carriage assembly

2.3.1 Drive, speed and operating path

Carriage assembly

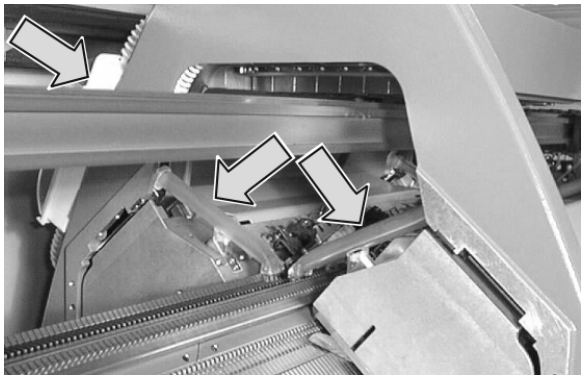
The carriage assembly is driven by the drive motor via a toothed belt. The speed is infinitely programmable, and can therefore be adapted to the yarn material, pattern and working step.

Limit switches control the path of the carriage assembly. If the carriage assembly moves too far outward, the limit switch stops the knitting machine.

The operating path of the carriage is controlled by the knitting program and may differ for each knitting or transfer row The carriage assembly reverses when the last working needle leaves the system.

2.3.2 Suction and cleaning row

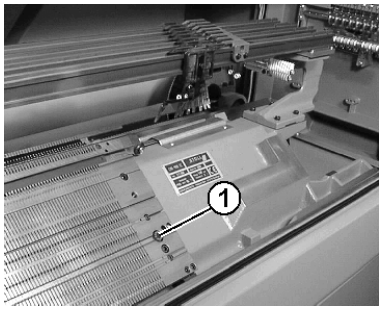
Suction



Fluff absorption and lint container

The suction removes the yarn fluff from the upper area of the needle beds. The fluff is collected in a container.

Cleaning row



Brushes for cleaning the selection systems

After a programmable number of knitting rows, the carriage assembly carries out a cleaning row over the entire needle bed during which the fluff is extracted from the needle bed. Brushes (1) are mounted outside on the needle bed which clean the selection systems during the cleaning row.

Further information:

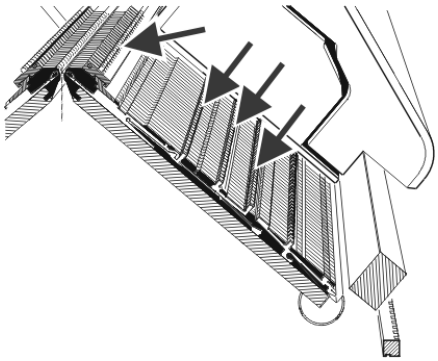
- Switching on and off aggregates [-> 160]

2.3.3 Central lubrication

All machines with four or more knitting systems are equipped with a central lubrication as a standard equipment.

Central lubrication on carriage, on the right: Oil supply

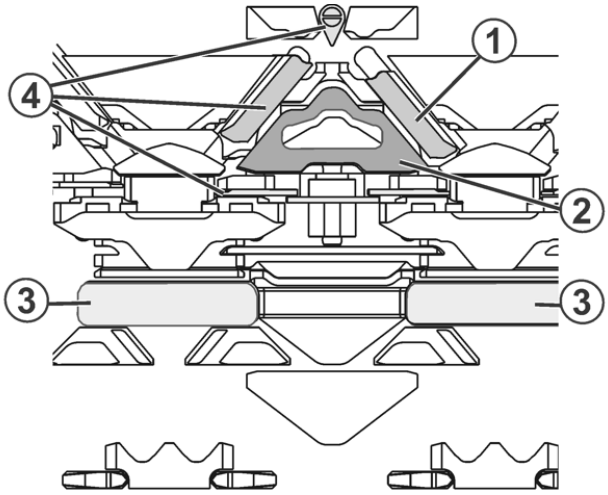
It lubricates the working butts of the holding-down jacks, the coupling part and the intermediate slider with oil. All other lubrication points must be lubricated manually.



Lubrication points of the central lubrication

2.4 Knitting system

2.4.1 Needle paths and design



Knitting system

1 Stitch cam
2 Raising cam
3 Selection system
4 movable cams

Each knitting system can knit using the three-way technique without limitation.

Each needle can be controlled in seven positions:

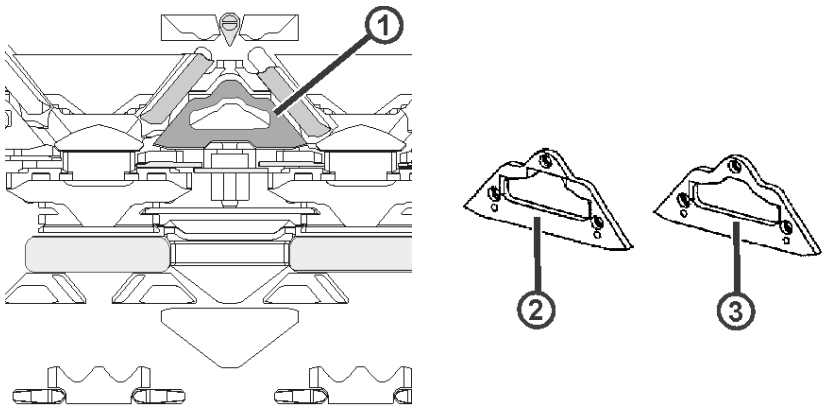
- Stitch
- Tuck
- out of operation
- Transfer
- Take-over
- Split - stitch/transfer
- Split - stitch/receiving

This results in the following possibilities during stitch formation:

- Stitch
- Tuck
- out of operation
- Transfer of stitches and tuck loops from the front to the rear needle bed or vice-versa, even simultaneously in both directions

The selection system only selects the needles which knit a stitch or tuck, transfer or split-stitch. All other needles are not selected and do not sink the stitches.

2.4.2 Raising cams



Raising cams

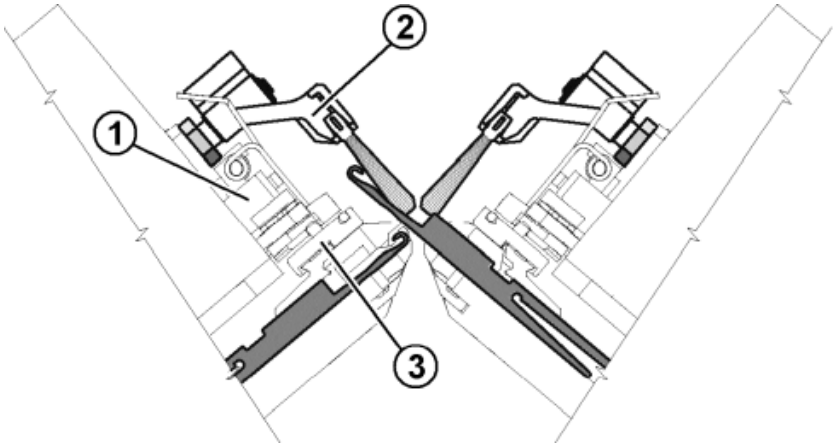
1 Position of raising cam
2 Raising cam for transfer
3 Raising cam for split-stitch

There are two different raising cams for transfer and split-stitch. When the knitting machine is shipped, the raising cams for transfer (2) are built-in. The raising cams for split-stitch (3) are contained in the accessories.

i	The raising cam for split-stitch (3) can also be used for normal transfer patterns. In the case of particularly delicate yarns, the raising cam for transfer (2) should be used so that the yarn does not tear while transferring the stitches and no drop stitches result.

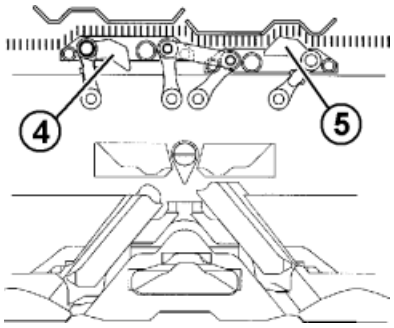
2.4.3 Holding-down function

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.



Holding-down jack control unit

1 Holding-down jack control unit
2 Swiveling brush holder
3 Jack slider



Jack slider

4 Leading jack slider
5 Following jack slider

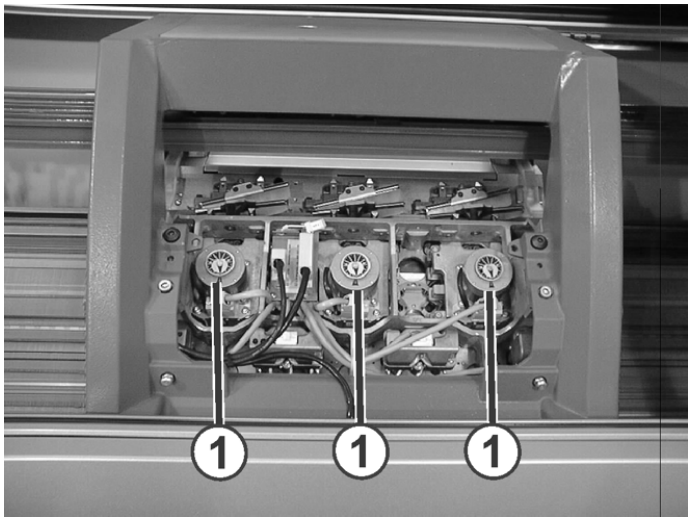
The leading jack slider (4) is switched upward.

This pivots the holding-down jacks downward into the holding-down position during needle raising. They hold down the stitches.

The following jack slider (5) is pulled back and the holding-down jacks pivot back again. The holding-down jacks are open during yarn insertion.

When the carriage reverses, the jack sliders are switched over automatically.

2.4.4 Step motor for adjusting the stitch tension



Step motor for adjusting the stitch tension

A step motor (1) on each knitting system adjusts the stitch tension. The step motor is controlled by the knitting program.

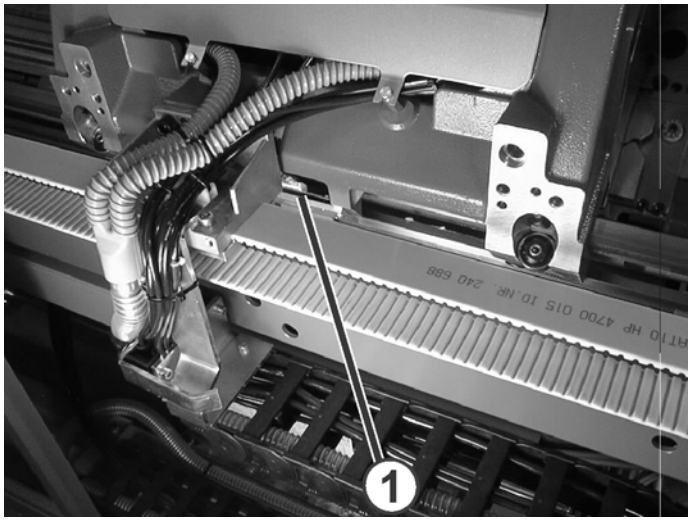
The stitch tension can be adjusted individually

- for individual areas in the fabric which are particularly subject to loading, e.g. narrowing edges or pattern motifs
- for individual stitch cams
- for different yarns (yarn count correction)

During knitting, changes can also be made via the touch screen.

2.5 Control devices

2.5.1 Impulse sensor



Impulse sensor

The impulse sensor (1) scans the grooves and trick walls on the impulse sensor rail on the front and rear guide rail for the carriage assembly. It recognizes the position of the carriage assembly and specifies the time for the selection of the selection jacks by the selection systems.

Depending on the machine gauge, there is a front and a rear impulse sensor rail.

Machine gauge	Impulse sensor rail
E 18 (E 9.2) E 16 (E 8.2) E 14 (E 7.2) E 12 (E 6.2) E 10 (E 5.2)	at the front and at the rear
E 8 E 7 (E 3,5.2) E 5 (E 2,5.2) E 4 E 3.5 E 3	rear

2.5.2 Stop resistance

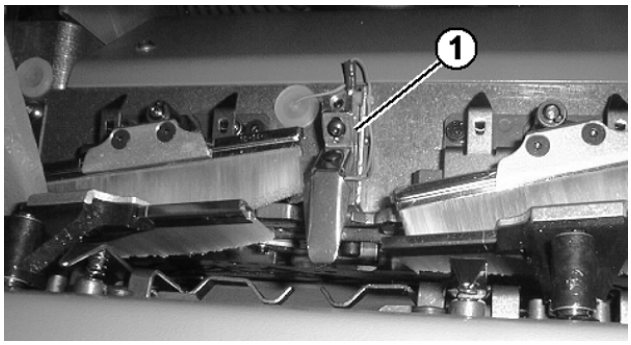
If the power consumption of the drive motor differs from a stored value, the knitting machine is stopped. The reason for a higher power consumption may, for example, be a sticky needle.

2.5.3 Shock stop

In the case of a shock on the needle bed, e.g. in the case of needle breakage, the piezo-electric shock stop switches off the knitting machine. The piezo-electric shock stop is located below the needle beds.

2.5.4 Needle detector

The needle detector (1) checks the height of the fabric in the needle area.



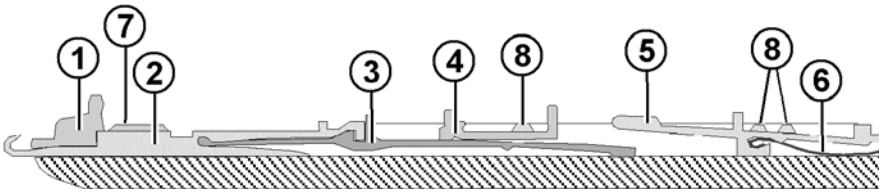
Needle detector

If needles are defective (e.g. latch breakage), there is a danger of the fabric not being taken down downward and gathering in the needle area. The machine will then stop automatically to prevent from a major damage.

2.6 Needle beds

2.6.1 Structure

The front needle bed is screwed to the needle bed support tightly. The rear needle bed can laterally be racked relative to the front needle bed by the racking device.



Needle bed (schematic representation)

1 Holding-down jack
2 Needle
3 Coupling part
4 Intermediate slider
5 Selection jack
6 Selector spring
7 Needle bar
8 Cover rail

The moveable parts (2) to (6) are fixed by several rails in the needle bed. To replace a part, the corresponding rail must be pulled to the side. This takes place with the help of the extraction hook. It is included in the accessories.

2.6.2 Racking device

The front needle bed is screwed to the needle bed support tightly. The rear needle bed can laterally be racked relative to the front needle bed by the racking device.

Racking motor

The racking motor (1) is located on the right-hand side below the needle bed support. It laterally racks the rear needle bed. It is controlled by the knitting program. The racking movement is infinitely programmable.

Racking course

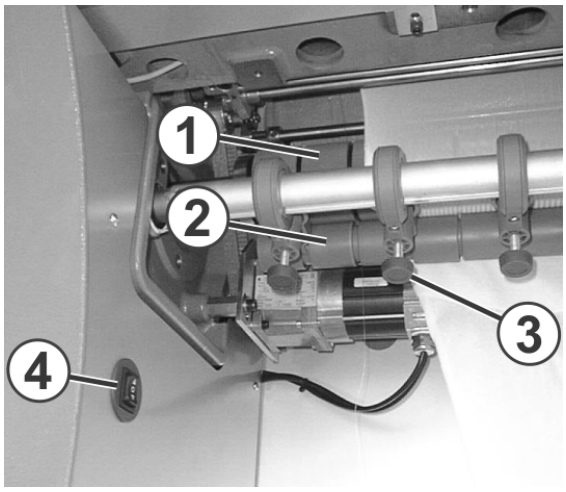
The racking course may be up to 4 inches (approx. 10 cm). Depending on the machine gauge, this is a maximum racking course over 20 to 72 needles.

Machine gauge	Maximum racking course
E18	72 needles
E16	64 needles
E14	56 needles
E12	48 needles
E10	40 needles
E8	32 needles
E7	28 needles
E5	20 needles

Maximum racking course in dependence on the machine gauge

Transferring	During transfer the rear needle bed is racked until the needles of the front and rear needle beds almost touch. The needle dips into the pelerine spring of the needle opposite.
Overracking	The overracking mechanism pre-stretches the stitches prior to transfer so, that they are somewhat enlarged. Then the needle bed is reset to the programmed racking. As a result, the stitches are also transferred very reliably even at a high carriage speed.
Slow racking	To protect the yarn, the needle bed can be racked very slowly. The carriage assembly then waits at the reversing point until the needle bed is racked.

2.7 Main take-down



Main take-down

1 Take-down roller
2 Counter-pressure rollers
3 Knurled screws
4 Sensor

A motor drives the take-down roller (1). The motor can individually be adapted to the knitting situation. The take-down roller guides the finished fabric into the fabric collection chamber. There the fabric is protected from soiling.

Take-down tension

The take-down tension consists of:

- Pre-tensioning when the carriage assembly is at the reversing point
- Take-down tension during knitting

Both tensions are independently set of each other. The optimum value for the take-down tension is dependent on the working width, yarn material and pattern.

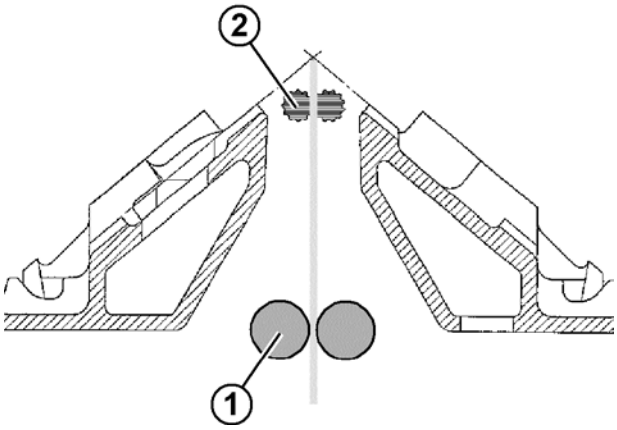
The fabric is pressed onto the take-down roller (1) with counter-pressure rollers (2). The contact pressure can individually be adjusted with knurled screws (3). The counter-pressure rollers (2) can be continuously swiveled with the key (4). Press the key (4) to open or close the counter-pressure rollers with the motor.

Premature wear of the take-down roller

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
- Yarns harmful to rubber, e.g. abrasive, sanding yarns or yarn finishes such as greases or oils
- UV radiation
- Cleaning agents harmful to rubber, e. g. ether or fuels. Recommendation: Use cleaning petrol for cleaning

2.7.1 Auxiliary take-down *



Auxiliary take-down

1 Main take-down
2 Auxiliary take-down

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

The auxiliary take-down supports:

- Stitch formation
- Adjustment of the fabric take-down to requirements typical of the fabric
- Narrowing or widening

If the fabric is only taken down with the main take-down, the rollers of the auxiliary take-down are pivoted apart.

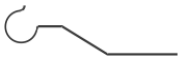
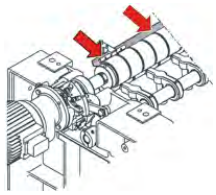
The take-down force and the take-down speed are programmable.

Further information:

- Symbols in this document [-> 12]

2.7.2 Control devices (fabric take-down)

The following parameters are controlled on the fabric take-down:

Parameter	Control
Speed of the take-down roller	The rotating speed of the take-down rollers is constantly measured. If the deviation from the upper or lower limit is too large, the knitting machine stops. The limit values are infinitely programmable.
Wrapping around loose threads (1) 	Four yarn deflectors (accessory) prevent loose threads from wrapping around the fabric take-down rollers.
Wrapping around of fabric (1) 	A winding plate prevents the fabric from wrapping around the fabric take-down rollers. If the fabric nevertheless wraps around, the knitting machine stops.
Throwing off of fabric (1) 	Four fabric sensors (accessory) scan the fabric between the needle bed and the fabric take-down. They can be moved as desired over the entire working width. If the fabric is ejected, the knitting machine stops.

Control devices on the fabric take-down
(1) not in the case of machines with comb take-down

Further information:

- Adjusting sensor mechanism * [-> 164]

2.8 Display and operating elements

2.8.1 Main switch

Main switch

The main switch (1) is located on the front of the machine above the right control cabinet.

In position "1 - On" the main switch is switched on, in position "0 - Off" it is switched off.

Switch-off process

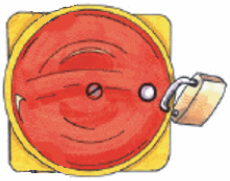
When the main switch is turned from "1" to "0", the machine is immediately switched off. Dangerous movements are immediately stopped. However, the machine data are not lost, as they are saved with a battery. This takes approx. 60 seconds. In the process, messages appear on the touch screen. Once the process has been completed, the touch screen becomes dark and a signal sounds.

Even with the main switch switched off, the mains supply up to the main switch still carries current with extremely high voltage. The mains supply must be disconnected and secured against being switched on again before working on the main switch unit.

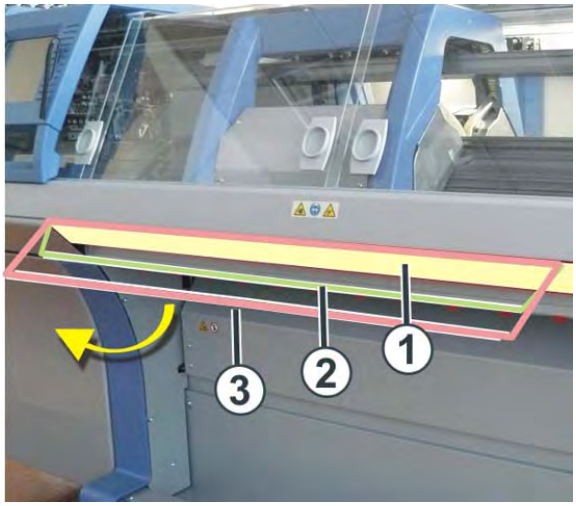
Emergency-stop

The main switch is also the emergency-stop switch.

The main switch has to be locked during maintenance and service work. This prevents the main switch from being switched on accidentally.



2.8.2 Engaging rod



Engaging rod

1 Carriage stopped
2 reduced speed
3 normal speed

The carriage assembly, and therefore also knitting, is started and stopped with the engaging rod. The engaging rod can be moved into three positions.

Please observe in position 3:

1. When the covers are closed, the engaging rod is held by a magnet (production at normal speed).

	DANGER
	Danger by parts of needles which have broken off! Danger of injury to eyes by parts of needles. ➜ Wear safety glasses.

2. When the covers hoods are open (e.g. during set-up and checking work) the engaging rod is not held by a magnet and must be held in position 3 by hand. If the engaging rod is released, it immediately falls into position 1 and stops the machine (dead man's switch in accordance with EN 11 111). The maximum carriage speed with open safety doors can be set.

Further information:

- Setting machine parameters [-> 167]

2.8.3 Signal light

Signal light

The signal light (1) displays the operating status of the knitting machine. Depending on the machine type, the signal lamp is mounted either on the left or on the right machine side.

Color	Status of the knitting machine
green	Knitting machine is producing
green (flashes)	Knitting machine is stopped with engaging rod
yellow	Knitting machine is not producing, as an error has occurred during knitting
green, yellow	Both lamps light up during the shutdown process. Duration is approximately 60 seconds - from switching off main switch until machine is completely shut down.
off	Main switch is off

Signal light colors

2.8.4 Input unit

Input unit

The input unit (1) enables communication with the machine control:

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

The input unit can be moved over the entire width of the needle bed.

To carry out a function, tap one of the symbols (keys) on the touch screen. We recommend using the touch pen (2) to prevent the touch screen from becoming dirty or damaged.

2.8.5 User Interface

Design of the user interface

Design of the user interface

Do not touch the touch screen with sharp objects and do not subject it to direct sunlight, which will destroy the picture tubes.

The user interface displays information on the current operating situation. It is always divided into three areas:

- Upper area (1)
  - Menu
  - Input and output of information
- Middle area (2)
  - Status display
  - Additional input elements
  - Selection elements
- Lower area (3)
  - Function keys

Functions of user interface

The following is possible on the touch screen:

- Calling up pages, menus and input masks
- Calling up help information
- Displaying the operating data of the knitting machine
- Accessing the functions of the knitting machine
- Inputting values for controlling the knitting machine
- Processing the knitting program

These functions are called up with the following keys and elements:

- Function keys
- Input elements

Function keys

In the following sections two groups of functions keys are shown:

- Standard function keys; these are displayed in standard configuration
- Additional function keys; these can be called up with a switchover key

Function keys in the main menu

Function keys in the "Main menu"

Key	Function	Key	Function
	Load/save data		Manual interventions
	Editing the knitting program		Fabric take-down
	Carriage speed		Same SEN area size
	Racking Correction		Stitch tension
	Setting up the pattern		Yarn carrier
	Setup2 Editor		Service
	Machine start		Machine settings
	Machine stop		Order menu
	Changeable monitoring		Sequence knitting (see programming manual)
	Cycle counters		ASCON (special attachment with its own instructions)

Function keys in the "Main menu"

Standard function keys

Key	Function
	return to "Main menu"
	Return to previous page
	Proceed to the next page
	Calling up help
	Return to previous help page
	Display list of the last messages and references
	Confirm input
	Call up command line and output window for direct commands
	Order menu: Reset counter of already fabrics to "0"
	Switch over to 100 % of programmed carriage speed
	Switch over to 75 % of programmed carriage speed
	Switch over to status line
	Switch over to selection/input elements
	Confirm message
	Switch over to "additional function keys"

Standard function keys

Additional function keys

The additional function keys can be called up from any window with the "Additional function keys" key.

These additional function keys are described in the corresponding chapters.

The following additional function keys are displayed in all windows.

Key	Function
	Call up input window for a direct Sintral command. This is carried out within a menu or window, i.e. you do not need to leave the menu or call up the "Direct command" window.
	Editing the knitting program
	Switch over to standard function keys

Additional function keys in all windows

Input elements

In the following sections three groups of input elements are shown:

- Standard input elements; these are displayed when an input field is activated by briefly touching in
- Selection elements; these are displayed when a selection field is activated by briefly touching it
- Virtual keyboard; this can be displayed for inputs

Standard input elements

Element	Function
	Reduce value by one step
	Increase value by one step
	Undo a change, the last value saved is displayed again
	Undo a change, the previous value is displayed again
	Confirm input, save changes, end setting process
	Delete character to left of cursor
	Position the cursor at the start of the line
	Position the cursor at the end of the line

Standard input elements

Element	Function
	Only one switch can be active at a time
	Position switch (on/off)
	Check box (on/off)
	Arrow switch (left/right) or (up/down)
	Slider
	Reduce current value by one step
	Increase current value by one step

Switches and linear regulators

Selection elements

Element	Function
	Fold open selection field
	Fold closed selection field
	Move cursor: one line upwards
	Move cursor: one line downwards
	Move cursor: one character to left
	Move cursor: one character to the right
	Move cursor: to first input of selection field
	Move cursor: to last input of selection field

Selection elements

Virtual keyboard

To input letters and numbers, the virtual keyboard can be displayed. Either a number block appears for inputting numbers or an alphanumeric keyboard appears for entering letters and numbers.

The virtual keyboard contains three switchover keys:

- SHIFT key
- CPS LCK key
- CTRL key

To use a switchover key, e.g. to enter a special character, first press the switchover key and then the key with the special character. To return to normal characters, press the switchover key again.

Key	Function
	Switch on virtual keyboard
	Switch off virtual keyboard
SHIFT	SHIFT key: switch over between uppercase and lowercase letters and between numbers and special characters
CPS LCK	CPS LCK key: switch over between uppercase and lowercase letters; the setting of numbers or special characters is maintained
CTRL	CTRL key: switch over to function keys F1 to F10 and keyboard codes (short cuts)

Switchover keys

3 Producing with the knitting machine

This chapter contains information on:

- Preparing production and shift changes [-> 55]
- Threading up yarn [-> 65]
- Production [-> 72]
- Producing with knitting orders (order menu) [-> 89]
- Eliminating errors in the fabric [-> 94]
- Starting the machine after a fault [-> 100]

3.1 Preparing production and shift changes

This chapter contains information on:

- Loading files, libraries and pattern folders [-> 56]
- Entering piece number or number of courses [-> 61]
- Configuring automatic machine switching off [-> 62]
- Setting touch screen [-> 63]

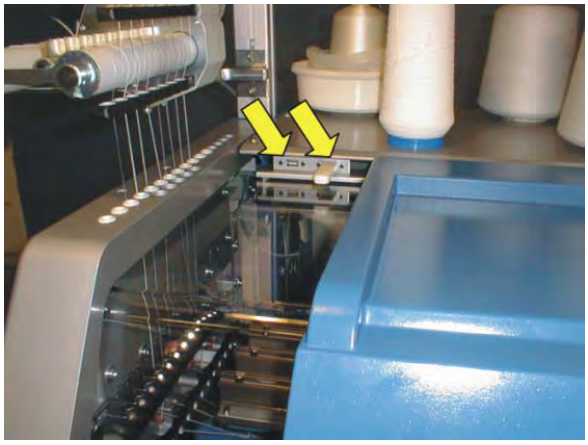
3.1.1 Loading files, libraries and pattern folders

Files (Sintral, Jacquard, Setup), libraries (Auto-Sintral) and folders can be loaded from the following sources (data carriers):

- Removable data carrier (on the USB socket)
  for example: USB-Memory-Stick, floppy disk drive, CD drive, DVD drive, external hard disk
- Hard disk of the computer in the knitting machine
- Online
- Network drive

	CAUTION
	**Computer viruses!** Loss of data or production. Computer viruses can creep into the machine through unscanned data via USB port or network. ➜ Bring in only virus free data on to the knitting machine.

The socket for the USB-Memory-Stick is located on the left side of the machine above the cover.



USB-socket

Always set these settings before reading in:

Key	Function
EALL	Delete previous pattern
EAY	Delete all yarn carrier positions
SP1	After the pattern is loaded, the function is automatically executed "Start Program from Line 1". This means that you need not take the "detour" over the window "Machine start" in order to start the knitting program with the "SP from Line 1" key.

The "Activate EALL" function is only executed when a Sintral file is loaded. Not only the entire previous pattern (Sin, Jac, Set) is deleted from memory, but also the contents of cycle counters, counters and NP values are reset to their home position.

Loading knitting program:

1. From the "Main menu" call up the "Load & Save" window.
2. Set the desired path with one of the "Direct pattern folder selection" keys.
3. Use the PAT/SIN/JAC/SET/LIB keys to select whether the entire pattern of the current machine (PAT) or individual file types are to be listed.
4. Select a file from the file list by tapping it.
5. Press the "Load" key.
6. For the following prompt, press "1" to confirm

   - or -

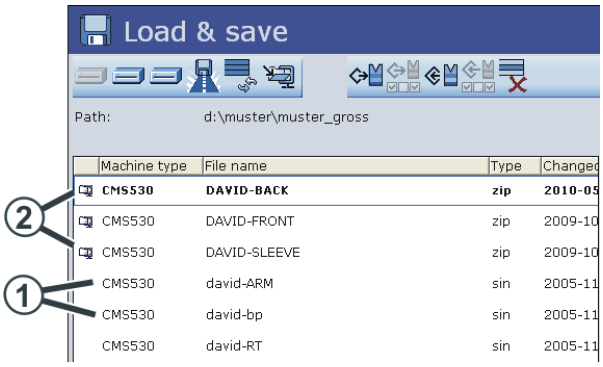
➜ tap the "0" key to cancel.

7. Call up "Main menu".

	CAUTION
	If the SINTRAL **editor window is open:** The knitting program loaded contains an error. ➜ Rectify error

Setup1 or Setup2

You can quickly recognize whether it is a pattern with Setup1 or Setup2 data

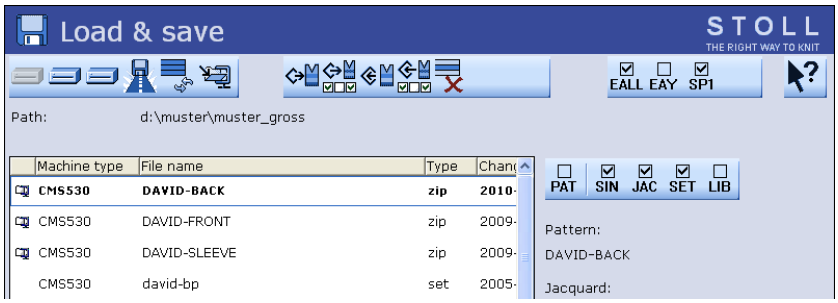


1 Setup1 pattern

2 Setup2 pattern

A Setup2 pattern is saved in a zip file. The icon of compressed (zipped) folder is displayed in front of the pattern.

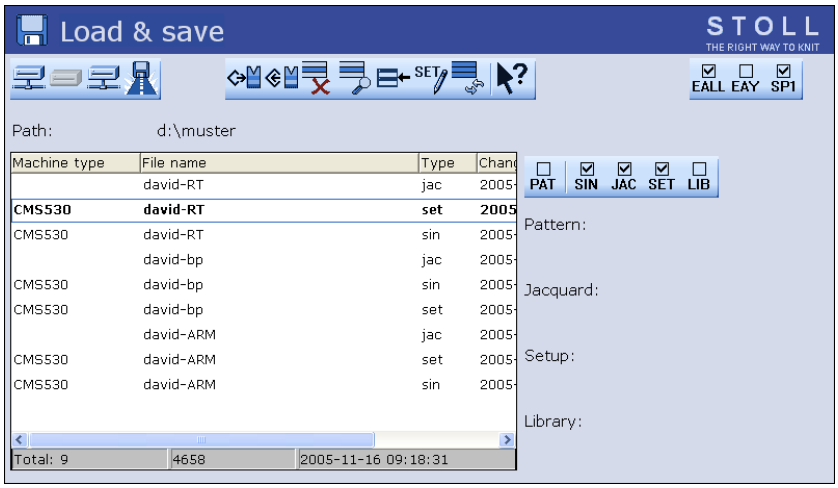
Load data (Setup2)



Key	Function
	Call up the "Load & save" window
	Load pattern
	Load the pattern with selected Setup data
	Display the content of the Zip file
	Close the zip file
	Call up "Main menu"

Keys for loading a knitting program

Load data (Setup1)



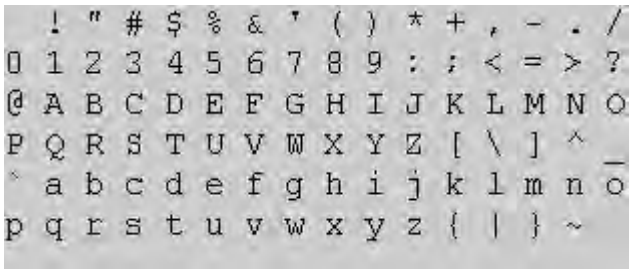
"Load & save" window

Key	Function
	Call up the "Load & save" window
	Load pattern
	Call up "Main menu"

Keys for loading a knitting program

"Invalid character" error message (Setup1, Setup2)

Check the knitting program for special or foreign language characters. Only the characters of the ASCII character set may be used.



ASCII character set

Further information:

- Selecting the current folder [-> 243]
- Working with files, libraries and folders [-> 231]
- Go to help in function and error list [-> 254]
- Overview of the Setup2 Editor of the CMS [-> 273]
- KnitLAN connection [-> 255]

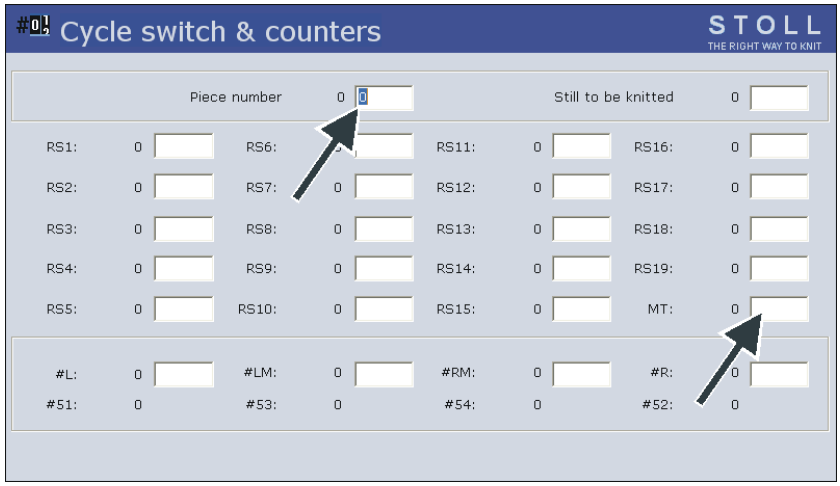
3.1.2 Entering piece number or number of courses

Key	Function
	Call up the "Cycle counters & counters" window
	Call up "Main menu"

Keys for entering the piece number or number of courses

Entering piece number or number of courses:

1. Call up the "Cycle counters & counters " window from the "Main menu".



"Cycle counters & counters" window

2. If you produce pieces, enter the "piece number".

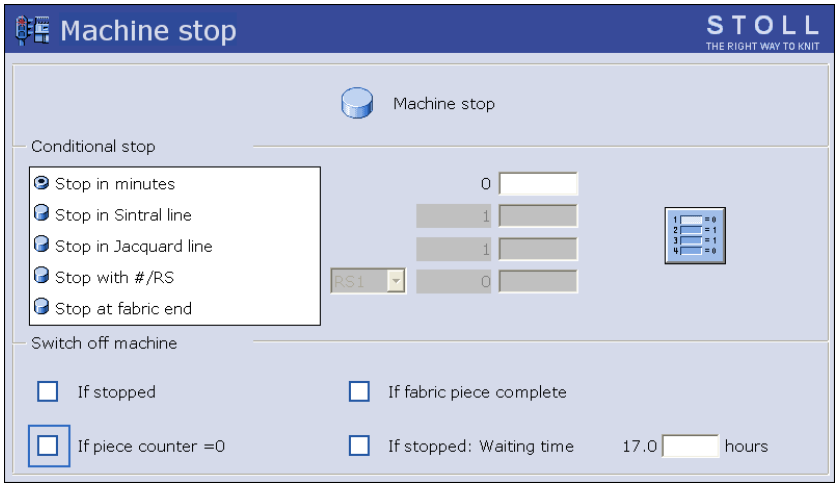
   - or -

➜ If you produce yard goods, set the maximum number of courses with the "MT" counter to define the length of the fabric.

3. Call up "Main menu".

3.1.3 Configuring automatic machine switching off

When the machine switches off, the main switch moves from "1" to "0".



"Machine stop" window

Switch in "Switch off machine" field	Machine switches off automatically
"If stopped"	Each time machine stops
"When piece counter = 0"	After completing the set number of pieces
"If fabric piece complete"	after completing the current fabric
"If stopped: Waiting time"	If the machine has stopped, then the main switch is automatically switched off at the end of the set time (in hours).

Configuration of the automatic switching off in the "Machine stop" window

Key	Function
	Call up "Machine stop" window
	Call up "Main menu"

Keys for configuring the automatic machine switching off

Configuring automatic machine switching off:

1. Call up "Machine stop" window from "Main menu".
2. Set the switches to "0" or "1" in the "Switch off machine" field.
3. Call up "Main menu".

While switching off the main switch, the fabric remains tensioned in the fabric take-down. This can lead to a visible stretching on a delicate fabric. To prevent this, the fabric take-down can be released.

Further information:

- Setting machine parameters [-> 167]

3.1.4 Setting touch screen

Calibrating touch screen

The calibration is particularly important when persons of different heights work at the same machine. In the case of different viewing angles, the position of the keys may change. So that you always press the proper keys, calibrate the touch screen at the beginning of your shift.

Key	Function
	Call up the "Service" menu
	Call up the "Set touch screen" window.
	"Calibrate" key
	Call up "Main menu"

Keys for calibrating the touch screen

Calibrating touch screen:

CAUTION

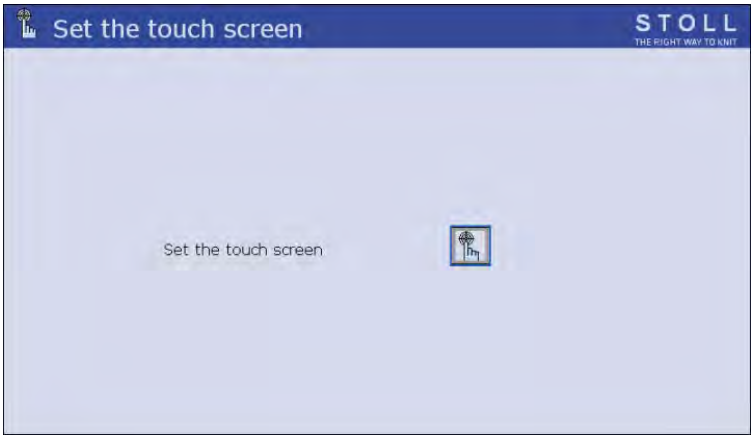
Incorrect adjustment of the touch screen!

Permanent incorrect adjustment: If you set the touch screen incorrectly, the keys on the screen are no longer accessible. The program can only be readjusted with a keyboard (Stoll helpline).

➜ During calibration, touch the touch screen within the target circles only!

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Set the touch screen" window from the "Service" menu.

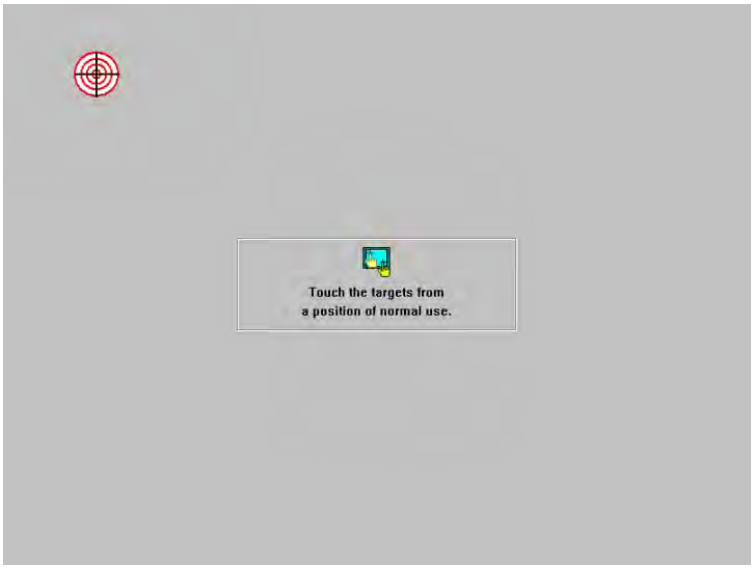
▷ The "Set touch screen" window appears.



"Set touch screen" window

3. Tap the "Calibrate" key.

   ▷ The setting window appears. A target circle is located on the upper, left side.



Setting window with target circle

4. Tap exactly on the target circle.

   ▷ A second target circle appears on the lower right-hand side.

5. Tap exactly on the target circle.

   ▷ A third target circle appears on the upper, right-hand side.

6. Tap exactly on the target circle.

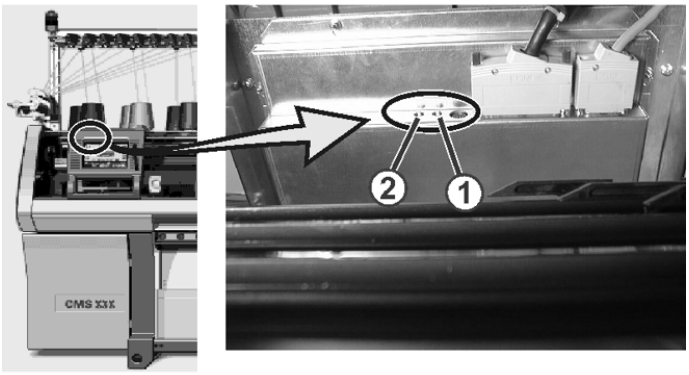
   ▷ A message box appears. The request in the message box is not important, as there is no mouse cursor here.

7. Press on the "Yes" key.

8. Call up "Main menu".

Setting screen brightness

Two key buttons for brightness setting are located on the rear of the input unit.



Setting screen brightness

The screen display is made brighter with key button (1) and darker with key button (2).

3.2 Threading up yarn

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.

Further information:

- Courses of yarn [-> 19]

3.2.1 Calling up yarn carrier assignment and allocation

Key	Function
	Call up "Machine start" window
	Call up "Main menu"
	Call up the "Yarn carrier" window
	Call up "Additional function keys"
	Call up "Allocation yarn carrier" window

Keys for calling up the assignment and allocation of the yarn carriers

Calling up the assignment and allocation of the yarn carriers:

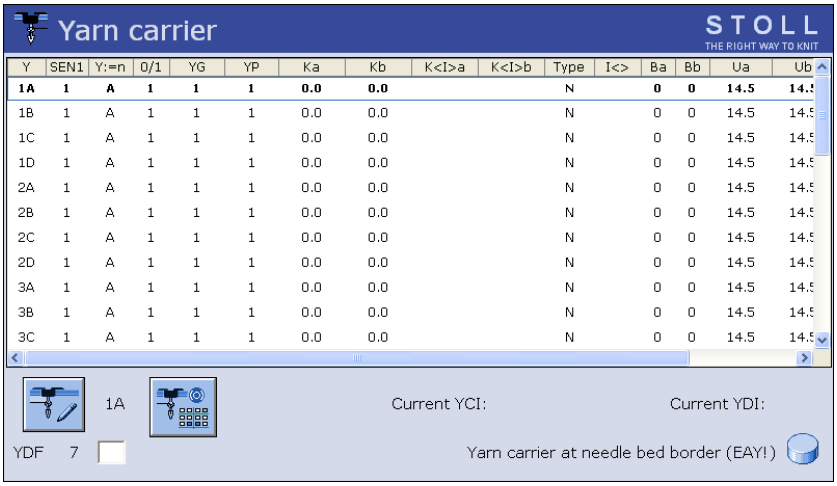
1. Call up the window "Machine start" from the "Main menu".

"Machine start" window

2. Type "SP from line 1" key.

   ▷ The computer searches in the knitting program to see which yarn carriers are required.

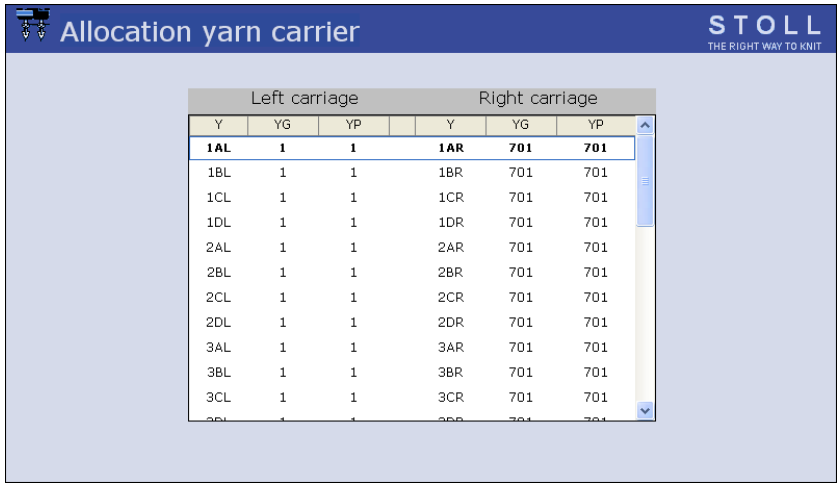
3. Call up "Main menu".
4. Call up the "Yarn carrier" window.



Yarn carrier allocation in the "Yarn carrier" window

5. On tandem machines also call up the allocation of the yarn carriers to both carriage assembly.
6. Call up "Additional function keys".

7. Call up the "Allocation yarn carrier" window.



"Allocation yarn carrier" window

8. Call up "Main menu".

3.2.2 Putting up bobbins

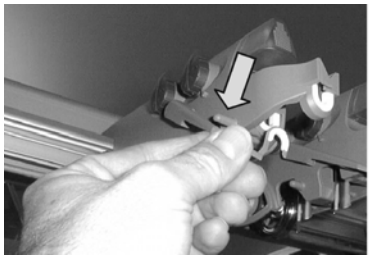
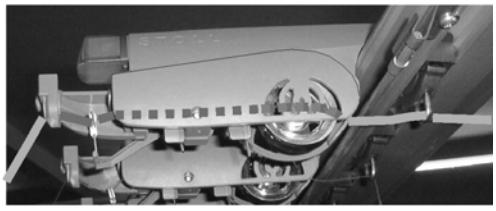
When the threads of several bobbins are led to one yarn carrier, supply approximately the same number of threads to the yarn carrier from each side.

➜ Put up the bobbins on the knitting machine or on the additional bobbin board.

3.2.3 Threading threads through yarn guide bracket

1. Push the yarn guide brackets to the side so that a yarn guide bracket hangs over each bobbin.
2. Thread each thread through a yarn guide bracket.

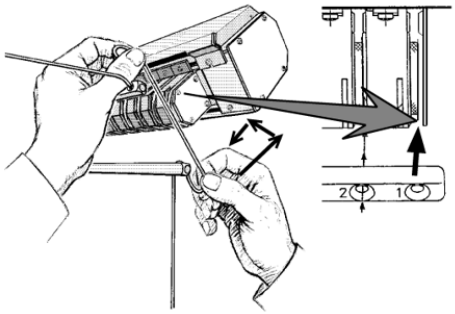
3.2.4 Threading threads through yarn control device

Path of the thread through the yarn control device

1. 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.

3.2.5 Thread the yarns through the yarn length measuring device *



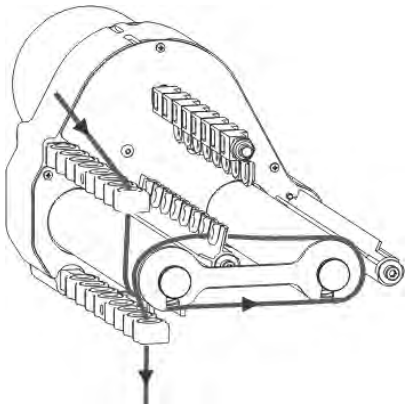
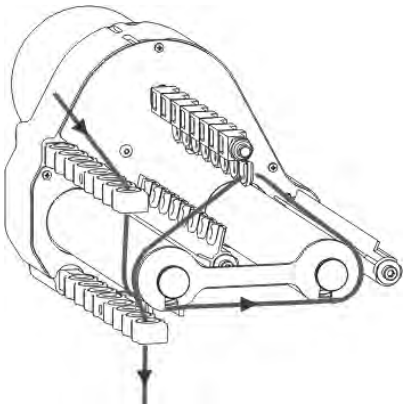
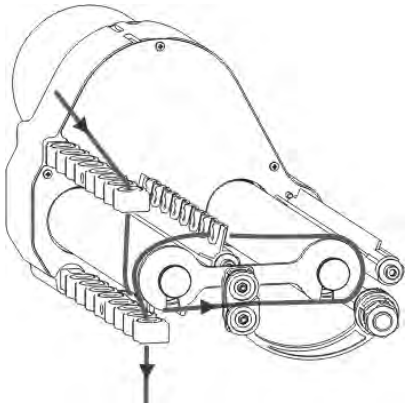
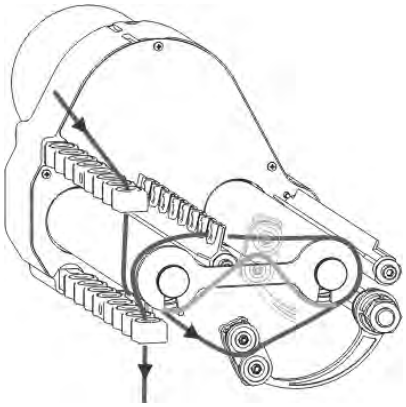
Path of the thread through the yarn length measuring device

➜ Push thread upward with both hands through the threading gap and lay it around the measuring wheel.

Further information:

- Symbols in this document [-> 12]

3.2.6 Threading up threads into friction feed wheel *

	Course of yarn	
1		
	Standard setting	Insufficient yarn delivery
2		
	Standard setting	Greater yarn delivery (grey) Insufficient yarn delivery (black)

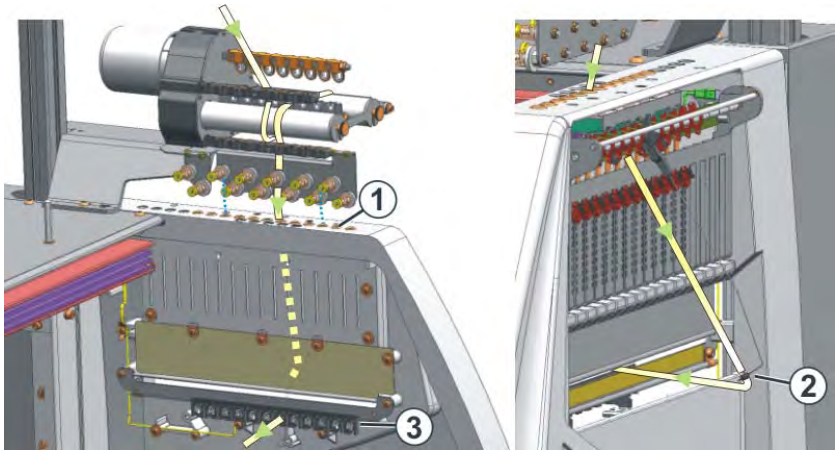
Further information:

- Adjusting yarn delivery on friction feed wheel * [-> 128]

3.2.7 Threading threads through safety door

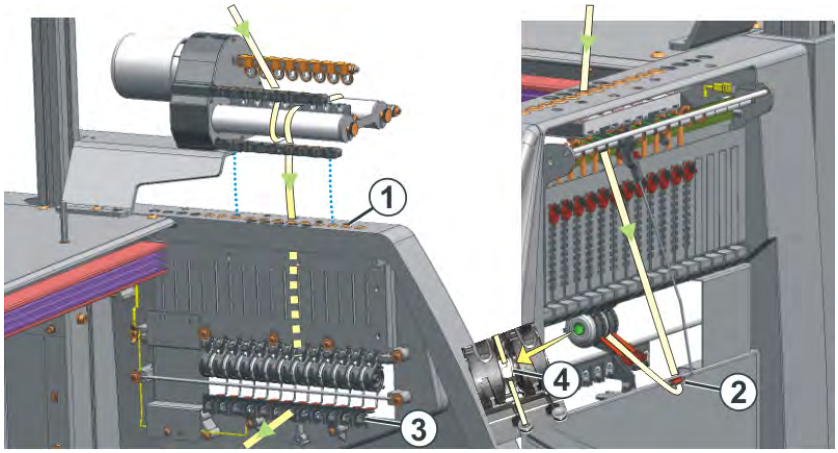
Depending on the machine gauge and the component type there are different types.

Type 1



Path of the thread through the lateral safety door

Type 2



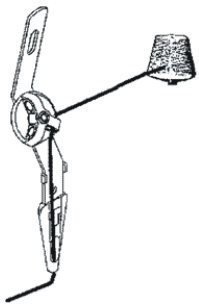
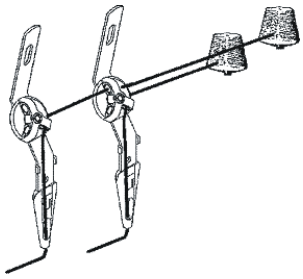
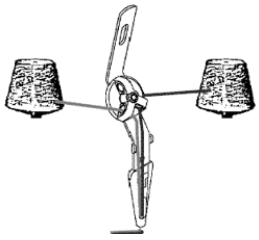
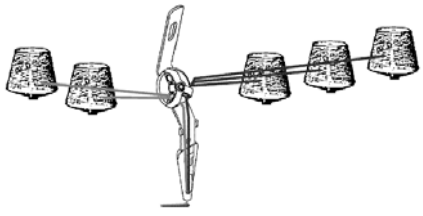
Path of the thread through the lateral safety door

> **i** Make sure that you thread the thread vertically through the lateral safety door.

1. Bring the Lateral yarn tensioner in still position (anchoring). Thereby the active thread clamp is open.
2. Thread the thread through one of the eyelets (1) on the lateral safety door.
   Use Eyelet number 3 to10 when the thread is coming from the friction feed wheel. So the clamp positions of the active thread clamp are positioned exactly under it.
   Use Eyelet number 1 and 2 or from eyelet no.11: for the thread if you working without the feed wheel.

3. Thread the thread vertically downwards in the eyelet (2) of the lateral yarn tensioner. For quicker orientation a vertically running riffle is attached in the safety door.
4. Feed the thread through the yarn deflector (3) to the yarn carrier.
5. Bring lateral yarn tensioner in work position.
6. With type 2: Pull the thread in the open eyelet (4) of the permanent brake.

3.2.8 Threading up yarns into yarn carrier

Threading up the threads into the respective next eyelet on the yarn carrier.	
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.	 

3.3 Production

This chapter contains information on:

- Starting machine [-> 72]
- Calling up report and shift counters [-> 76]
- Stopping machine [-> 81]
- Monitoring the running time [-> 83]
- Measuring the running time [-> 87]

3.3.1 Starting machine

Key	Function
	Call up "Machine start" window
	Call up "Additional function keys"
	Call up the "Changeable monitoring" menu

Keys for starting the machine

✔ A pattern is loaded.

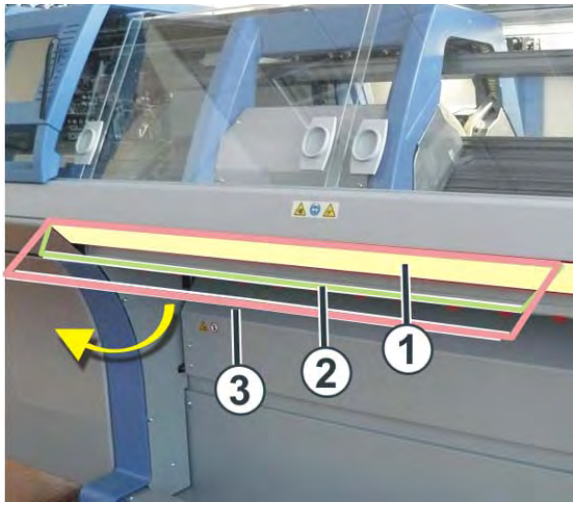
1. Call up the window "Machine start" from the "Main menu".

"Machine start" window

2. In "Start" field, tap on "SP from line 1" key.
3. Call up "Additional function keys".
4. Call up the "Changeable monitoring" window.

   ▷ Machine data and the program sequence are displayed in the "Changeable Monitoring" window during production.

5. Start the machine with the engaging rod.



Engaging rod

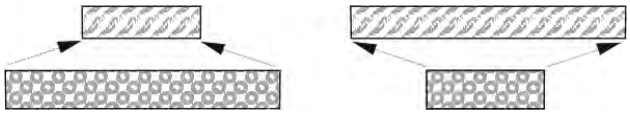
1 Carriage stopped
2 reduced speed
3 normal speed

Pattern changes - Apply shape counters

Use this function only for the following machines:

- ➜ Machine without comb take-down
- ➜ Machine with comb take-down but without using the comb

The machine compars 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.



You can enter the values of the previous pattern manually or simply apply them by the "Apply shape counter" key.

The condition is that the pattern was created as Fully Fashion knitting program on the M1plus.

Also with a basic pattern (pattern without shape) you can use this helpful function (see the tip at the end of the section).

Key	Function
	Call up "Machine start" window
	Call up "Additional function keys"
	"Apply shape counter" key

Keys to apply the shape counters

Apply shape counter:

1. Call up the window "Machine start" from the "Main menu".
2. Tap on "Additional function keys".
3. Tap the "Apply shape counter" key.
   Confirm the prompt that follows with "YES".
   ▷ The values of the shape counter are applied to the new pattern.
4. Tap the "SP from line 1" key.

Key	Function
	Call up "Machine start" window
	Call up "Additional function keys"
	"Apply shape counter" key

Keys to apply the shape counters

Apply shape counter:

1. Call up the window "Machine start" from the "Main menu".
2. Tap on "Additional function keys".
3. Tap the "Apply shape counter" key.
   Confirm the prompt that follows with "YES".
   ▷ The values of the shape counter are applied to the new pattern.
4. Tap the "SP from line 1" key.

Converting a basic pattern into a shaped pattern

A small trick - with an impressive effect

Using a small trick you can easily convert a basic pattern into a fully fashion pattern on the M1plus.
Converting a basic pattern into a shaped pattern:

➜ Open the basic pattern on the M1plus.
(The technical processing has not yet been done.)

➜ Select the "Generate Pure Shape" function in the "Shape" menu.
-> An empty, rectangular shape with the size of the pattern will be opened.

➜ Carry out technical processing

⇨ The basic pattern is automatically converted into a fully fashion pattern, the corresponding specifications are entered into the knitting program (PF0, "ff-trans" function, this function contains the casting-off and widening until the new knitting width).

Further information:

- Configuring monitoring [-> 144]

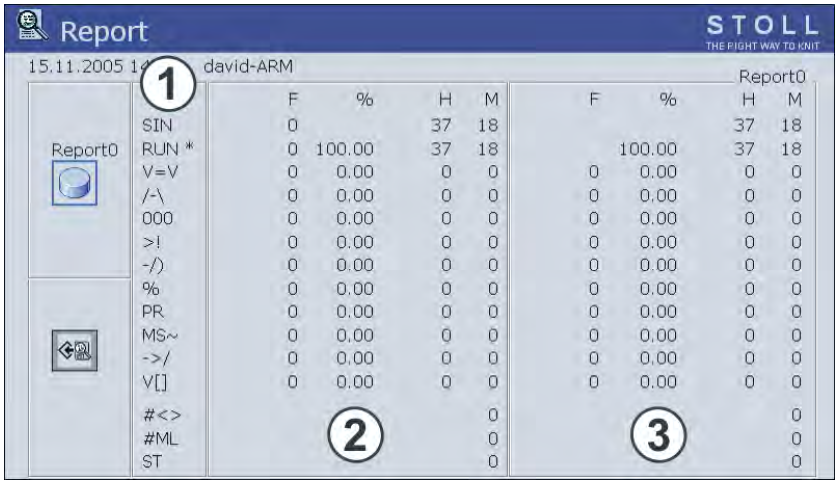
3.3.2 Calling up report and shift counters

The control collects all operating data recorded since the operating system was first read in and since the current knitting program was started. These data help you optimize the performance and loading of the knitting machine.

Report

The individual types of operating data (1) are listed on the left side. The left-hand table (2) shows the continuing listing of all data accrued after loading the operating system. The data of this table cannot be deleted. The data of the right table (3) can be deleted with the "Report0" key.

The production data can be listed during a certain period of time. This may consist of part of a shift, day or week.



"Report" window

Label	Data shown
"F"	No. of errors or no. of stop motions
"%", "H", "M"	Percent, hours, minutes
"SIN"	Working time of the control unit (SINTRAL)
"RUN"	Production period
"V=V"	Stop by stopping at the engaging rod
"/-\"	Stop by yarn control device, yarn feed
"000"	Stop by piece counter
">!"	Stop by stop resistance
"-/)"	Stop by position needle sensor
"%"	Stop by fabric take-down
"PR"	Stop by programming
"MS~"	Machine stop (further causes of the stoppage)

Data in "Report" window

Label	Data shown
"->/"	Stop by shock stop motion
"V[ ]"	Stop by racking error
"#<>"	Total number of strokes
"#ML"	Number of strokes at reduced speed
"ST"	Number of produced fabric pieces

Data in "Report" window

Key	Function
	Call up the "Service" menu
	Call up "Statistics" menu
	Call up "Report" window
	Save report
	Call up "Main menu"

Keys for calling up the report

Calling up or saving report:

1. Call up the "Service" menu from the "Main menu".
2. Call up "Statistics" menu.
3. Call up the "Report" window.
4. To delete the operating data in the report, tap the "Report0" key.

   - or -

➜ To save the operating data, tap the "Save Report" key.

   ▷ The data will be saved on the selected data carrier. It will be saved on the data carrier that is set in the "Copy service data" window. File name: STOLL machine number and the file name extension ".rep" (e. g. "5320081234.rep").

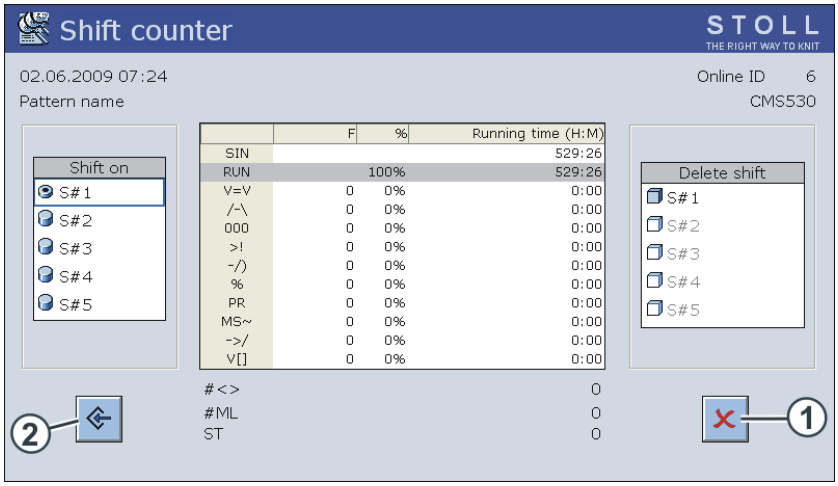
5. Call up "Main menu".

Further information:

■ Copying service data [-> 171]

Shift counter

A total of five shift counters are available. A complete report is generated for each shift. The table has the same structure as the report. Column "F" shows the number of stop motions during the shift.



"Shift counter" window

Key	Function
	Call up the "Service" menu
	Call up "Statistics" menu
	Call up "Shift counter" window
	Call up "Main menu"

Keys for calling up the shift counter

Calling up or saving shift counter:

1. Call up the "Service" menu from the "Main menu".
2. Call up "Statistics" menu.
3. Call up "Shift counter" window.
4. To activate a shift, tap the corresponding key in the "Shift On" field.
5. If data of an earlier shift are displayed, tap the corresponding key in the "Delete shift" field (reset shift counter).

- or -

➜ To delete all shift counters at once, tap the key (1).

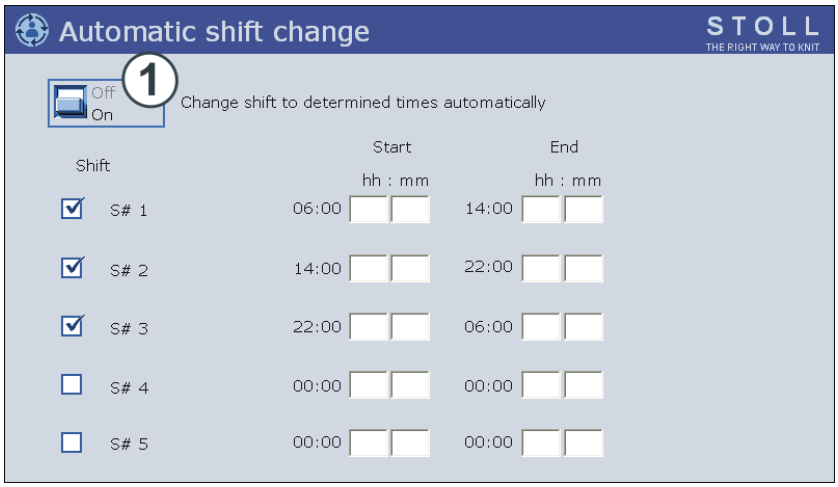
6. To save the shift data, tap the key (2).
   ▷ The data will be saved on the selected data carrier. It will be saved on the data carrier that is set in the "Copy service data" window. File name: STOLL machine number, date, time and the file name extension ".sft" (e. g. "56600101234_31_10_08_1105.sft").
7. Call up "Main menu".

Further information:

- Copying service data [-> 171]

Automatic shift changeover

Once the start time and the ending time of each shift have been entered, the shift changeover automatically occurs after the entered time.



Key	Function
	Call up the "Service" menu
	Call up "Statistics" menu
	Call up "Shift counter" window
	Call up "Additional function keys"

Keys for setting the automatic shift change

Key	Function
	Call up the "Automatic shift change" window
	Confirm entries
	Call up "Main menu"

Keys for setting the automatic shift change

Setting the automatic shift change:

1. Call up the "Service" menu from the "Main menu".
2. Call up "Statistics" menu.
3. Call up "Shift counter" window.
4. Call up "Additional function keys".
5. Call up the "Automatic shift change" window.
6. Turn off the switch (1) so that no checking is carried out during the input and no error messages are displayed.
7. Set the time.
   Tap on the corresponding field and set the desired time using the slider.
8. Activate the checkbox of the desired shift.
9. Set the time for all the shifts; to do so repeat the steps 7 to 8.
10. Confirm entries.
11. Turn on the switch (1).
    ▷ The entries are automatically checked.
12. Call up "Main menu".

➜ 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.

➜ Set the time and the time zone on the knitting machine if necessary, see page [🗎 394].

Further information:

- Copying service data [-> 171]

3.3.3 Stopping machine

The knitting machine can be stopped in the following ways:

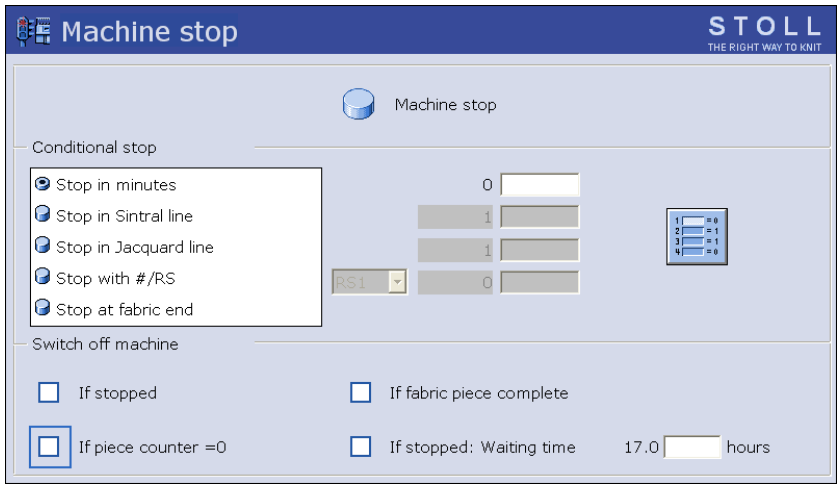
- Disengage the engaging rod
- Actuate the stop motion device, e.g. open a cover
- Disconnect machine main switch
- Stop the machine in the "Machine stop" window

Key	Function
	Call up "Main menu"
	Call up "Machine stop" window
	Reset conditions to standard values (Reset).
	End setting process and save changes

Keys for stopping the knitting machine

Stop the knitting machine in the "Machine stop" window:

1. Call up "Machine stop" window from "Main menu".



"Machine stop" window

2. If the knitting machine is to stop at the next reversing point of the carriage assembly, tap the key "Machine stop".

3. If the knitting machine is to stop when a certain condition is fulfilled, select a condition in the field "Conditional stop".

Stop in minutes	Remaining running time in minutes
Stop in Sintral line	When the set Sintral line is reached
Stop in Jacquard line	When the set jacquard line is reached
Stop with #/RS	When the counter or cycle counter has reached the set value
Stop at fabric end	When the fabric is knitted completely

4. Enter corresponding value for the condition. Confirm setting.

When a conditional stop is activated, a stop icon is displayed in the status line.

3.3.4 Monitoring the running time

> In order to display the "Running time control" window it must be activated in the "Knit report configuration" window. (BootOkc --> Restart and Configuration --> Knit report configuration --> Additional function keys)

The running times of sequence lists, sequences or orders, their individual elements or individual patterns are recorded and displayed in the "Running time control" window.

This adds extensive knitting process data to the commands **MIN**, **MINSEQ** and **MINSEQEL**:

- Display of the running time of a pattern (sequence,sequence element, order).
  The current, last, minimum, maximum and average running times are displayed respectively.
- Display of the expected remaining running time of a pattern (sequence, sequence element, order).
- Display of the number of pieces that have been knitted and are still to be knitted.
- Display of running time with or without loading and standby times.

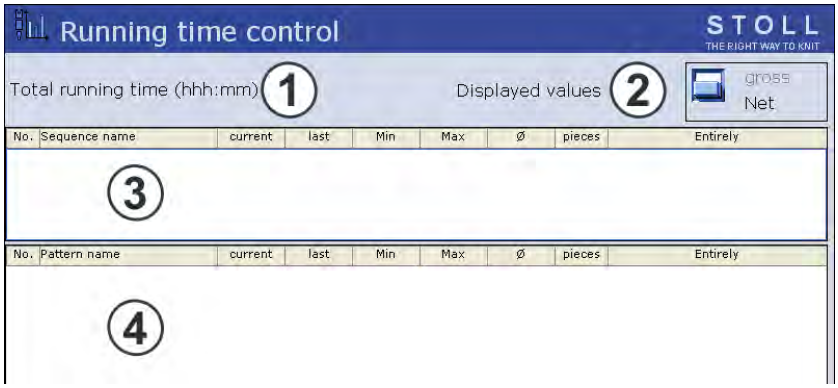
Key	Function
	Call up the "Service" window
	Call up "Statistics" window
	Call up the "Running time control" window
	Call up the "Running time data sequence" window or the "Running time data pattern" window
	Call up the "Catalog running time data" window
	Returning to the previous window
	Call up the "Main menu"

Keys for the "Running time control" window

Open the "Running time control" window

1. Call up the "Service" window in the "Main menu".
2. Call up the "Running time control" window in the "Service" window.

The "Running time control" window can alternatively be called up by using the additional functions keys in the "Sequence menu" or "Sequence list" window.

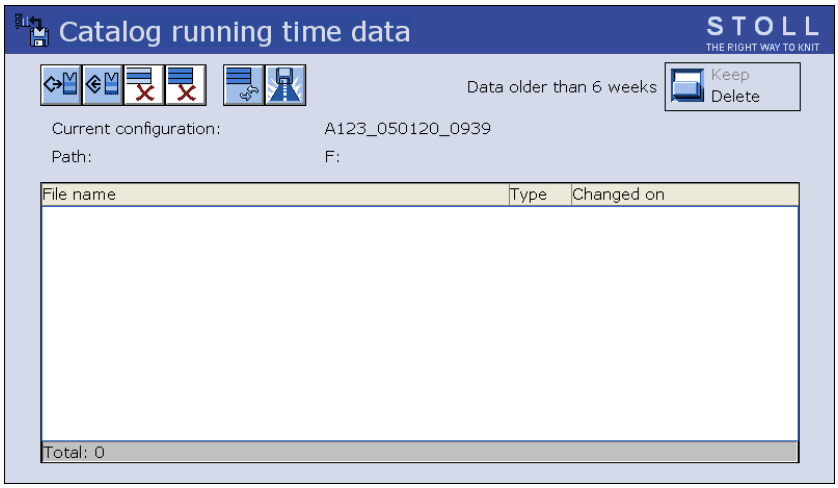


"Running time control" window

Field/ Key	Meaning	
1	Total running time	Display of the estimated total running time
2	gross	Display of the total production time including loading and standing times as well as manual interventions.
	Net	Display of the pure machine running time from **SP** (Start Program) to **piece finished**.
3/4	No.	Current number
	Sequence/ Sequence element name	Name of the pattern or the sequence
	current	Previous running time
	last	Running time of last knitted panel
	min.	Minimum running time.
	max.	Maximum running time
	Ø	Average running time
	pieces	Number of pieces knitted
	Total	Total number of pieces to be knitted.

Meaning of the elements in the "Running time control" window.

Functional description for the "Catalog running time data" window



"Catalog running time data" window

Key	Meaning
	"Load" selected file and corresponding data
	"Save" selected file in the current folder
	"Delete file" that was selected
	delete all files
	"Update": Re-determine the contents of the current folder
	"Select current folder": Dialog box for selecting the current storage folder
Data older than 6 weeks	Delete (activated by default) The data are deleted automatically when they get older than 6 weeks. This saves storage space. Keep: The files are not deleted.

Keys in the "Catalog running time data" window

1. Call up the "Service" window in the "Main menu".
2. Call up the "Running time control" window in the "Service" window.
3. Call up "Additional function keys".
4. Call up the "Catalog running time data" window.
5. Select the desired path with the "Current folder selection" key.
6. Select file.
7. Select action (load, save, delete).
8. If an additional prompt appears, tap the "1" key to confirm.

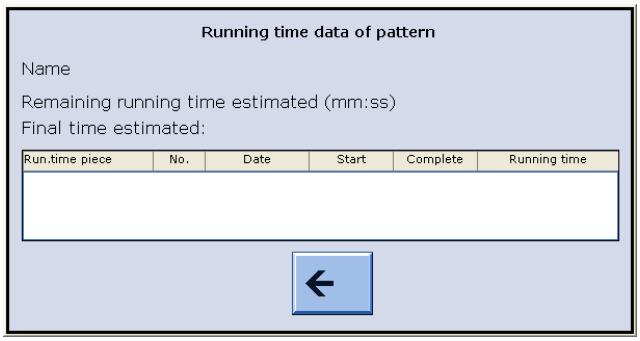
- or -

➜ Press the key "0" to cancel.

Display of the remaining running time

Display of the expected remaining running time (net) of a pattern (sequence, sequence element, order).
Depending on the file you selected in the "Running time control" window, the title of the window changes.

- For a sequence, the title is "Running time data sequence".
- For a single pattern or a sequence element, the title is "Running time data pattern".



"Running time data sequence" ("Running time data pattern") window

Entry	Meaning
Name	Name of sequence, sequence element or pattern
Remaining running time	Display of the remaining running time (average net remaining running time x fabrics which are still to be knitted = remaining running time). Format: Minutes, seconds
End time	Display of the end time. Format: Date, time Possible only after a run-through
Run.time piece	The shortest and the longest running times are displayed to facilitate the evaluation of the expected remaining running time.

Data in the "Running time data sequence" window or in the "Running time data pattern" window

1. Call up the "Service" window in the "Main menu".
2. Call up the "Running time control" window in the "Service" window.
3. Select sequence, sequence element or pattern.
4. Call up "Additional function keys".
5. Call up the "Running time data sequence" window or the " Running time data pattern" window

▶ The "Running time data sequence" or the "Running time data pattern" window is displayed with the associated data.

6. Close the window by using the "Return to previous window" key.

Further information:

- Carrying out restart with machine configuration (Restart and Configuration) [-> 424]

3.3.5 Measuring the running time

> **i** In order to display the "Running time control" window it must be activated in the "Knit report configuration" window. (BootOkc --> Restart and Configuration --> Knit report configuration --> Additional function keys)

Manual measurements of running time can be carried out (stop watch function) in the "Measurements of running time" window. The functions start, stop and backup are deleted with the additional function keys.

"Measurement of running time" window

Key	Function
	Call up the "Service" window
	Call up "Statistics" window
	Call up "Measurement of running time" window
	Start measurement of running time (start)
	Stop measurement of running time (Stop)
	Set display at **0** (Reset)
	Call up the "Main menu"

Keys for the "Measurement of running time" window

Stopping the running time:

✔ A pattern file has to be loaded (1).

1. If necessary set display with "Reset" at **0**.
2. Tap on "Start".
   ▷ In the "Running time" (2) field time that has passed since "Start" was activated is shown in the format hh:mm.ss.
3. Starting the knitting process.
4. After the knitting process has been completed, tap"Stop".

▶ The stopped time is displayed in the "Running time" (2) field.

Further information:

■ Carrying out restart with machine configuration (Restart and Configuration) [-> 424]

3.4 Producing with knitting orders (order menu)

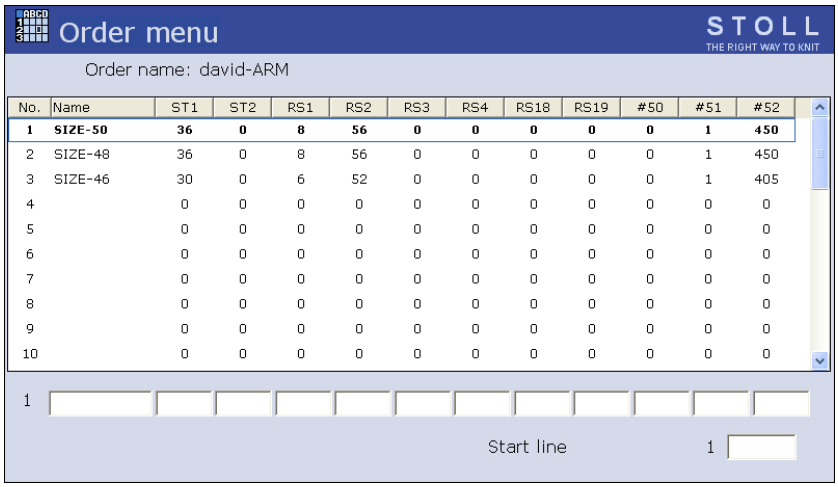
This chapter contains information on:

- Creating and managing order menu [-> 89]
- Setting or changing counters for order menu [-> 91]
- Saving/loading order menu [-> 92]

3.4.1 Creating and managing order menu

Using the order menu, the various making-up sizes of an item (knitting program) in a list are gather together and processed one after another. The number of pieces and cycle counters are specified for each making-up size.

A knitting order (line) is processed until the number of fabrics in the "ST1" and "ST2" columns are the same. The machine automatically switches over to the next size and produces the set piece number. Knitting is carried out line by line from top to bottom.



"Order menu" window

Column	Data shown
1	Current order number
2	Name of the order
3 ("ST1")	Number of pieces to be produced
4 ("ST2")	Piece number already produced
5 to 11	Cycle counters and counters
12 ("#51")	left border
13 ("#52")	right border

Data in the "Order menu" window

Key	Function
	Call up the "Order menu" window
	Confirm entries
	Call up "Additional function keys"
	Reset values in column "ST2" (counter for the previously produced pieces) to "0".
	delete all information in the order menu
	"Copy line" contents
	"Insert line" contents
	"Activate knitting order"

Keys for processing the "Order menu"

Processing the order menu:

1. Call up the "Order menu" window from the "Main menu".
2. Touch the line to be edited.
   ▷ The line appears at the bottom edge of the window.
3. Tap the fields of the selected line and enter the desired values and name.

- or -

➜ Call up "Additional function keys", copy contents of a line and insert it at desired location again.

▶ If the order is active, "ORDER" appears in the status line.

Status line with active knitting order

> **i** Missing pieces of an order can be knitted afterward by changing "ST2". When the last order is carried out, a check is performed to determine whether any parts are still to be knitted. The machine will not be stopped until all orders have been completed.

3.4.2 Setting or changing counters for order menu

In the Sintral program, the knitting of different pieces or sizes can be controlled from a program via counters.

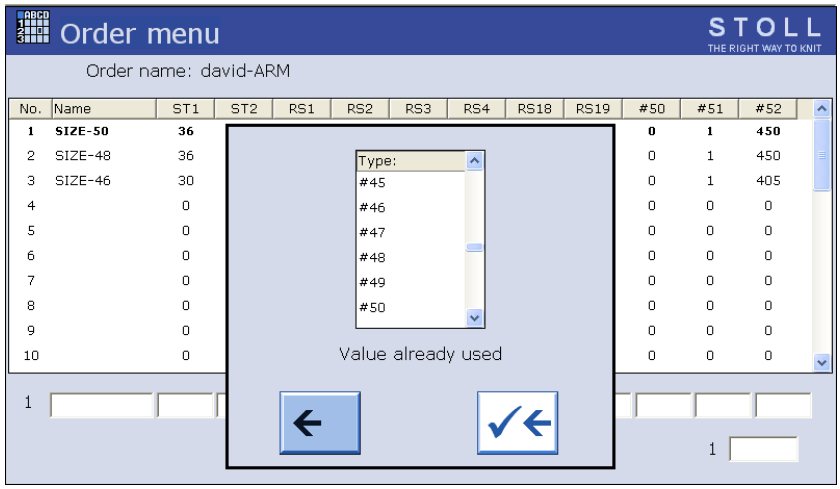
Key	Function
	Call up the "Order menu" window
	End setting process and save changes

Keys for setting the counters

Use another cycle counter or counter:

Do not use the counters "#1" to "#39", as they are set to "0" during start-up!

1. Call up the "Order menu" window from the "Main menu".
   ▷ The "Order menu" window appears.
2. Tap the desired column (cycle counter or counter) in the header of the table.
   ▷ The setting window appears.



Setting window for changing cycle counters and counters

3. Assign a cycle counter or a counter.
4. Confirm entries.
5. The "Order menu" appears again.

The values of the cycle counters and counters are copied from the machine at the beginning of an order. If they are modified during knitting, they will take effect starting with the next piece.

3.4.3 Saving/loading order menu

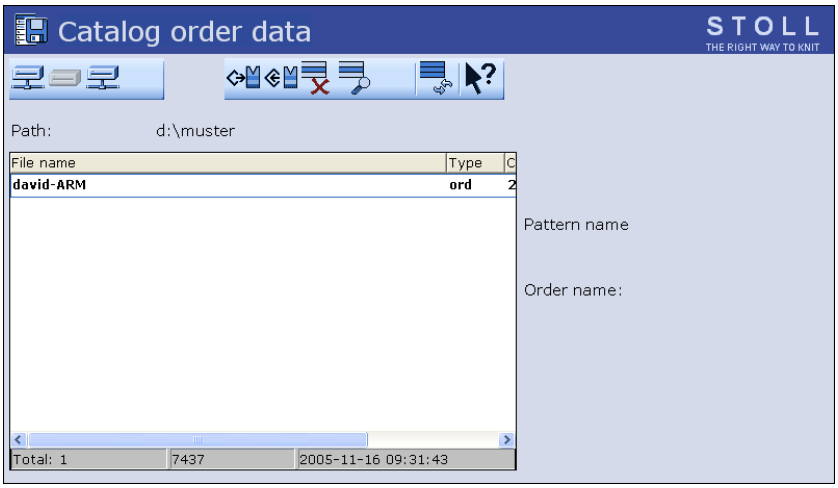
The information in the order menu can be saved, loaded and deleted in the "Catalog order data" window.

Key	Function
	Call up the "Order menu" window
	Call up "Additional function keys"
	Call up the "Catalog order data" window

Keys for the "Catalog order data" window

Functional description for working in the "Catalog order data":

1. Call up the "Order menu" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up the "Catalog order data" window.



"Catalog order data" window

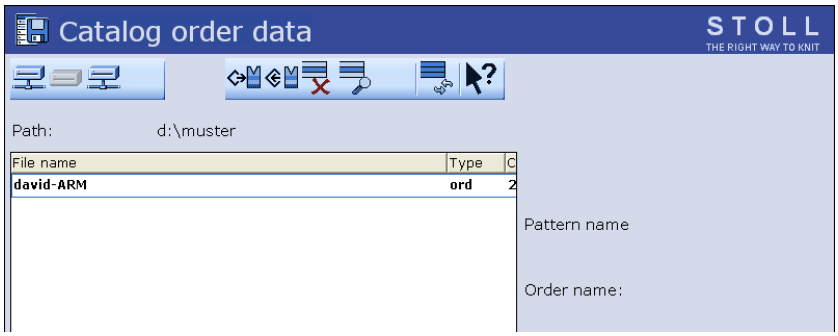
4. Set the desired path with one of the "Direct pattern folder selection" keys.
5. Select file.
6. Select action.
7. If an additional prompt appears, tap the "1" key to confirm,

   - or -

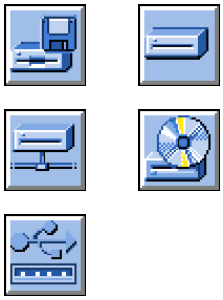
➜ tap the "0" key to cancel.

8. Call up "Main menu".

Actions in "Catalog order data" window



"Catalog order data" window

Key	Function
	"Direct folder selection": predefined folder selection
	"Load" selected file and corresponding pattern elements
	"Save" selected pattern elements in the current folder
	"Delete selected file"
	"Display file" which is selected
	"Update": Update the contents of the folder
	Call up "Direct Help" for the key pressed next

Keys in "Catalog order data" window

Further information:

- Selecting the current folder [-> 243]
- Displaying file in pattern editor [-> 236]

3.5 Eliminating errors in the fabric

If the fabric piece is not to be completed properly, two options in the "Machine start" window can be used.

Key	Function
	Call up "Additional function keys"
	The cycle currently being knitted is aborted and the other cycles will be knitted as programmed.
	The machine automatically begins with a new fabric if the following conditions are met: The racking device is in the home position The yarn carriers are in starting position The carriage direction allows beginning again. As long as these conditions are not met, cycles will only be knitted once.

Keys to interrupt a fabric

This chapter contains information on:

- Starting again after pressing off fabric [-> 95]
- Threading up thread into yarn carrier [-> 98]
- Removing fabric winding around fabric take-down [-> 99]

3.5.1 Starting again after pressing off fabric

Key	Function
	Call up "Machine start" window
	Confirm entries

Keys for starting again after pressing off fabric

For machines without a comb take-down

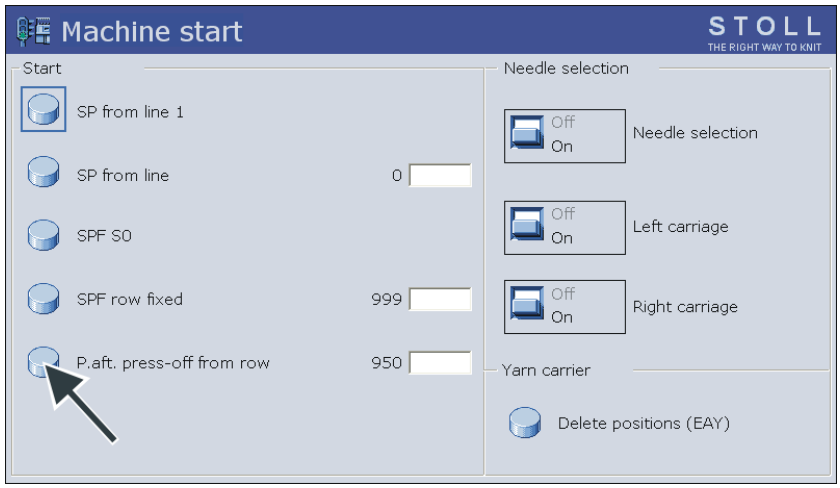
After pressing off fabric, a problem arises where stitches are pressed off and therefore further knitting is not possible. To be able to continue, we recommend calling up the "Picking up after pressing off" function. It allows you to begin knitting even without fabric.

Normally, each knitting program includes the "Picking up after pressing off" function. With older knitting programs, this function is found from line 950 on; with the pattern workstation M1, it is activated via "#90".

The machine detects which pattern workstation was used to generate the pattern. A knitting program of M1 contains the ID "<M1>" on line 1. Likewise, program point "P.aft. press-off" in the "Machine start" window is adapted automatically.

"Picking up after pressing off" function with older knitting programs (e.g. SIRIX)

1. If threads are broken, thread them up again.
2. Call up "Machine start" window.
3. Call up the "Picking up after pressing off" function. Tap the "P.aft. press-off from row" key for this purpose.



"Machine start" window

4. Start the machine with the engaging rod.

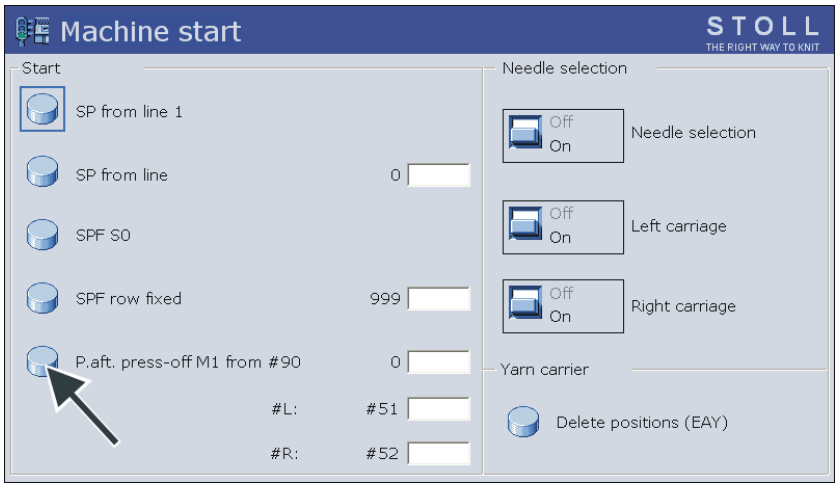
	CAUTION
	If you notice defective needles while picking up after pressing off: ➜ Stop picking up after pressing off and replace the defective needles.

5. When the fabric is long enough to be placed in the main take-down, stop the machine with the engaging rod.
6. Open the main take-down, place the fabric in the main take-down and close the main take-down.
7. To start the knitting program, tap the "SP from line 1" key.
8. Start the machine with the engaging rod.

"Picking-up after pressing-off" function with an M1 pattern

Requirements:

- The knitting program was generated on M1
- When the pattern is generated, the "P.aft.press-off" menu item is activated



"Machine start" window

Setting	Function
#90=0	"Picking up after pressing off" function is deactivated
#90=1	"Picking up after pressing off" function is activated. A specific row number (gauge x 4) is knitted, depending on the gauge of the machine. A total of 40 knitting rows are processed for a machine of gauge E10.
#90=n	If this is too many knitting rows, "#90" can be set to another number. Two knitting rows, similar to the "Picking up after pressing off" function, are repeated as often as "#90" is set. Example: #90=15. A total of 30 knitting rows (2 x 15) are processed.
#L, #R	Setting the fabric width for the "Picking up after pressing off" function. Standard setting: Starting width (#L=#51, #R=#52)

1. If threads are broken, thread them up again.
2. Call up "Machine start" window.
3. Call up the "Picking up after pressing off" function. Tap the "P.aft. press-off M1 from row" key for this purpose.
4. Tap the input fields. Enter values and confirm inputs.
5. Start the machine with the engaging rod.

	**CAUTION**
	If you notice defective needles while picking up after pressing off: ➜ Stop picking up after pressing off and replace the defective needles.

6. When the set number of knitting rows has been processed, the machine stops automatically.

   ▷ The "Place fabric in fabric take-down" message appears.
7. When the fabric is long enough to be placed in the main take-down, open the main take-down, place the fabric in the main take-down and close main take-down.
8. If the fabric cannot yet be placed in the main take-down, repeat points 2 through 8.
9. Start the machine with the engaging rod. The knitting program is started automatically.

Further information:

- Threading up yarn [-> 65]

3.5.2 Threading up thread into yarn carrier

Key	Function
	Call up "Manual interventions" window
	Call up "Machine start" window

Keys for threading up thread into yarn carrier

1. Call up "Manual interventions" window.
2. Tap the "YC bolt up" key.
3. Note the position of the yarn carriers, push the yarn carriers below the carriage and thread.
4. Push the yarn carriers into their previous position again.
5. Tap the "YC bolt bottom" key.
6. To move the carriage assembly slowly, pull the engaging rod slightly toward the front.
7. When knitting slowly, make sure that the thread is laid in the needles.
8. To continue knitting, start the machine with the engaging rod.

- or -

➜ If the fabric is defective, call up the "Machine start" window and tap the "SP from line 1" key to knit the fabric again.

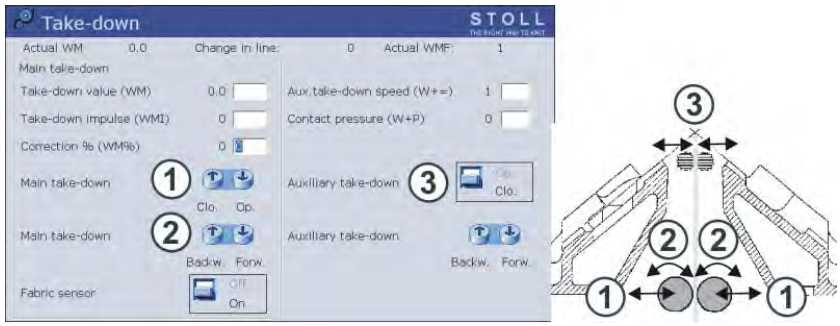
3.5.3 Removing fabric winding around fabric take-down

Key	Function
	Call up "Take-down" window

Key for removing fabric winding around fabric take-down

Fabric winding in main take-down

1. To remove the fabric winding, call up the "Take-down" window.



"Take-down" window

2. Tap the "Main take-down Op." key (1).
3. Pull the fabric smooth and free the take-down rollers from loose threads and fabric remainders

- or -

➜ Press the "Main take-down Backw." (2) key until the fabric winding can be removed.

4. Tap the "Main take-down Clo." key to close the main take-down.
5. To continue knitting, start the machine with the engaging rod.

Fabric winding in auxiliary take-down

1. To remove the fabric winding, call up the "Take-down" window.
2. Remove needle bed or position it at an angle.
3. Tap the "Auxiliary take-down Op." key (3).
4. Press the "Auxiliary take-down backw." key until the fabric winding can be removed.
5. Free the take-down rollers from loose threads and fabric remainders.
6. To close the auxiliary take-down, tap the "Auxiliary take-down Clo." key.
7. Screw on the needle bed again tight.
8. To continue knitting, start the machine with the engaging rod.

Further information:

■ Remove needle bed or position it at an angle [-> 342]

3.6 Starting the machine after a fault

The knitting machine control constantly controls the yarn, the fabric, all movable parts of machine, the motors and the electronic components. If an error occurs, the machine stops. The signal light glows yellow, a pictogram appears on the touch screen and a horn goes off. The most common error causes are shown in the pictographs on the touch screen. If an error occurs, one pictograph appears, and in the case of several errors the corresponding pictographs appear consecutively. Errors which occur seldom (e. g. hardware errors) are shown with a common pictograph.

Key	Function
	"Information on error remedies" A big and a small mark appear alternatively
	Confirm error message

Keys for starting machine after a fault

Starting the machine after a fault:

1. To get detailed information on an error, tap the pictograph.

   ▷ The "Current messages" window appears. If the error can be remedied by changing the settings, a function key appears in the middle of the lower screen bar.

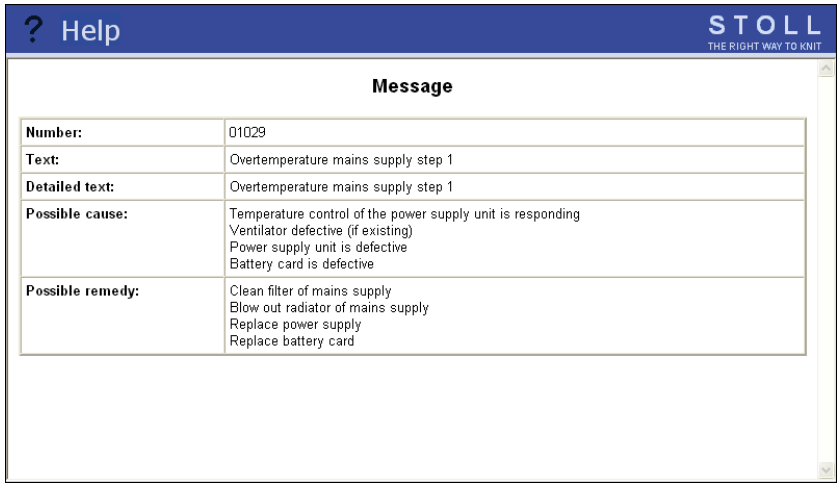
"Current messages" window

1 Pictograph
2 Error code
3 Message Text

2. To change the settings, tap the function key in the middle of the bottom line of the screen and eliminate the error.

   - or -

➜ If additional information is required, tap the desired error message and tap the "Information on error remedies" key.
The possible fault causes and their remedy are displayed.



Further information for an error message

3. Eliminate the error.
4. Confirm the error message.
5. To continue knitting, start the machine with the engaging rod.

3.6.1 Message and tip retrospective view

Message history

If an error occurs, it is not only displayed in the "Current messages" window, it is also written into an additional memory. The error messages for the respective day are saved in this memory.

A new memory is automatically selected for each day. There are a total of seven memories so that the error messages of the last 7 days are available. As a result, you can create an overview of which error messages have occurred over the past several days.

When switching off the machine main switch, the error messages currently present in the "Current messages" window are deleted, however the daily memories with the error messages are not deleted.

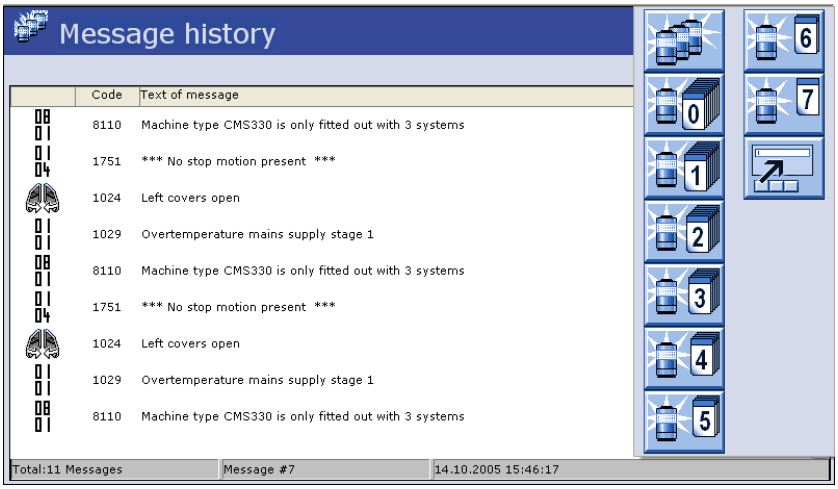
Key	Function
	Call up "Info" window
	Call up "Additional function keys"
	Call up message retrospective view:
	Key for daily message retrospective view (the key for the message retrospective view of the past day is shown in the picture)

Keys for calling up retrospective view of error messages

Call up message retrospective view:

1. Call up "Info" window.
2. Call up "Additional function keys".
3. Call up message retrospective view:
4. Call up "Additional function keys".

   ▷ A list of the keys of the message retrospective views appears.



List of message retrospective views

5. Call up the desired daily retrospective view.

Tips history

The tips for the error messages are also saved. As with the message retrospective view, there are seven daily memories so that the tips of the last 7 days are available. As a result, you can create an overview of which tips have occurred over the past several days.

Key	Function
	Call up "Info" window
	Call up "Additional function keys"
	Display tip retrospective view
	Key for daily tip retrospective view (the key for the tip retrospective view of the past day is shown in the picture)

Keys for displaying tip retrospective view

Displaying tip retrospective view:

1. Call up "Info" window.
2. Call up "Additional function keys".
3. Display tip retrospective view.
4. Call up "Additional function keys".
   ▷ A list of the keys of the tip histories appears.
5. Call up the desired daily retrospective view.

3.6.2 Suppressing error messages

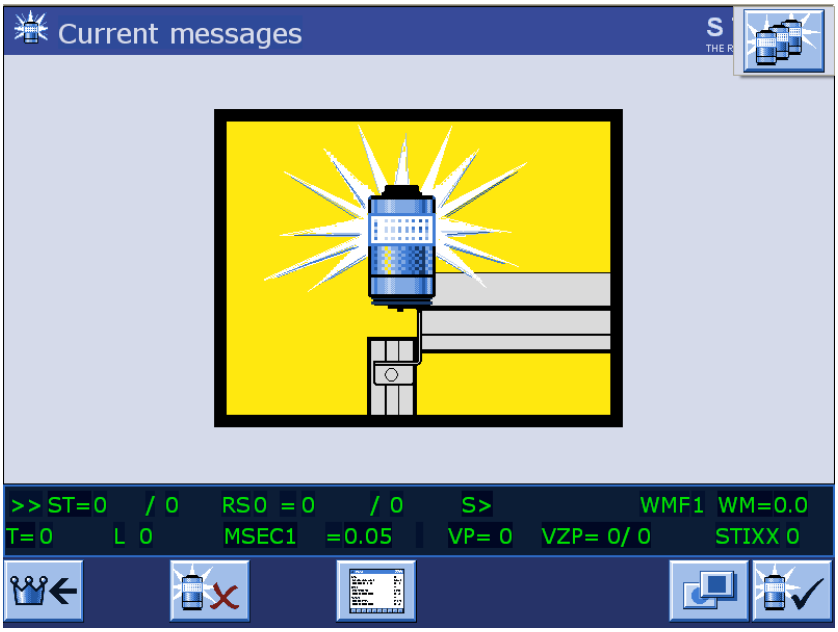
If, for example, a change is made to a knitting program and an error message is present, the knitting program or other windows are covered by the current error message. This may interrupt your work. To prevent this from happening, the error message can be suppressed. Only the display on the touch screen is suppressed, not the stop motion of the knitting machine.

Key	Function
	Call up "Additional function keys"
	Suppress error messages ("Activating setting-up operation")
	Returning to the previous window
	"Setting-up operation active" symbol
	Enabling error messages again ("Deactivating setting-up operation")

Keys for suppressing error messages

Suppressing error messages

1. If an error message is displayed, call up the "Additional function keys" button.



Suppressing error messages

2. Press the "Suppress error message" key.
   ▷ The "Setting-up operation" message appears. The error messages are suppressed until this is changed back. You are automatically brought back to the previous window and can continue working.
3. As a reminder that the error messages are being suppressed, the "Setting-up operation active" symbol appears in the upper right corner of each window.
4. The currently active and suppressed error messages can be viewed. Tap the "Setting-up operation active" symbol for this.

Enabling suppressed error messages again

1. Touch "Setting-up operation active" symbol.
2. Call up "Additional function keys".
3. Press the "Enable error messages again" key.

Automatic enabling

If there are no more stop motions, set-up mode is deactivated automatically.

4 Adjusting knitting machine

This chapter contains information on:

- Basic settings [-> 107]
- Advanced adjustments [-> 159]
- Working with files [-> 221]
- Working with the Sintral editor [-> 248]
- KnitLAN connection [-> 255]
- Defining user profile [-> 258]

4.1 Basic settings

This chapter contains the adjustment instructions and other information on:

- Adjusting carriage speed [-> 108]
- Setting stitch tension [-> 111]
- Adjusting yarn carriers [-> 115]
- Staggering yarn carriers [-> 122]
- Adjusting yarn tension [-> 125]
- Adjusting yarn delivery on friction feed wheel * [-> 128]
- Adjusting storage feed wheel MSF 3 * [-> 130]
- Adjusting knitting areas [-> 131]
- Adjusting take-down [-> 132]
- Processing fabric take-down menu [-> 134]
- Setting Cycle Counter and Quantity of Fabrics [-> 137]
- Adjusting shape counters [-> 138]
- Setting counters [-> 140]
- Switch illumination on and off [-> 141]
- Configuration symbol bar [-> 142]
- Configuring monitoring [-> 144]
- Setting up the pattern [-> 148]
- Racking correction [-> 156]

4.1.1 Adjusting carriage speed

Different carriage speeds can be entered for different knitting situations. The indirect carriage speed only becomes effective when it is slower than the normal speed.

Key	Function
	Call up "Carriage speed" window
	Confirm entries
	Call up "Main menu"

Keys for entering the carriage speed

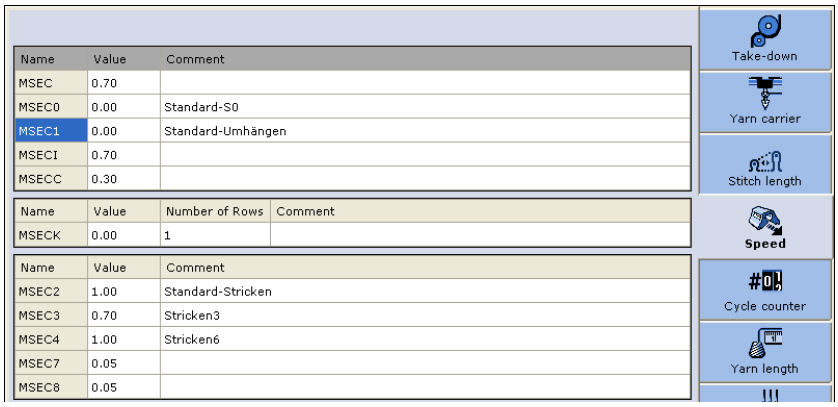
Adjusting carriage speed:

1. Call up the "Carriage speed" window.
2. Tap the input fields for the carriage speed and enter the desired values.
3. Confirm entries.
4. Call up "Main menu".

Further information:

- Setting machine parameters [-> 167]

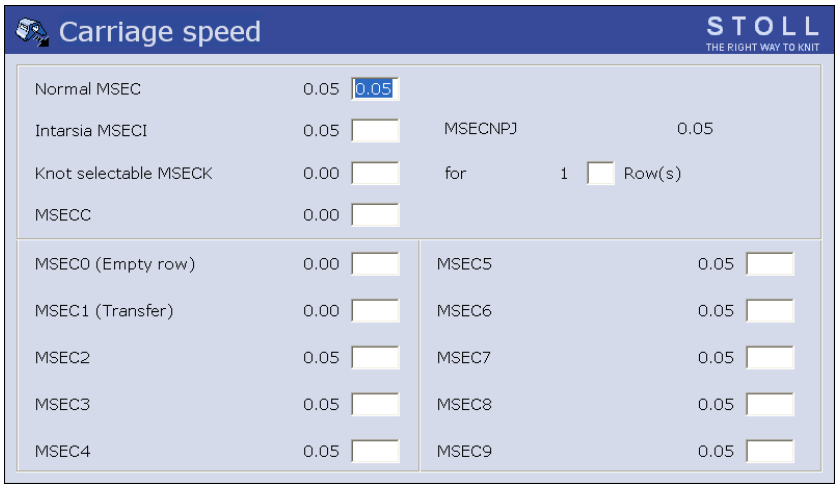
Carriage speed (Setup2)



"Carriage speed" window

	Explanation	Value range (meters/ second)
MSECK	Carriage speed for small knots over m rows, standard: 1 row	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
MSEC	Speed (normal speed)	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
MSEC0	Speed for empty rows (S0)	Minimum value: 0.05 Maximum value: 1.40 Step width: 0.05
MSEC1	Speed for transfer rows	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
MSECI	Speed with Intarsia Yarn Carrier	Minimum value: 0.05 Maximum value: 1.00 Step width: 0.05
MSECC	Speed outside the needle bed when the yarn carrier is brought in the clamp or taken out of the clamp.	Minimum value: 0.05 Maximum value: 0.50 Step width: 0.05
MSEC2-20	Speed for knitting rows	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
Comment	Comment	ASCII Characters

Carriage speed (Setup1)



"Carriage speed" window

Input field	Meaning	Input values
"Normal MSEC"	Carriage speed with normal yarn carriers	0.05 to 1.20 m/s Step width: 0.05
"Intarsia MSECI"	Carriage speed with intarsia yarn carriers	0.05 to 1.00 m/s Step width: 0.05
"Knot selectable MSECK"	Carriage speed after small knots	0.05 to 1.20 m/s Step width: 0.05
"for row (s)"	Number of rows with reduced carriage speed after small knots	1 to 12 rows Step width: 1
"MSECC"	Carriage speed outside the needle bed when the yarn carrier is brought in the clamp or taken out of the clamp.	0.05 to 0.50 m/s Step width: 0.05
"MSECNPJ=n"	Display of the carriage speed for NPJ	
"MSEC0=n"	Indirect carriage speed "n" with empty rows ("S0")	"n" = 0.05 to 1.40 m/s Step width: 0.05
"MSEC1=n"	Indirect carriage speed "n" with transfer rows	"n" = 0.05 to 1.20 m/s Step width: 0.05
"MSEC2=n" to "MSEC9=n"	Indirect carriage speed "n" with knitting rows	"n" = 0.05 to 1.20 m/s Step width: 0.05

Input fields in "Carriage speed" window

4.1.2 Setting stitch tension

The stitch tension and thus the stitch size depend on the stitch cam values. It is possible to specify either the stitch tension as an absolute value or the stitch length.

Key	Function
	Call up "Stitch length" window
	Confirm entries
	Call up "Main menu"

Keys for setting the stitch tension

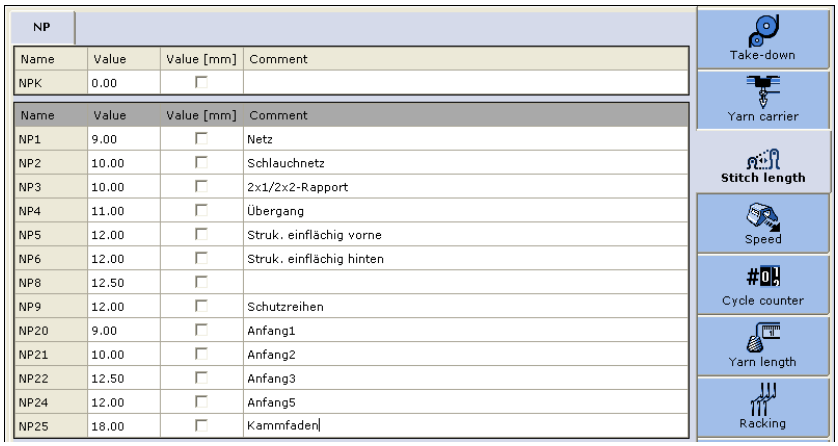
Setting stitch tension:

1. Call up the "Stitch length" window.
2. With Setup1: Set the switch in the "NP value/(mm)" field to "NP value" or "(mm)".
3. With Setup1 and Setup2:
   Tap on the input field that is to be edited and enter the value.
4. Confirm entries.
5. Call up "Main menu".

Further information:

- Stitch tension range [-> 431]
- Stitch lengths [-> 433]

Stitch tension (Setup2)



	Explanation	Value range
NPK	Correction for all stitch cams	Minimum value: -2 Maximum value: 2 Step width: 0.05
NP1 - NP100	Stitch cam position 1 to 100	
Value	Stitch length in NP values or mm	
Value [mm] ☐	Specification in NP values.	Minimum value: 6.5 Maximum value: 22.5 Step width: 0.05
Value [mm] ☑	Settings in millimeters. Setting the yarn length per stitch (Yarn Length Control).	Minimum value: 2.20 Maximum value: 33.00 Step width: 0.01
Comment	Comment	ASCII Characters

Further information:

- Stitch tension range [-> 431]
- Stitch lengths [-> 433]

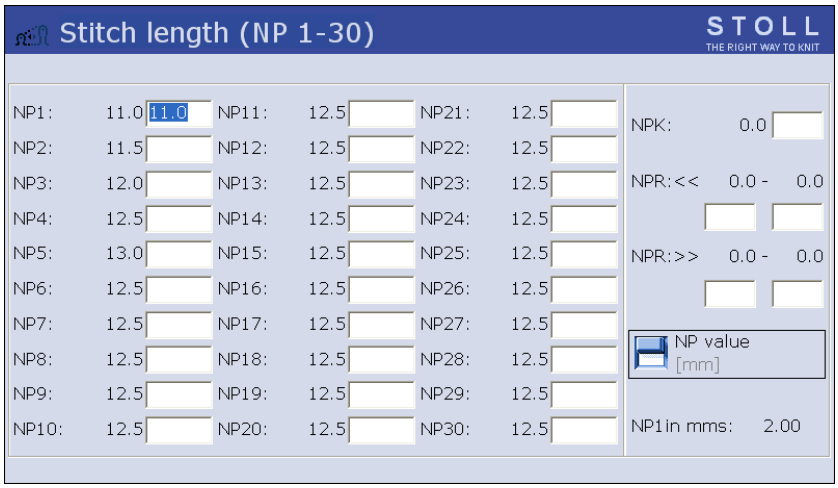
NPR (tab) Correction of the stitch cam position for the right carriage (for tandem operation only)

	Explanation	Value range
NPR	Correction of the stitch cam position for the right carriage	
Front	Correction value depending on system in front or rear and on carriage direction to the left or to the right	Minimum value: -2 Maximum value: 2 Step width: 0.05
Back		
<<		
>>		
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

Stitch tension (Setup1)



"Stitch length" window

Input field	Meaning
"NP#"	Stitch cam value (NP1-NP 100). Step width: 0.05. Call up NP31-NP100 with the help of the additional function keys.
"NPK"	Stitch cam correction value for all stitch cam positions. Step width: 0.05.
"NPR <<"	With tandem operation: Stitch cam correction values (front - back) from right to left carriage. Step width: 0.05. Carriage direction to the left.
"NPR >>"	With tandem operation: Stitch cam correction values (front - back) from right to left carriage. Step width: 0.05. Carriage direction to the right.
"NP value"	Setting stitch tension in NP values
"(mm)"	Setting the yarn length per stitch

Input fields for setting the stitch tension

Further information:

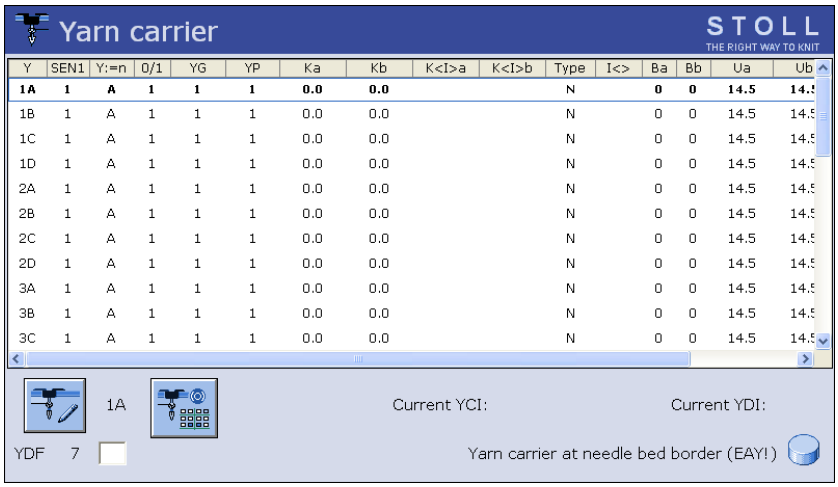
- Stitch tension range [-> 431]
- Stitch lengths [-> 433]

4.1.3 Adjusting yarn carriers

Adjusting yarn carriers

Key	Function
	Call up the "Yarn carrier" window
	Call up the "Adjusting yarn carrier" window
	Call up "Additional function keys"
	Call up desired knitting area
	Confirm entries

Keys for adjusting the yarn carriers



"Yarn carrier" window

Column	Data shown
Y	Specification of yarn carrier
SEN	Specification of SEN area in which yarn carrier works
Y: =n	Specification of yarn type
0/1	Yarn type switched on or off
YG	Home position of the yarn carrier for needle. . .
YP	Current yarn carrier position for needle. . .

Data in the "Yarn carrier" window

Column	Data shown
Ka	Yarn carrier correction value (left) for not swiveled yarn carrier if the yarn carrier is positioned within the fabric. Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
Kb	Yarn carrier correction value (right) for not swiveled yarn carrier if the yarn carrier is positioned within the fabric. Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
K<I>a	Intarsia yarn carrier correction value (left) for swiveled intarsia yarn carrier Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
K<I>b	Intarsia yarn carrier correction value (right) for intarsia swiveled yarn carrier Value range: -120...0...120 . Step width: 0.5=1/32 inch=0.8 mm
Type	Display of the yarn carrier type: Normal yarn carrier (N), plating yarn carrier (P), double bow yarn carrier (PA), intarsia yarn carrier (I)
I<>	Swiveling direction of intarsia yarn carrier
Ba	Display of the yarn carrier braking value a (left)
Bb	Display of the yarn carrier braking value b (right)
Ua	Adjust the engaging width a (left) (when plating with normal yarn carriers).
Ub	Adjust the engaging width b (right) (when plating with normal yarn carriers).
MSEC	Carriage speed when this yarn carrier is used (technical fabrics)
V	Number of selvedge needles until first knitting needle (technical fabrics)
YDF	Additional distance of yarn carrier from fabric selvedge when knitting fully fashion. Value range: 1-20 needles.

Data in the "Yarn carrier" window

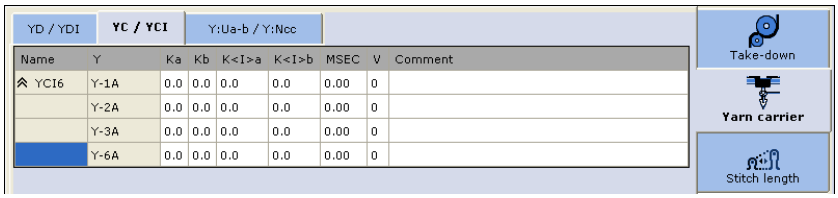
Adjusting yarn carriers:

1. Call up the "Yarn carrier" window.
   ▷ In the default setting the yarn carriers are displayed in all knitting areas (SEN areas).
2. If only the yarn carriers of a certain SEN area are to be displayed, then call up "additional function keys" and tap the desired SEN area.
3. Tap the line (yarn carrier) that is to be processed.
   ▷ The number of the yarn carrier appears at the bottom edge of the window, on the right of the "Adjusting yarn carriers" key.
4. Tap the "Adjusting yarn carriers" key.
5. Tap on the input field that is to be edited and enter the value.
6. Confirm entries.
7. Return to the "Yarn carrier" window.

Further information:

- Intarsia yarn carrier - Adjust stopping point (basic setting, braking value) * [-> 195]

Adjusting yarn carriers (Setup2)



Key	Function
	Confirm entries
	Return to the "Yarn carrier" window

Keys for adjusting the yarn carriers

	Explanation	Value range
YC	Direct yarn carrier correction Collapse (reduced display) Expand (expanded display)	
YCI	Yarn carrier correction index YCI1 to YCI20 Collapse (reduced display) Expand (expanded display)	
Y	Corrections of yarn carrier 1A to 8D	

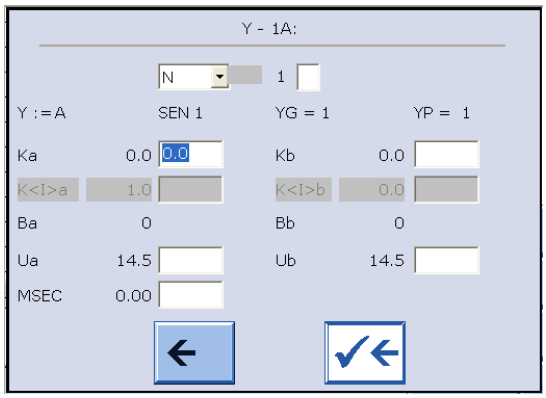
	Explanation	Value range
Ka	Yarn carrier correction value (left) for not swiveled yarn carrier if the yarn carrier is positioned within the fabric.	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
Kb	Yarn carrier correction value (right) for not swiveled yarn carrier if the yarn carrier is positioned within the fabric.	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
K<I>a	Intarsia yarn carrier correction value (left) for swiveled intarsia yarn carrier	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
K<I>b	Intarsia yarn carrier correction value (right) for intarsia swiveled yarn carrier	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
MSEC	Carriage speed if this yarn carrier is used (technical fabrics).	
V	Reduce carriage speed (n) for yarn carrier (n = 0..3). The speed is reduced to 75% from carriage reversal point until achievement of the operating range of the yarn carrier. Finally it can be chosen between the following possibilities: ◆ 1 = Acceleration up to 100% ◆ 2 = Braking down to 50%, maintain speed over a fabric width of 2 inches, acceleration up to 100% ◆ 3 = Braking down to 50%, maintain speed over a fabric width of 5 inches, acceleration up to 100% ◆ 0 = Cancelling out of carriage speed specific to yarn carrier	
Comment	Comment	ASCII Characters

Change engaging width (Ua, Ub**)**
For this call up the Y:Ua-b tab.

Further information:

- Intarsia yarn carrier - Adjust stopping point (basic setting, braking value) * [-> 195]

Adjusting yarn carriers (Setup1)



"Adjust yarn carriers" window

Key	Function
	Save changes and end setting process
	End setting process without saving changes Return to the "Yarn carrier" window

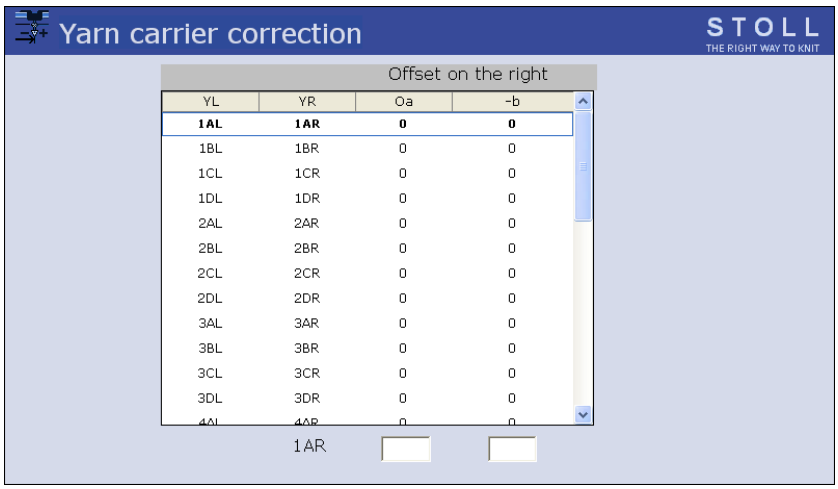
Further information:

- Intarsia yarn carrier - Adjust stopping point (basic setting, braking value) * [-> 195]

Tandem machine: Correction of the yarn carriers in the right carriage (Setup1, Setup2)

If the carriages have a wide coupling, the stopping positions of the yarn carriers in the right carriage can be corrected (column "Right offset"). It may, for example, be necessary to carry out corrections at very fine fabrics or at special intarsia patterns. Possible reasons for a correction:

- different wear of the yarn carriers used in the left and right carriages
- different wear of the yarn carrier rails
- different lubrication
- different directions of the yarn feed in the left and right carriages



"Yarn carrier correction" window during tandem operation

Column	Data shown
"YL"	Specification of the yarn carrier in the left carriage.
"YR"	Specification of the yarn carrier in the right carriage.
"Oa"	Right carriage during tandem operation: Yarn carrier correction value a (stopping position on the left). Value range: -8...0...8 . Step width: 0.5=1/32 inch=0.8 mm The correction value refers to the stop value of the left carriage.
"-b"	Right carriage during tandem operation: Yarn carrier correction value b (stopping position on the right). Value range: -8...0...8 . Step width: 0.5=1/32 inch=0.8 mm

Data in the "Yarn carrier correction" window

Key	Function
	Call up the "Yarn carrier" window
	Call up "Additional function keys"
	Call up the "Yarn carrier correction" window
	Call up "Main menu"

Keys for correcting the yarn carriers

Enter correction of a yarn carrier:

1. Call up the "Yarn carrier" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up the "Yarn carrier correction" window.
4. Enter new values for the yarn carrier.
5. Confirm entries.
6. Call up "Main menu".

The correction values are not pattern-dependent, but rather machine-dependent. These data are therefore not deleted when a new knitting program is loaded. The correction values always remain saved, even when the operating system is loaded again. If the correction is no longer required, the correction values have to be reset to "0" manually.

4.1.4 Staggering yarn carriers

Staggering the yarn carriers at the fabric selvedge.

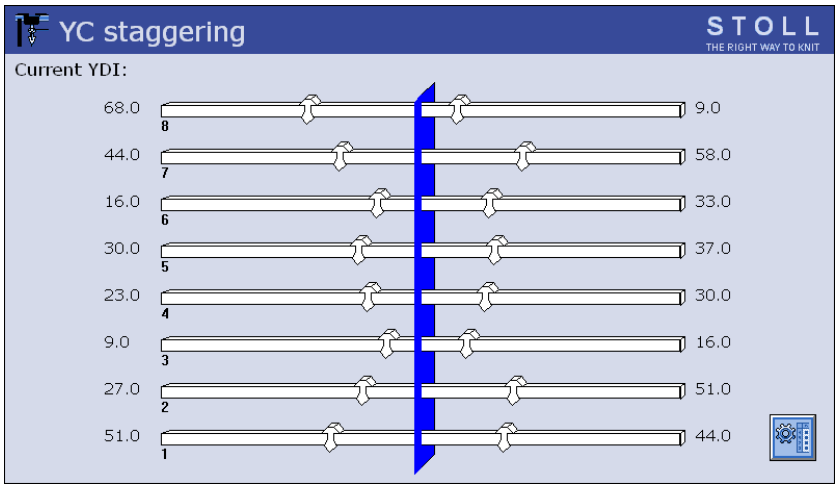
Key	Function
	Call up the "Yarn carrier" window
	Call up "Additional function keys"
	Call up "YC staggering" window
	Confirm entries

Keys for staggering the yarn carriers

Staggering the yarn carriers:

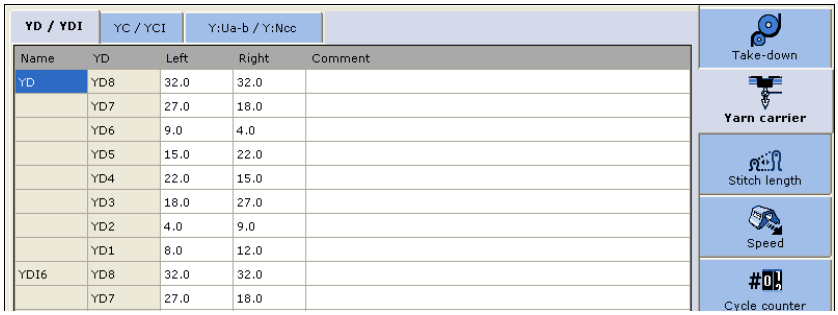
1. Call up the "Yarn carrier" window.
2. Call up "Additional function keys".
3. Call up the "YC staggering" window.
4. Tap on the input field that is to be edited and enter the value.
5. Confirm entries.

Staggering yarn carriers (Setup2)



"YC staggering" window

The yarn carrier staggering is displayed in the window. If you want to change the staggering, call up the Setup2 editor.



	Explanation	Value range
» YD	Distance between yarn carriers and fabric selvedge Collapse » (reduced display) Expand « (expanded display)	
YD1 : YD8	Distance of the yarn carriers on track 1 to 8 from the left and right fabric selvedge	Minimum value: 0 Maximum value: 160 Step width: 0.5=1/32 inch=0.8 mm
» YDI	Additional, indirect yarn carrier staggering (YDI1 to YDI20) Collapse » (reduced display) Expand « (expanded display)	Minimum value: 0 Maximum value: 160 Step width: 0.5=1/32 inch=0.8 mm
Comment	Comment	ASCII Characters

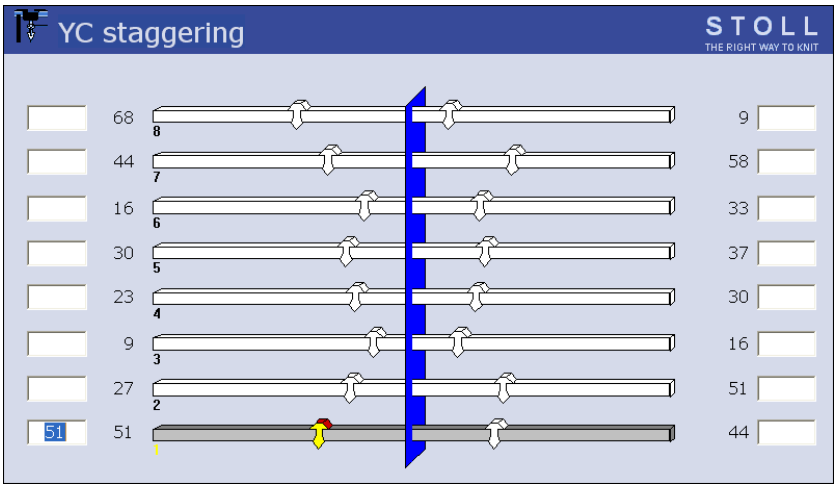
Staggering yarn carriers (Setup2)

Key	Function
	Call up the Setup2 Editor
	Confirm entries
	return to the "YC staggering" window

Keys for staggering the yarn carriers

1. Call up the Setup2 editor in the "YC staggering" window.
2. Tap on the input field that is to be edited and enter the value.
3. Confirm entries.
4. Return to the "YC staggering" window.

Staggering yarn carriers (Setup1)



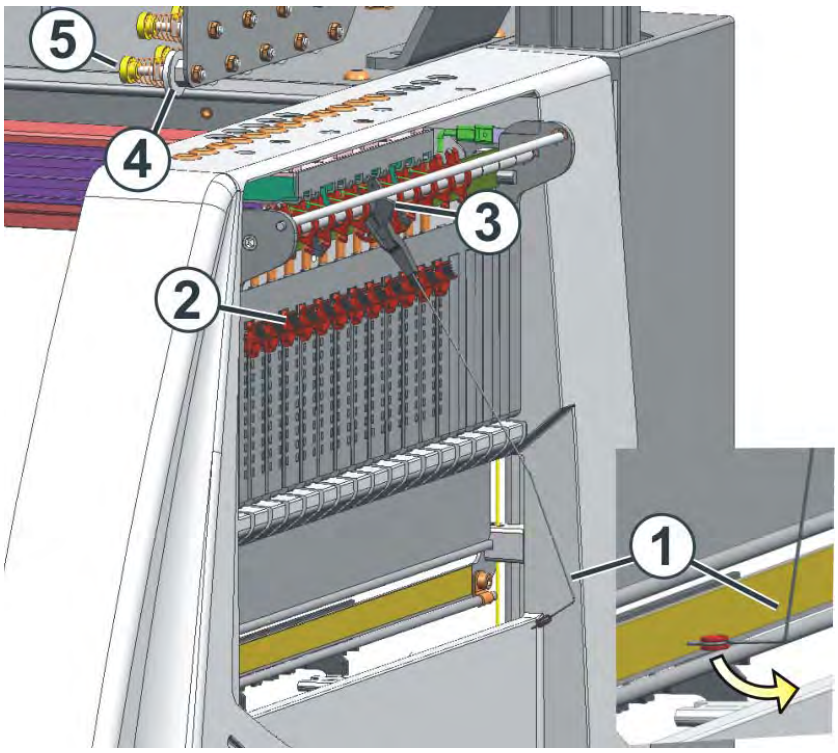
"YC staggering" window

1. Tap the input fields next to the yarn carriers and enter the values.
   Value range: 0-160. Step width: 0.5=1/32 inch=0.8 mm
2. Confirm entries.

4.1.5 Adjusting yarn tension

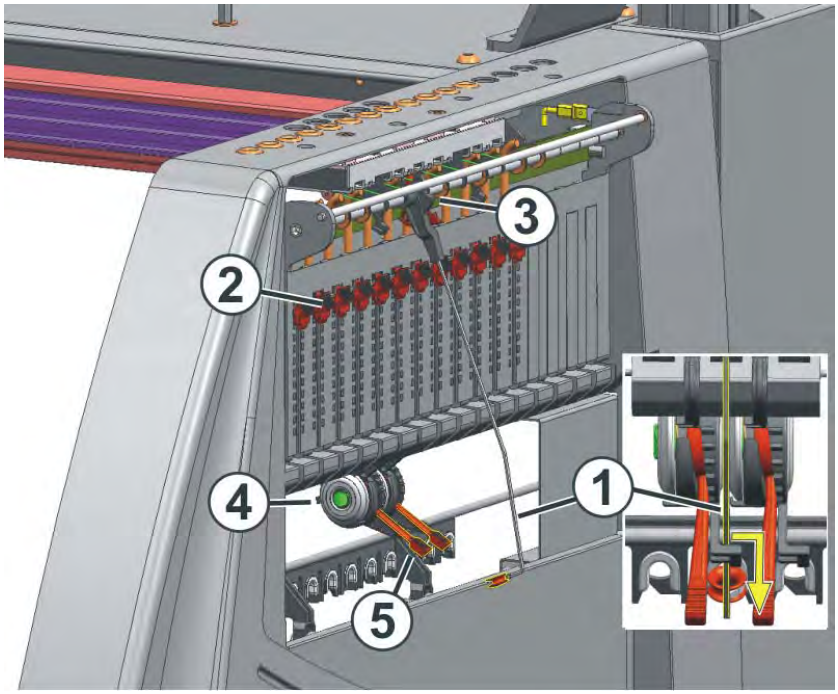
Depending on the machine gauge and the component type there are different types.

Type 1



Adjustment of yarn tension

Type 2



Adjustment of yarn tension

The adjustment of yarn tension is done in the following sequence:

1. Lateral yarn tensioner: Adjusting the restoring force on the linear regulator (2).
2. Opening permanent brake
3. Adjusting yarn control device
4. Adjusting permanent brake
5. Lateral yarn tensioner: Adjusting the yarn tensioning path on the lock segment (3)

---

i This sequence should help you to find the optimal adjustment of the yarn tension. Depending upon the type of fabric and the yarn characteristics it is possible that you may have to change the adjustments many times before you find the optimal adjustment.
These adjustments are the easiest to undertake while the machine is knitting.
Make sure that the braking and restoring force on all elements is set at the lowest possible.

Adjusting restoring force

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.

Opening permanent brake

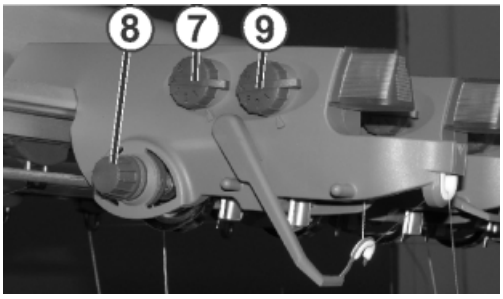
➜ Type 1: Open the rotary knob (5) of the permanent brake (4) as wide as possible.

- or -

➜ Type 2: Push lever (5) of the permanent brake (4) in the lowest position.

Adjusting yarn control device

1. Yarn brake (8) to be adjusted in such a manner that the thread break control does not move too much underneath such that the stop impulse gets released.



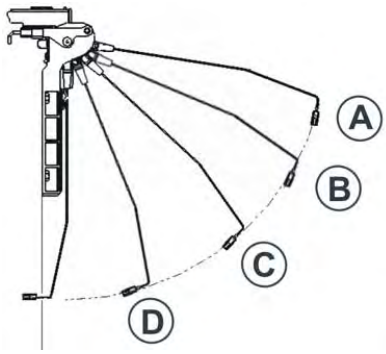
2. Adjust knot detectors for large knots (7) and for small knots (9) depending on yarn thickness and knots so, that they are triggered by an undesirable knot size.

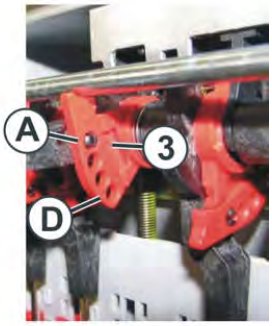
Adjusting permanent brake

➜ Adjust the permanent brakes (4) in such a manner that the lateral yarn tensioner swivels only a bit (approx. 25 degrees), when the yarn guide achieves it's left or right stopping position.
If a thread loop is formed between the friction feed wheel and the permanent brake then the thread brake on the yarn control device should be set a little stronger and the permanent brake should be set a little weaker.

Set the maximum slack take-up path of the yarn tensioner

If desired the maximum slack take-up path of the yarn tensioner can be set from 80 to 35 degrees. This will be set with the lock segment (3). It has four lock positions (A – D).





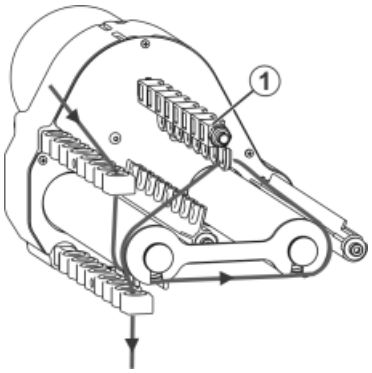
Position	max. angle	Explanation
A	80	Home position of the lock segment. Active thread clamp in action Largest yarn tensioning path
B	65	Active thread clamp in action
C	50	Active thread clamp in action
D	35	Active thread clamp out of action Smallest yarn tensioning path

4.1.6 Adjusting yarn delivery on friction feed wheel *

The friction rollers have a constant peripheral speed and feed the maximum amount of thread consumed by the knitting machine. To adjust the yarn delivery to the actual consumption, the winding angle of the thread is modified. If the winding angle is enlarged, then the friction force increases and the friction feed wheel delivers more thread. The friction feed wheel should always feed somewhat more thread than the yarn carriers consume.

Depending on machine model and component type, there are different models of friction feed wheels.

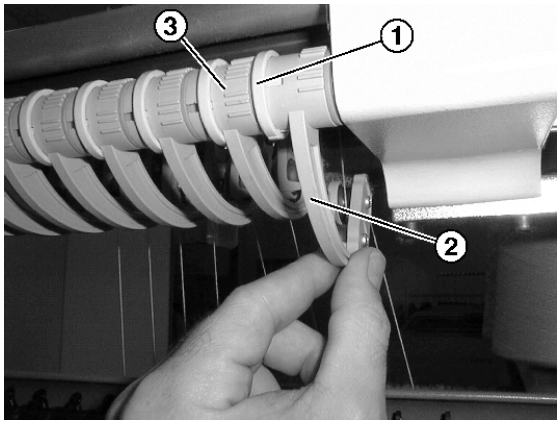
Type 1



Adjusting the yarn delivery on the friction feed wheel

➜ If the yarn delivery is to be reduced, then lead the yarn through the eyelet (1).

Type 2



Adjusting the yarn delivery on the friction feed wheel

Adjusting the yarn delivery:

1. Push the fixing device (1) toward the front.
2. If the yarn delivery is to be increased, turn the swivel bow (2) upward.

   - or -

➜ If the yarn delivery is to be reduced, turn the swivel bow (2) downward.

3. Push the fixing device (1) toward the rear.

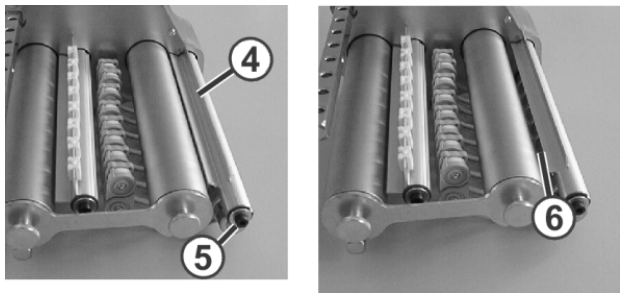
4. Switch on the knitting machine and start knitting.
5. Check the yarn delivery.
6. Set all swivel bows consecutively with the scale (3) as described in steps 1 to 5.

For very coarse yarn (valid for all types)

The distance between stop motion rail and friction roller is too small so that the yarn comes into contact with the stop motion rail and releases a stop impulse, then the machine stops.

Modifying the distance:

1. Remove the screw (5) and the stop motion rail (4).



Set the distance between stop motion rail and friction roller

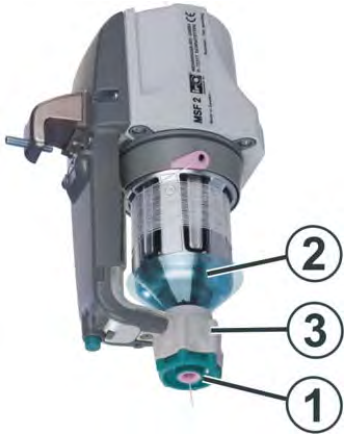
2. Turn the stop motion rail by 180 degrees and assembly it again.

▶ A bigger distance (6) is between the stop motion rail and the friction roller.

Further information:

- Symbols in this document [-> 12]
- Threading up threads into friction feed wheel * [-> 69]

4.1.7 Adjusting storage feed wheel MSF 3 *



Storage feed wheel MSF 3

The optimal yarn tension depends on the yarn and the pattern. This adjustment is the easiest to undertake while the machine is knitting.

Adjusting the yarn tension:

1. Adjust the yarn tension at the rotary knob (1):
   ▷ The contact pressure of the membrane (2) is changed this way.
2. Check: No thread loop may be formed between the feed wheel and the safety door.
3. The rotary knob has to engage in the brake (3).

You will find further information on the storage feed wheel MSF 3 in the operating instructions which are enclosed.

Further information:

- Symbols in this document [-> 12]

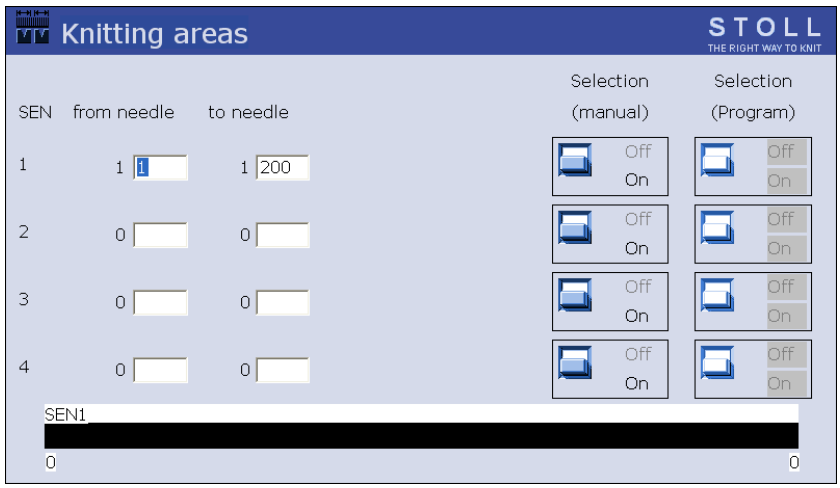
4.1.8 Adjusting knitting areas

In the Sintral program up to four knitting areas (SEN areas) can be defined and switched on and off separately. If the knitting areas are not defined in the Sintral program, they can be adjusted in the "Knitting areas" window.

Key	Function
	Call up "Knitting areas" window
	Confirm entries
	Call up "Main menu"

Keys for adjusting the knitting areas

1. Call up the "Knitting areas" window.



"Knitting areas" window

2. Assign each knitting area ("SEN") a needle area.
3. Confirm entries.

   ▷ The assigned areas are graphically shown.
4. To switch individual knitting areas on or off, tap the switch in the "Selection (manual)" column.
5. Call up "Main menu".

4.1.9 Adjusting take-down

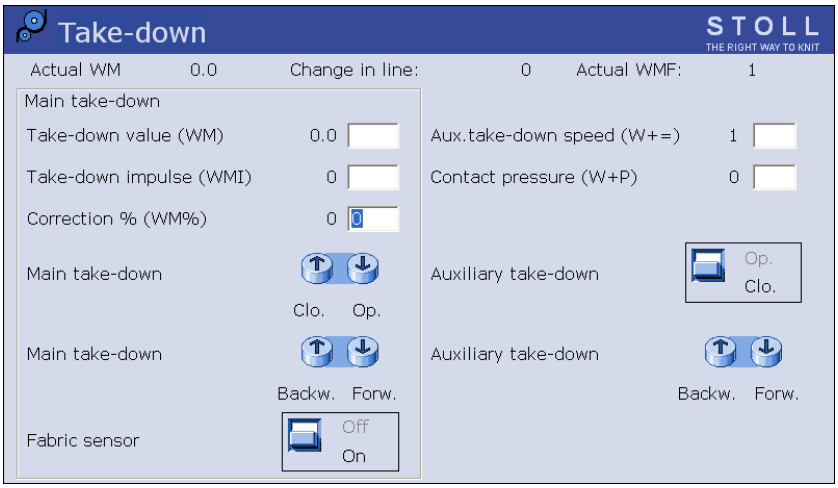
Adjusting fabric take-down values

Key	Function
	Call up "Take-down" window
	Confirm entries
	Call up "Main menu"

Keys for setting the fabric take-down values

Setting the fabric take-down values:

1. Call up the "Take-down" window.
   ▷ The current fabric take-down values are shown.



"Take-down" window

2. To enter the fabric take-down values, tap the input fields and enter the desired values.
3. Confirm entries.

Adjusting the control of the fabric take-down:

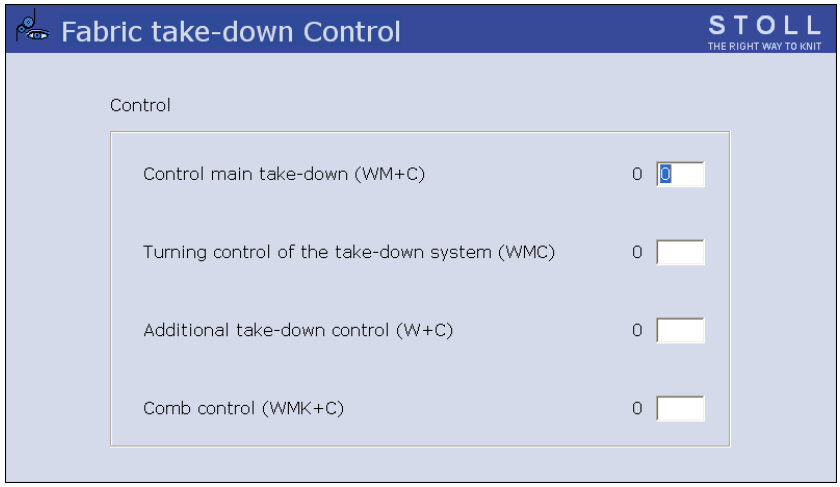
During production, the control of knitting machine compares the current values with threshold values. If a threshold value is exceeded, the knitting machine stops and displays a fault.

Key	Function
	Call up "Additional function keys"
	Call up "Fabric take-down Control" window
	Confirm entries
	Return to "Take-down" window

Keys for adjusting fabric take-down control

Adjusting fabric take-down control:

1. Call up the "additional function keys" in the "Take-down" window.
2. Call up the "Fabric take-down Control" window.



"Fabric take-down Control" window

3. Enter the threshold values.
4. Confirm entries.
5. Return to the "Take-down" window.

4.1.10 Processing fabric take-down menu

In the fabric take-down menu (WMF menu), the fabric take-down commands are combined into a single function which concerns a knitting situation.

Key	Function
	Call up "Take-down" window
	Call up "Additional function keys"
	Call up "WMF menu" window
	Confirm entries

Keys for adjusting the fabric take-down menu

Adjusting fabric take-down menu:

1. Call up the "additional function keys" in the "Take-down" window.
2. Call up the "WMF menu" window.
3. Touch the line to be edited.
   ▷ The line appears at the bottom edge of the window.
4. Tap the fields of the selected line and enter the desired values.

   - or -

➜ Copy contents of a line and insert at desired location again.

5. Confirm entries.
6. Return to the "Take-down" window.

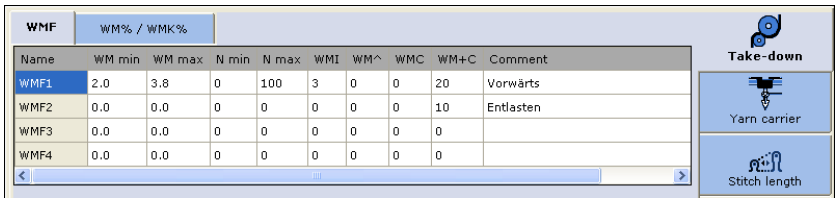
Save fabric take-down menu

If you save the pattern, the changes in the fabric take-down menu are saved in the setup file.

Further information:

- Working with files, libraries and folders [-> 231]

Fabric take-down menu (Setup2)



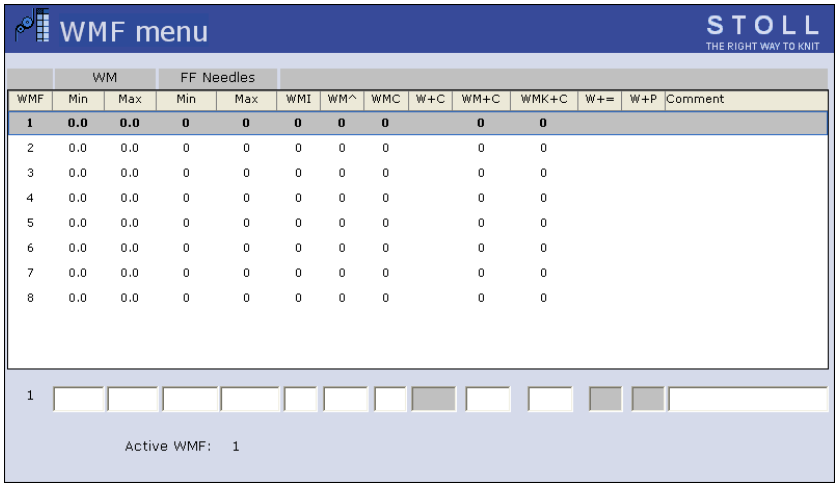
	Explanation	Value range
WMF…	Fabric take-down function	WMF1 to WMF50
WM min	Minimum fabric take-down value (with Fully Fashion)	Minimum value: 0 Maximum value: 31.5 Step width: 0.1
WM max	Maximum fabric take-down value (value must always be specified)	Minimum value: 0 Maximum value: 31.5 Step width: 0.1
N min	Minimum number of needles (with Fully Fashion)	Minimum value: 0 Maximum value: Needle number of the CMS Step width: 1
N max	Maximum number of needles (with Fully Fashion)	Minimum value: 0 Maximum value: Needle number of the CMS Step width: 1
WMI	Fabric take-down impulse	Minimum value: 0 Maximum value: 15 Step width: 1
WM^	Open the brake of the active take-down system (main take-down or comb take-down) for a maximum of 2.5 seconds, take-down roller or comb take-down turn back by a maximum number of the indicated degrees (depending on the fabric tension and the fabric take-down value). CMS 5xx, 7xx, 8xx: 9-60 degrees CMS 9xx: 9-120 degrees If either of both the conditions is fulfilled, then the brake is closed again. Fabric take-down value (n=0-31.5) becomes active again at the reversion.	No turning back: 0 Minimum value: 9 Maximum value: 120 Step width: 1
WMC	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. 0= no stop motion, 1= insensitive, 32= very sensitive	Minimum value: 0 Maximum value: 32 Step width: 1

	Explanation	Value range
WM+C	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	Controlling the 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
Comment	Comment	ASCII Characters

Further information:

- Working with files, libraries and folders [-> 231]

Fabric take-down menu (Setup1)



Key	Function
	Delete all information in the fabric take-down menu
	"Copy line" contents
	"Insert line" contents
	Confirm entries
	Return to "Take-down" window

Keys for adjusting the fabric take-down menu

Further information:

- Working with files, libraries and folders [-> 231]

4.1.11 Setting Cycle Counter and Quantity of Fabrics

The cycle counter specifies how often a pattern area is to be repeated. Which cycle counter controls which pattern area is defined in the knitting program.

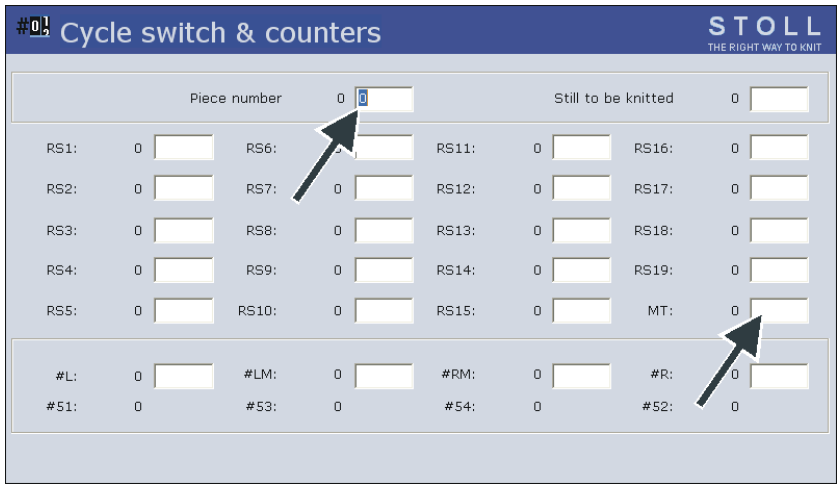
The piece number specifies how many pieces are to be knitted. During production, the piece number is decreased by "1" as soon as a complete piece has been produced.

Key	Function
	Call up the "Cycle counters & counters" window
	Confirm entries
	Call up "Main menu"

Keys for adjusting the cycle counter and the piece number

Setting cycle counter and piece number:

1. Call up the "Cycle counters & counters" window.



"Cycle counters & counters" window

2. Set the cycle counters "RS1" to "RS19".
3. Set the piece number.
4. Confirm entries.
5. Call up "Main menu".

4.1.12 Adjusting shape counters

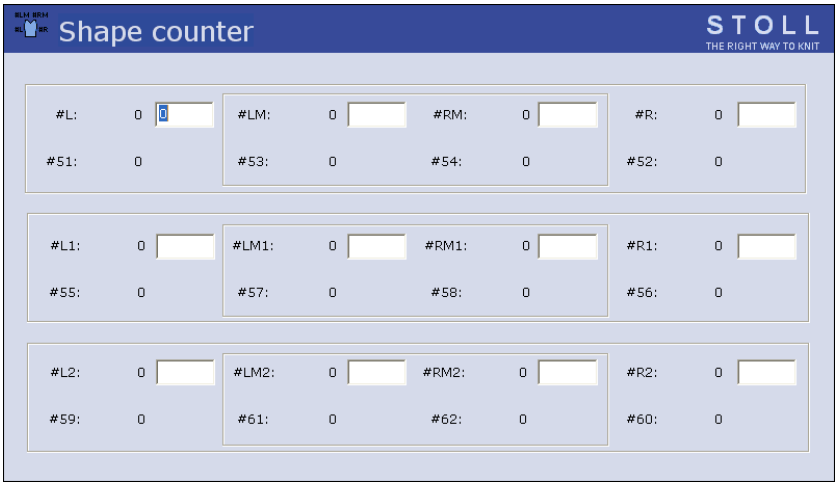
During fully fashion knitting the knitting edges are controlled by the shape counters. When the values of the shape counters changes, then the fabric becomes broader or narrower. The alteration in the fabric width is mentioned in the knitting program. The shape counters should be changed manually only in exceptional cases, for example during designing.

Key	Function
	Call up the "Cycle counters & counters" window
	Call up "Additional function keys"
	Call up "Shape counters" window
	Confirm entries
	Call up "Main menu"

Keys for setting the shape counters

Setting the shape counters:

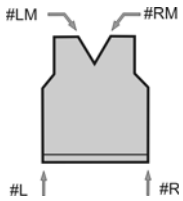
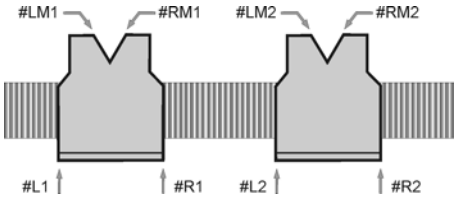
1. Call up the "Cycle counters & counters" window.
2. Call up "Additional function keys".
3. Call up "Shape counters" window.



"Shape counters" window

4. Set the counters to the desired value.
5. Confirm entries.
6. Call up "Main menu".

In the case of single-piece knitting, up to 4 shape counters can be used, in the case of double-piece knitting up to 8 shape counters.

	Shape counter	Counters for the start-width
	#L	#51
	#R	#52
	#LM	#53
	#RM	#54
	#L1	#55
	#R1	#56
	#LM1	#57
	#RM1	#58
	#L2	#59
	#R2	#60
	#LM2	#61
	#RM2	#62

The counters for start-width can be changed only in the knitting program or in the pattern preparation unit.

4.1.13 Setting counters

In addition to the piece counter and the cycle counters, there are also other counters. On the one hand, they can be used in the knitting program, e.g. to request conditions. On the other hand, they indicate various machine states.

Key	Function
	Call up the "Cycle counters & counters" window
	Call up "Additional function keys"
	Call up desired counter group
	Call up "Main menu"

Buttons for setting the counters

Setting counters:

1. Call up the "Cycle counters & counters" window.
2. Call up "Additional function keys".
3. Tap the key for the desired counter group.
4. Set counter to the desired value.
5. Call up "Main menu".

4.1.14 Switch illumination on and off

Key	Function
	Call up "Machine start" window
	Call up "Additional function keys"
	Switch on lighting
	Deactivate lighting
	Call up "Main menu"

Keys for switching the lighting on and off

Switch the lighting on and off:

1. Call up "Machine start" window.
2. Call up "Additional function keys".
3. Switch on the lighting.

- or -

➜ Switch off the lighting.

4. Call up "Main menu".

Automatic switching off of the illumination

If the lighting is switched on, then you can set the duty cycle (window "Machine parameters").
Standard setting: Function active, duty cycle: 10 minutes (standard), value range: 0...60 minutes

With closed cover hoods	If the lighting is switched on, then it will switch off automatically at the end of the set time.	
When opening and closing the cover hoods	The lighting is switched on automatically when opening the covers.	
	If the covers are closed again, then it is checked whether the duty cycle has been reached.	
	Yes	The illumination will be switched off.
	No	The illumination will continue switched on until the remaining time is finished

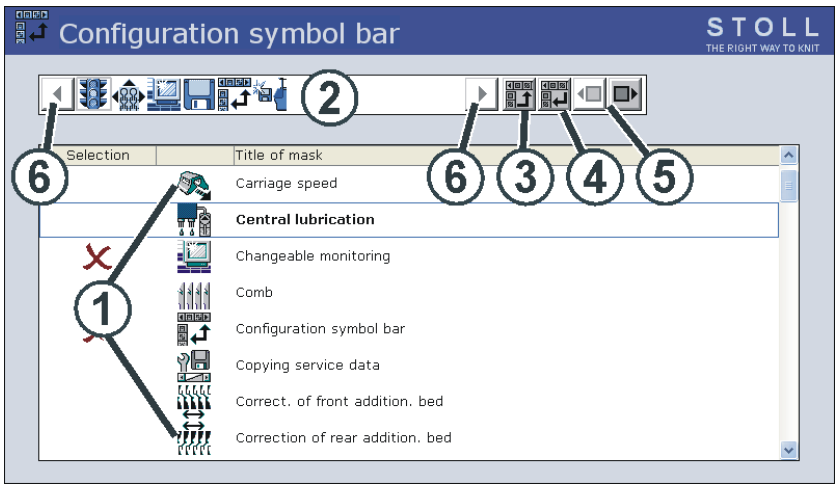
Further information:

- Setting machine parameters [-> 167]

4.1.15 Configuration symbol bar

The configurable toolbar allows you to jump directly to the individual windows without having to take the "Detour" through the main menu or using the "Additional functions" key. The toolbar is the headline or title bar of a window. You can include the symbols of those windows which you use most often in the toolbar.

The symbols can be called up in any window. To do so, tap the symbol on the top left of the title bar and the symbols are displayed. (Exception: Tap on "Go to mask" key in SINTRAL editor). To close the symbols again, tap the empty field next to them.



"Configuration toolbar" Window

Field/Key	Function
1	List of the windows which can be selected for the toolbar.
2	The toolbar contains the symbols of the selected windows. In the above figure the carriage speed has been selected.
3	Key used to set a symbol in the toolbar (2).
4	Key used to remove a symbol from the toolbar (2).
5	Change the position of a symbol in the toolbar (2). To do so, tap the symbol in the toolbar and use the corresponding key to move it forwards or backwards.
6	If there are more than 11 symbols in the toolbar, the display can be moved to the left or right with the arrow keys.

Key	Function
	Call up the "Service" window
	Call up "Configuration toolbar" window
	Call up "Main menu"

Keys for configuring the toolbar

Configuring toolbar:

1. Call up the "Service" window.
2. Call up "Configuration toolbar" window.
3. Tap the desired symbol (1).
4. Press the (3) key.

   - or -

➜ Double-click on the symbol.

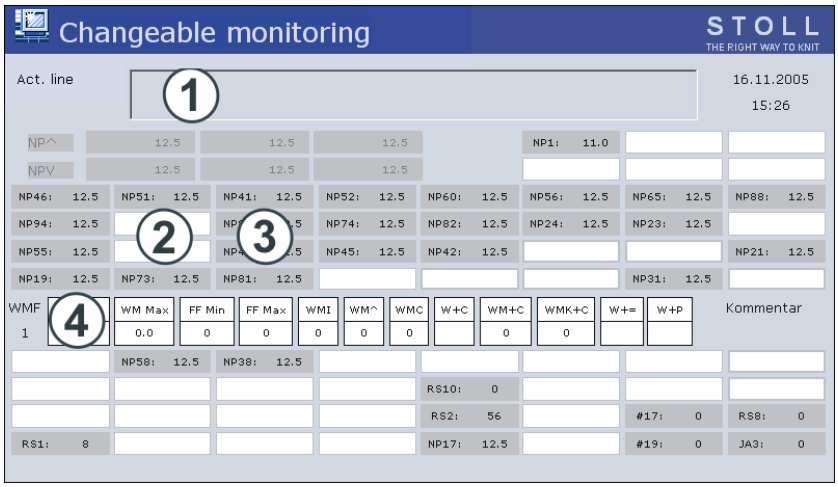
   ▷ The symbol is displayed in the toolbar (2). The character "X" before the symbol indicates that the symbol has been selected from the list (1) for the toolbar.

5. Call up "Main menu".

4.1.16 Configuring monitoring

The current Sintral line and the corresponding values for the cycle counters, Jacquards, stitch tension and counters are displayed in the "Changeable monitoring" window for each carriage stroke during productions.

You can specify yourself which values are to be displayed or have them determined automatically. (Exception: Those counters and repeat switches which are used exclusively in the Auto-Sintral program are not displayed.)



"Changeable monitoring" window

Field	Function
1	Display of the current Sintral line
2	White field with frame. The field can be linked to a value. The value is then displayed in this field.
	A thick frame around the field indicates that it cannot be covered by a function block (4).
3	Gray field. If a field (2) is limited to a value, the color changes from white to gray.
4	White field without frame. This is a function block. The display of a function block can be activated and deactivated.

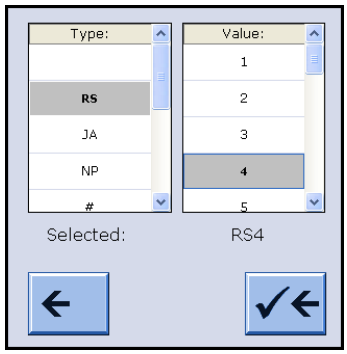
Linking a field to a value

Key	Function
	Call up the "Changeable monitoring" window
	Call up "Additional function keys"
	"Automatic configuration"
	"Clear all fields" (reset)
	End setting process and save changes
	End setting process without saving changes
	Call up "Main menu"

Keys for linking a field

Linking a field to a value:

1. Call up the "Changeable monitoring" window from the "Main menu".
2. Touch a white field with a frame. The setting window appears.



Window for linking a field

3. Select the type of the value in the left column.
4. Select the value in the right column.
   ▷ The selected value is displayed in the lower line.
5. Confirm entries.
6. If necessary, link further fields to a value.
7. Call up "Main menu".

> **i** If only one value is to be deleted, select the empty (white) field above "RS".

Activating the function block

Various function blocks can furthermore be displayed for the configurable values. The selected function blocks are positioned at fixed positions over the existing fields. They do not delete these, but just cover them, so that the fields are visible again when the function block is deactivated.

Key	Function
	Call up the "Changeable monitoring" window
	Call up "Additional function keys"
	Activate and de-activate the "Stitch tension" function block
	Activate and de-activate the "SEN area" function block
	Activate and de-activate the "Yarn carrier" function block
	Activate and de-activate the "Function name" function block
	Activate and de-activate the "Fabric take-down values" function block (Can only be activated, if the "STIXX" function block is deactivated.)
	Activate and de-activate the "Sintral print line" function block
	Activate/deactivate "STIXX" function block (Can only be activated, if the "Fabric take-down values" function block is deactivated.)
	Call up "Main menu"

Keys for activating a function block

1. Call up the "Changeable monitoring" window from the "Main menu".
2. Call up "Additional function keys".
3. Activate the desired function blocks.
4. Call up "Main menu".

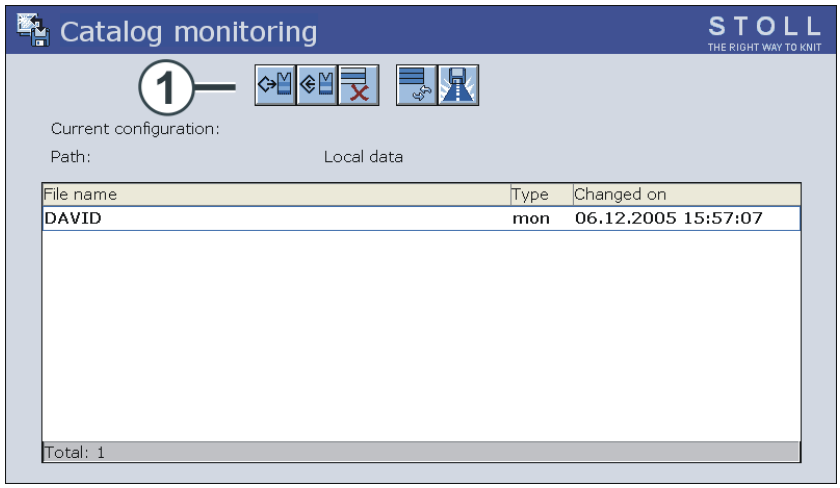
Saving, loading, deleting settings ...

The configuration carried out by you can be saved, loaded and deleted.

Key	Function
	Call up the "Changeable monitoring" window
	Call up "Additional function keys"
	Call up "Catalog Monitoring" window
	Call up "Main menu"

Keys for calling up the "Catalog Monitoring" window

1. Call up the "Changeable monitoring" window from the "Main menu".
2. Call up "Additional function keys".
3. Call up "Catalog Monitoring" window.



"Catalog Monitoring" window

4. Select the desired program point (1) (loading, saving, deleting ...).
5. Call up "Main menu".

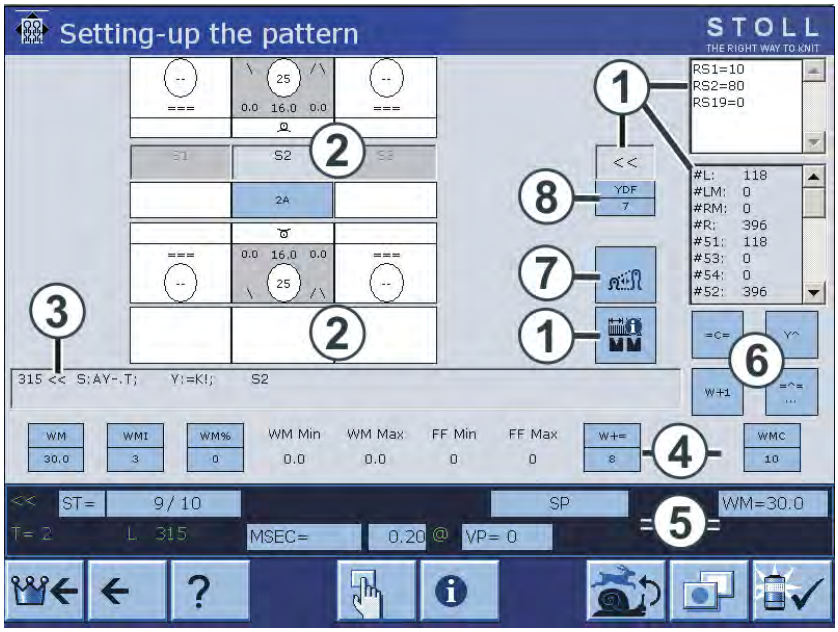
4.1.17 Setting up the pattern

This menu can be used for fine adjustment of a pattern at the knitting machine. While the machine is knitting, the corresponding data of the knitting program are displayed for every carriage stroke. If required, changes can be carried out directly in this menu via setting windows, or the corresponding menu is opened for your input. To do so, touch the corresponding field.

Key	Function
	Call up the "Setting up the pattern" menu

Key for calling up the "Setting up the pattern" menu

The window is structured into various areas:



"Setting up the pattern" window

Area	Explanation
1	Display of: Carriage direction, cycle counters, SEN area, coupling width (for tandem machine), counters. The active cycle counter is highlighted. The values cannot be modified.
2	Setting up of the knitting systems: Needle action, stitch tension, yarn carrier, jacquard line.
3	Current Sintral line
4	Fabric take-down values or fabric take-down function
5	Status line: Here the individual values can be changed or the corresponding setting menu called up.

Area	Explanation
6	Actions for yarn carrier plunger, fabric take-down, comb take-down and auxiliary take-down
7	Call up "Stitch length" window
8	Additional yarn carrier distance for fully fashion knitting

Changing a value

The values are changed by means of a virtual keyboard. If a value can be changed, a keyboard bar which allows a value to be entered, is displayed in the title bar of the menu.

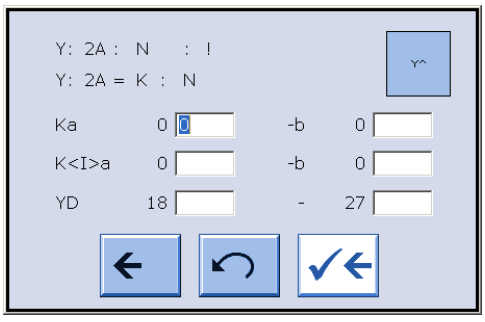
Numerical keyboard

Element	Function
	End setting process without saving changes
	Undo a change, the previous value is displayed again
	End setting process and save changes

Input elements

Changing a value:

1. Tap the corresponding field. The setting window appears, for example:

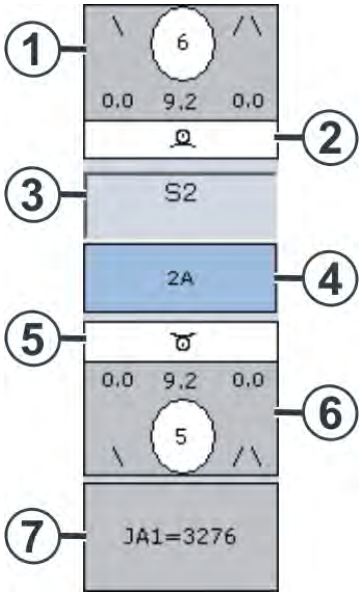


"Yarn carrier" window

2. The keyboard bar appears in the title bar. Use it to carry out the changes.
3. Confirm input.

Setting up of the knitting systems

The stitch tension, needle action, yarn carrier and jacquard line are displayed for every knitting system. The corresponding menu is opened if the yarn carrier, stitch tension or jacquard line is touched.

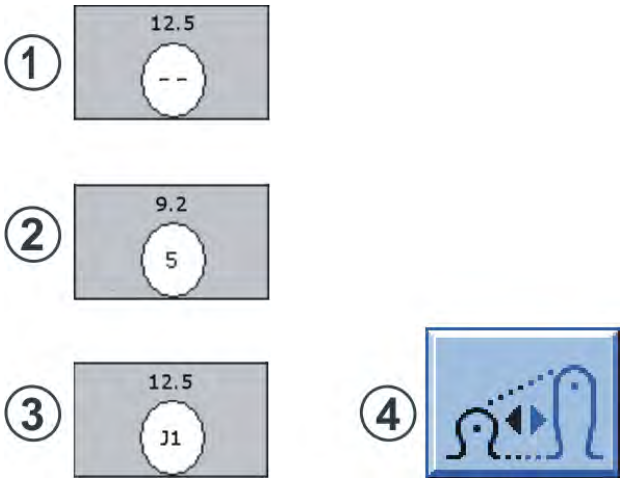


"Change NP value" window

Area	Display	Modify
1	Stitch tension (rear knitting system)	Value can be changed at indirect specification (NP6=9.2)
2	Needle action (rear knitting system)	
3	Number of the knitting system	
4	Yarn carrier	Yarn Carrier Correction Yarn carrier stopping position
5	Needle action (front knitting system)	
6	Stitch tension (front knitting system)	Value can be changed at indirect specification (NP5=9.2)
7		Jacquard line

Stitch tension

Not only the value of the stitch tension is displayed, but also the type of specification.



"Display of the stitch tension" window

Type	Explanation	Setting possibility
1	Direct specification: "- -" (NP=12.5)	
2	Indirect specification: "5" (NP5=9.2)	Value can be changed
3	Jacquard-controlled stitch tension: "J1" (NPJ1=12.5). Presentation at flexible stitch: J1!	
4	Change the stitch tension	The "Stitch length" window appears. All the values can be changed.

Symbols for the needle actions

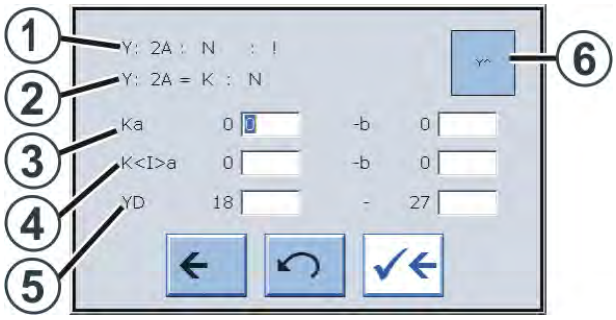
The needle actions are represented by symbols so that you know immediately which needle action is being carried out in one knitting system.

Symbol	Meaning	Symbol	Meaning
	Do not knit		Front stitch
	Rear stitch		Front tuck
	Rear tuck		Cast off
	Transfer to front		Transfer to rear
	Transfer to the front and rear		Split-stitch to the front
	Split-stitch to the rear		Split-stitch to the front and rear
	Split-stitch to the front, stitch to the rear		Split-stitch to the rear, stitch to the front
	Stitch to the front, tuck to the front		Stitch to the rear, tuck to the rear
	Stitch to the front, tuck to the front, miss-knit		Stitch to the rear, tuck to the rear, miss-knit
	Transfer to the front, cast off to the rear		Transfer to the rear, cast off to the front
	Transfer to the front and rear, cast off to the front and rear		Cast off, tuck to the front (after-pressing)
	Cast off, tuck to the rear (after-pressing)		Transfer to front additional needle bed
	Transfer to rear additional needle bed		Transfer to rear and front additional needle bed
	Transfer to front additional needle bed, transfer to the front and rear		Transfer to front additional needle bed, knit at the front
	Transfer to rear additional needle bed to the rear, knit at the rear		

Symbols of the needle actions

Yarn carrier

If this field is touched, the "Yarn carrier" window opens up.



"Yarn carrier" window

Area	Explanation
1	Display of the current yarn carrier specification. After this specification (End character " : ") further information is available about this yarn carrier: N = Normal yarn carrier I = Intarsia yarn carrier S = Selected H = Home C = Yarn carrier is clamped and cut off ! = Yard carrier is stopped outside the SEN area PA = Plating yarn carrier (double bow) P = Plating yarn carrier (double eyelet) < = Intarsia yarn carrier swivels to the left > = Intarsia yarn carrier swivels to the right
2	Definition of the yarn carrier (display only)
3	Yarn carrier correction with an application (selected knitting) at the left or right edge.
4	Correction for swiveled intarsia yarn carrier on the left and on the right selvedge.
5	Yarn carrier stopping position at the left or right fabric selvedge.
6	Activate or deactivate the yarn carrier plunger.

Jacquard line

If this field is touched, the "Sintral editor" window opens up. The cursor is automatically positioned before the current jacquard line. The jacquard is displayed by default as compressed.

i	If the jacquard is unpacked, then depicted uncompressed and the jacquard line exceeds 1,200 characters, it can no longer be displayed. An error message indicates this condition.

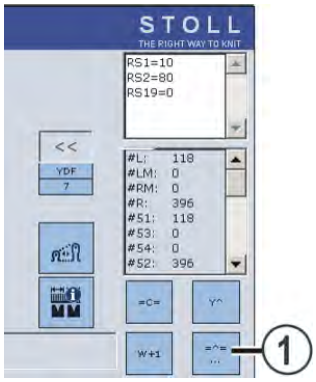
Window with selection possibilities

Actions can be selected in the following windows:

- Comb actions
- Fabric take-down, auxiliary take-down and yarn carrier plunger
- State Line
- Sintral line

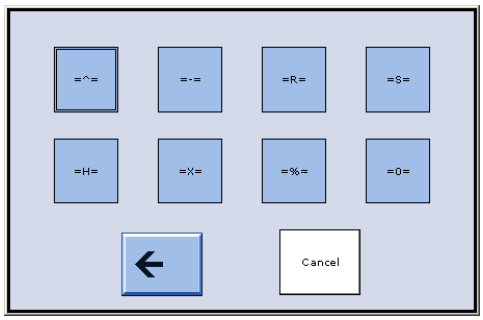
Comb actions

Various actions for the comb take-down can be selected by tapping the key (1).



"Comb actions" window

The "Select comb actions" window appears.

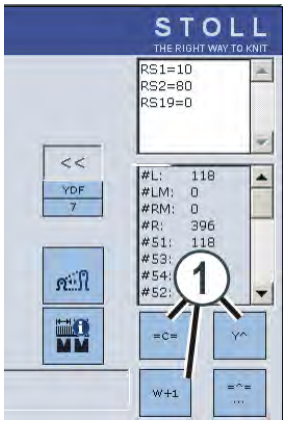


"Select comb actions" window

Key	Explanation
= ^ =	Comb take-down upwards, grip elastic yarn
= - =	Comb take-down in waiting position
= R =	Comb take-down reference run
= S =	Comb take-down at upper limit switch
= H =	Opening the comb hooks
= X =	Open the comb brake
= % =	Close the comb brake
= 0 =	Comb take-down at lower limit switch
Cancel	This key can be used to cancel an action as long as it is being carried out.

Actions for fabric take-down, auxiliary take-down, yarn carrier plunger

The keys (1) can be used to select actions for the fabric take-down, auxiliary take-down and the yarn carrier plungers. The possible action is always displayed on the key.



"Actions for fabric take-down, ... " window

Key	Explanation
= C =	Close fabric take-down
= W =	Open fabric take-down
Y^	De-activate all the yarn carrier plungers
Yv	Activate all the yarn carrier plungers
W+1	Close auxiliary take-down
W+0	Open auxiliary take-down

State Line

The elements displayed in gray in the status line can be selected. To do so, tap one of the gray fields.

"Status line" window

At some elements the gray field is divided. This means: If the front field is touched, the complete setting menu for this element appears. If the rear part of the gray field is touched, the window for changing the value appears.

Sintral line

If this field is touched, the "Sintral editor" window opens up. The cursor is automatically positioned before the current Sintral line.

4.1.18 Racking correction

To achieve the optimum transfer position even with different stitch tensions, the racking specification can be provided with a correction. Usually, the correction value is provided with a "?" when writing the knitting program.

During knitting, the machine automatically stops in the reversing position before the line with the correction specification is knitted. Now the optimum value can be entered.

Key	Function
	Call up the "Racking correction" window
	Confirm entries

Button for calling up the "Racking correction" window

Adjusting racking correction value:

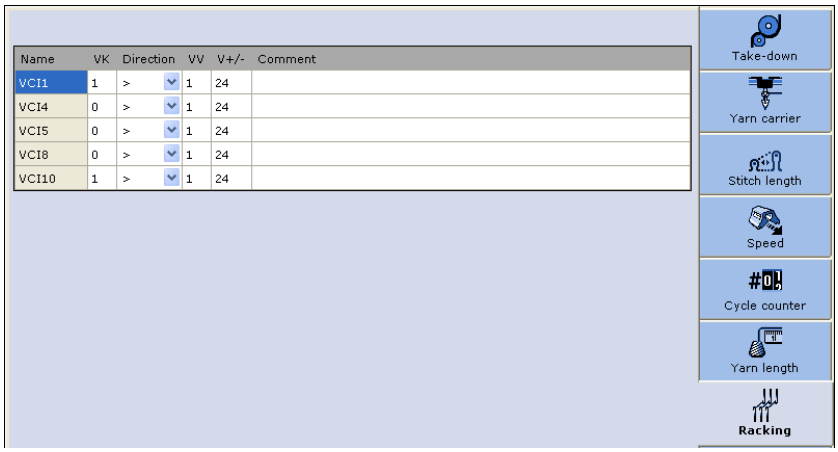
1. Call up the "Racking correction" window from the "Main menu".
2. Press the input field for the racking correction and enter the value.

   - or -

➜ If a racking correction is to be changed, then press the corresponding button and enter the value in the input field.

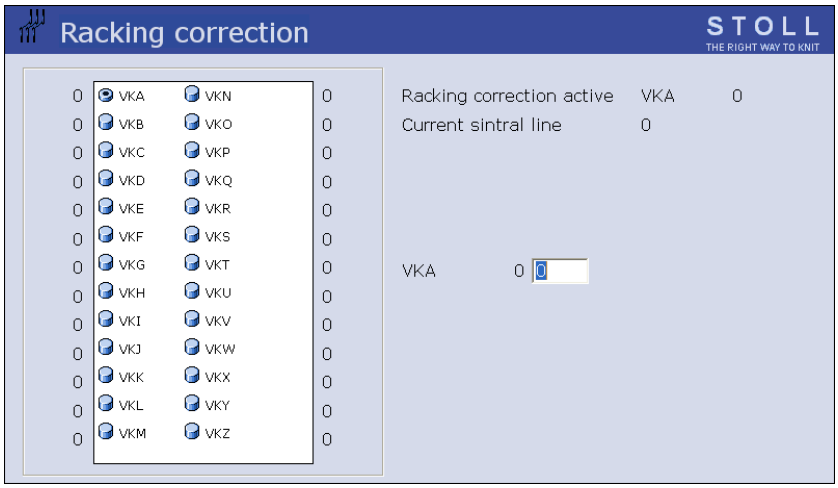
3. Confirm input.

Racking correction (Setup2)



	Explanation	Value range
VCI…	Racking function	VCI1 to VCI50
VK	Racking correction by m steps (0-10)	Step width: 1/70 of the needle distance
Dir	Direction of the racking correction < - to the left > - to the right ? - not defined, will be defined on the machine	
VV	Racking speed n (1-32), without an instruction VV=32	
V+/-	V+ - Overracking, in addition to the racking specification positive value: Overracking in racking direction negative value: Overracking in opposite to the racking direction	(n=1-24, step width: 1/8 of the needle distance)
Comment	Comment	ASCII Characters

Racking correction (Setup1)



"Racking correction" window

Saving/loading racking corrections (Setup1)

The racking corrections are not only pattern-dependent, but also machine-dependent. As a result, these settings can be saved on the hard disk or copied back from it.

Key	Function
	Call up "Additional function keys"
	Delete all racking corrections
	Save racking corrections on hard disk
	Copy back racking corrections from hard disk to machine memory

Buttons for saving/loading racking corrections

1. Call up the "Additional function keys" in the "Racking correction" window.
2. Tap the desired button.

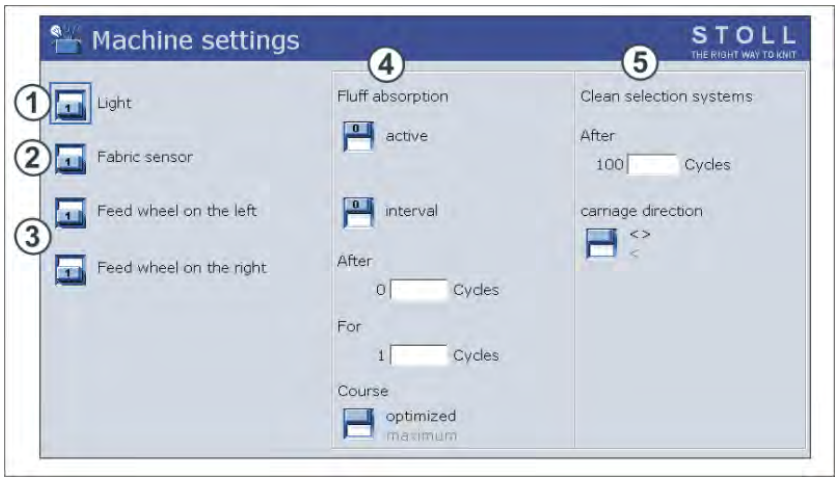
4.2 Advanced adjustments

This chapter contains information on:

4.2.1 Switching on and off aggregates

Key	Function
	Call up the "Machine settings" window.

Keys for calling up the "Machine settings" window



"Machine settings" window

	Explanation	
1	Switch on or off lighting in machine area	
2	Switch fabric sensors on and off (not in the case of machines with comb take-down)	
3	Switching right or left feed wheel on or off. If the feed wheel is not required, we recommend switching it off. This saves energy.	
4	Switch fluff absorption on or off. The needle beds in the knitting area are vacuumed off with the fluff absorption automatically. This does not interrupt ongoing knitting. We recommend switching on the fluff absorption permanently. The settings for the fluff absorption always remain saved, even when the operating system is loaded again.	
	Interval	Periodic switch on and off of the suction device. After n courses: Number of courses without suction (1 course = 2 rows) For n courses: Number of courses with suction
	Stroke	"optimised": The cleaning row is carried out only in SEN area. "maximum": The cleaning row is carried out over the entire needle bed.

	Explanation	
5	Clean the selection systems. Some brushes are fixed on the exterior part of the needle bed. The carriage runs so far outwards that the brushes of the selection systems clean it, Suction and cleaning row. This does not interrupt ongoing knitting.	
	After n courses	Number of courses till the selection systems get cleaned (1 course = 2 rows)
	Carriage direction	"< >": to left and right "<": to left only

Further information:

- Central lubrication [-> 29]
- Suction and cleaning row [-> 28]

4.2.2 Setting language

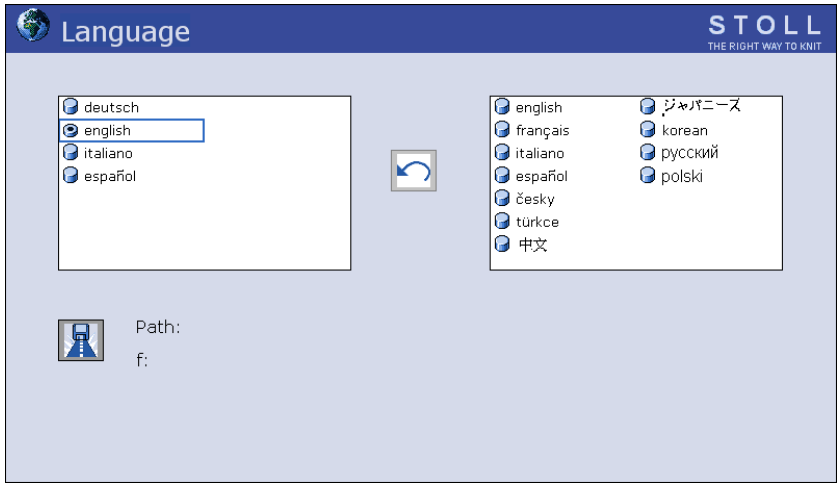
The windows and the messages on the touch screen can be displayed in different languages.

Key	Function
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up the "Language" window
	Tap the "Select Path" key.
	Confirm input
	Save changes and end setting process
	End setting process without saving changes
	Call up "Main menu"

Keys for setting the language

Set language:

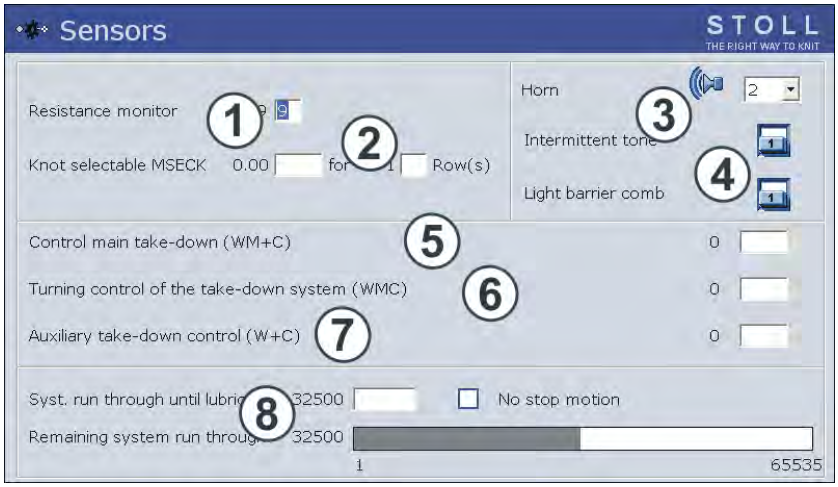
1. Call up the "Service" menu.
2. Call up the "Basic settings" menu.
3. Call up the "Language" window.



"Language" window

4. Select a language present in the machine from the column on the left. Confirm input.
5. If the language has not been loaded yet, it must be reloaded now. The languages are, for example, saved on a floppy disk, the USB memory stick or the M1. To select the storage location, the corresponding source directory must be selected. Tap the "Select path" key. Select the new path. Save changes and end setting process.
6. Select the language in the right column. If the language is loaded, it appears in the column on the left. Repeat step 4.
7. Call up the "Main menu".

4.2.3 Adjusting sensor mechanism *



"Sensors" window

Field	Data shown
1	Stop resistance Value range: 1-32, 1=not sensitive, 32=very sensitive
2	Carriage speed after small knots
3	Activating/deactivating of horn and selection of volume in three degrees: 0=off 1=low, 2=middle, 3=loud Intermittent tone Switching on/off an intermittent tone for the horn.
4	If the comb take-down moves upward for fabric transfer, a light barrier checks whether the previously produced knitted panel has completely been ejected.
5	Monitoring of main take-down. If the fabric take-down roller has not turned after "n" (0-100) knitting rows, a stop motion is carried out (0=monitoring off).
6	Monitoring of main take-down. If the roller turns too quickly, a stop motion is carried out (e.g. when the fabric is ejected). Value range: 1-32, 1=not sensitive, 32=very sensitive
7	Monitoring of auxiliary take-down. If the auxiliary take-down has not turned after "n" (0-100) knitting rows, a stop motion is carried out (0=monitoring off).
8	Setting lubricating interval for needle bed

Key	Function
	Call up the "Machine settings" window.
	Call up "Additional function keys"
	Call up "Sensors" window
	Confirm input
	Call up "Main menu"

Keys for adjusting the sensor mechanism

Adjusting sensor mechanism:

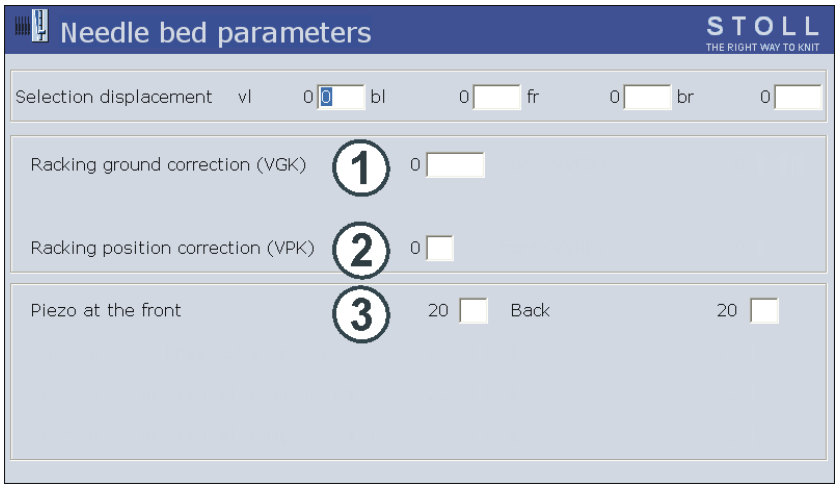
1. Call up the "Machine settings" window.
2. Call up "Additional function keys".
3. Call up the "Sensors" window.
4. Enter the value on the appropriate line.
5. Confirm input.
6. Call up "Main menu".

Further information:

- Stop resistance [-> 35]
- Adjusting carriage speed [-> 108]
- Setting lubricating interval for needle bed [-> 320]
- Symbols in this document [-> 12]

4.2.4 Setting needle bed parameters

The needle bed parameters are used to make the needle-bed-specific settings. They serve for the fine adjustment of the needle beds. The needle bed parameters always remain saved, even when the operating system is read in again.



"Needle bed parameters" window

Field	Data shown
1	Racking ground correction (VGK)
2	Racking position correction (VPK)
3	Shock stop motion for the front and rear needle beds and additional needle bed. Value range: 1-32, 1=not sensitive, 32=very sensitive

Key	Function
	Confirm input
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Open the "Needle bed parameters" window
	Call up "Main menu"

Keys for setting the needle bed parameters

Setting needle bed parameters:

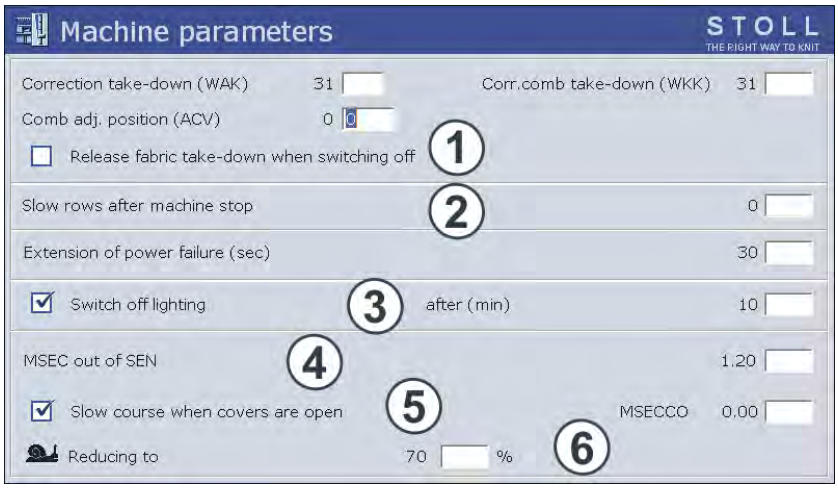
1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up "Basic Settings" menu.
4. Open the "Needle bed parameters" window.
5. Enter the value on the appropriate line.
6. Confirm input.
7. Call up the "Main menu".
8. Save the change in the machine adjustments on the USB memory stick.

Further information:

- Adjusting basic racking correction VGK [-> 178]
- Adjusting racking position correction VPK [-> 176]
- Shock stop [-> 35]
- Saving all machine data on the USB-Memory-Stick [-> 403]

4.2.5 Setting machine parameters

The machine parameters are used to make the machine-specific settings. They serve for the fine adjustment of the machine. The machine parameters always remain saved, even when the operating system is loaded again.



"Machine parameters" window

Field	Data shown
1	Releasing fabric take-down when switching off the main switch. With a delicate fabric no stitch elongations then occur.
2	Following a machine stop the machine runs for several rows at reduced speed. Value range: 0-6, 0=off

Field	Data shown
3	Automatic deactivation of lighting after a certain time. Duty cycle: 10 minutes (standard), value range: 0...60 minutes Recommendation: LED lamp: 0 minutes, fluorescent lamp 10 minutes
4	Speed outside the SEN area (MSECOS) Standard: 1.2 m/sec (maximal speed)
5	Maximum carriage speed with open cover hoods if the engaging rod is held in position 3 (production). Value range in input field "MSECCO": 0.00 to 0.20 m/s, standard: 0.05, step width: 0.05, 0.00=carriage does not move.
6	carriage speed, if key  is active. Reduction of normal speed to percentage specification "n". Default: 70 %

Key	Function
	Confirm input
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up "Machine parameters" window
	Call up "Main menu"

Keys for setting the machine parameters

Set machine parameters:

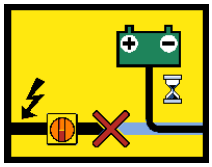
1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up "Basic Settings" menu.
4. Call up the "Machine parameters" window.
5. Enter the value on the appropriate line.
6. Confirm input.
7. Call up the "Main menu".
8. Save the change in the machine adjustments on the USB memory stick.

Further information:

- Engaging rod [-> 43]
- Saving all machine data on the USB-Memory-Stick [-> 403]

4.2.6 Setting switch-off time when a power failure occurs

The machine is immediately stopped when a power failure (longer than 45 milliseconds) occurs. The knitting program, operating system and the machine-specific data are not lost. The battery card (with the accumulators) ensures this. A pictograph indicating the power failure appears on the touch screen.



"Power failure" pictograph

	DANGER
	Life-threatening high voltage! Electrical shock may cause death or serious injuries. ➜ Even in the case of power failure, do not work on the electrical system of the machine without interrupting the power supply .

➜ Set machine main switch to "0".

Longer power failure

If the power failure lasts more than 30 seconds (standard setting), the computer of the knitting machine is automatically shut down. The time until the computer shuts down can be set from 2 to 180 seconds.

If you are sure that the power failure has been in effect for a longer period of time, you can switch off the main switch with "Switch off main switch".

The set time always remain saved, even when the operating system is loaded again.

Shorter power failure

If the power supply is restored within the set time, confirm the power failure message with the "Confirm message" key. To continue knitting, start the machine with the engaging rod.

Conditions

If the battery voltage is too low ("Battery voltage low" message appears), it is not possible to extend the power failure time.

If a STIXX device is used with the machine, a check is automatically performed to determine which device it is.

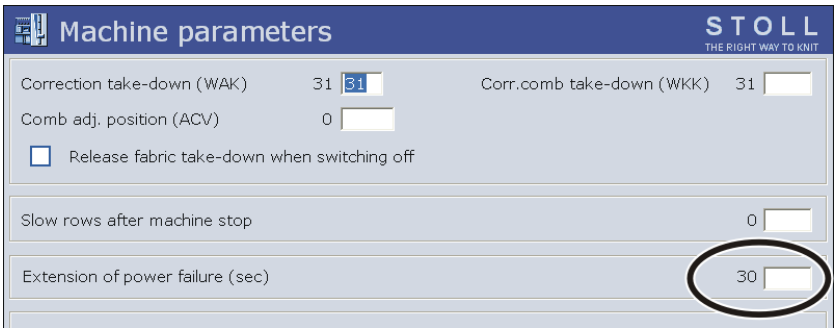
- The extension of the power failure time is possible with an ASCON device and a new STIXX device (ID 236 275).
- This is not possible with an older device, as the STIXX correction values cannot be saved and are therefore lost during a power failure. The power failure time is automatically reduced to 2 seconds. If a higher time is set, a message appears stating that this is not possible.

Key	Function
	Confirm message
	Switch off main switch
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up "Machine parameters" window
	Confirm input
	Call up "Main menu"

Keys for adjusting the power failure time

Set power failure time:

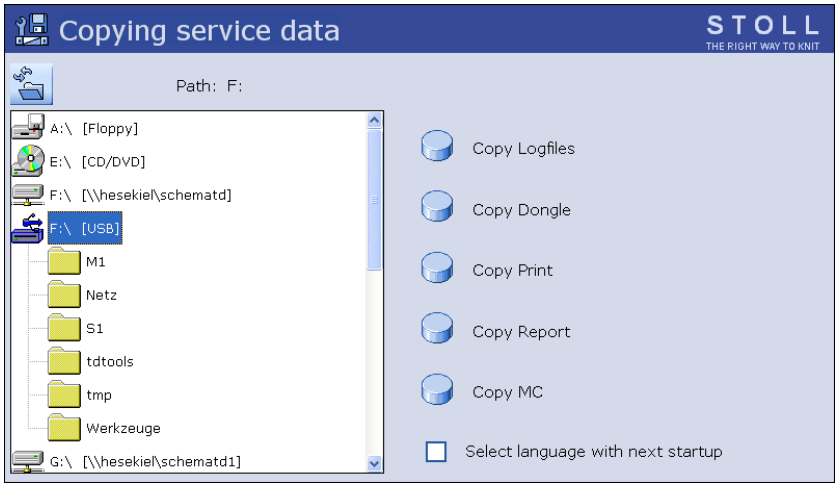
1. Call up the "Service" menu from the "Main menu".
2. Call up the "Machine parameters" window from the "Basic settings" menu.



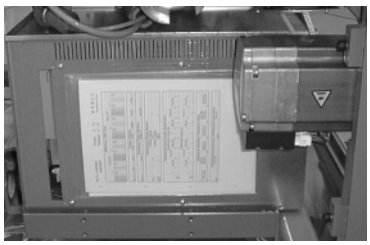
3. Enter the desired time.
4. Confirm input.
5. Call up "Main menu".

4.2.7 Copying service data

With this menu the service data can be copied on a data carrier.



"Copy service data" window

Label	Explanation
Copy Logfiles	If the machine computer has serious problems, e.g.. . it does not react to any entries or the program crashes any longer, the cause is very important for Stoll. The computer saves the data up to the fault internally in so-called "Logfiles". These files can be saved and sent to the Stoll helpline so that Stoll can carry out an exact error diagnostics.
Copy Dongle	The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report and other internal control information. It is important to back up the data, e.g. when the hard disk is replaced.
Copy Print	For the Stoll technician only
Copy Report	The operating data are saved with the STOLL machine number.
Copy Mc	The machine data include the machine-specific settings (correction values). The data will be saved in a zip-file. When the knitting machine was shipped, the machine data was printed out and put on the right control cabinet. 
Select language with next startup	With next switching on of the machine, the language selection appears. The setting is reset after switching on.

Keys in the "Copy service data" window

Key	Function
	Call up the "Service" menu
	Call up "Copy service data" window
	Call up "Main menu"

Keys for copying the service data

Copy service data:

1. Call up the "Service" menu from the "Main menu".
2. Call up the "Copy service data" window.
3. Select the desired data carrier e.g. . USB memory stick (Drive F:).
4. Tap the desired button.

▶ The data are saved.

5. Call up "Main menu".

Further information:

- Calling up report and shift counters [-> 76]
- Saving all machine data on the USB-Memory-Stick [-> 403]

4.2.8 Carry out the reference run

Following all repair and conversion work on the carriage assembly or on the needle bed, a reference run must be carried out.

The reference run is carried out with the following steps:

- Calling up and noting the machine data
- Carrying out the reference run
- Calling up and correcting the machine data
- Loading the knitting program and determining the racking reference data

Key	Function
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Returning to the previous window
	Call up "Machine parameters" window
	Open the "Needle bed parameters" window
	Call up "NPK values" window
	Call up "Needle selection" window
	Call up "Reference runs" window
	Call up "Main menu"
	Call up "Machine start" window

Keys for carrying out a reference run

Call up and note machine data

1. Call up the "Service" menu.
2. Call up "Basic Settings" menu.
3. Call up the "Machine parameters" window.

4. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
5. Switch back to the previous window.
6. Call up the "Needle bed parameters" window.
7. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
8. Switch back to the previous window.
9. Call up the "NPK values" window.
10. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
11. Switch back to the previous window.
12. Call up the "Needle selection" window.
13. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
14. Call up "Main menu".

Carry out the reference run

1. If the racking device is not in the home position, press off the stitches of a needle bed.
2. Call up the "Service" menu.
3. Call up the "Reference runs" window.
4. If the carriage assembly is stopped in the left reversing position, tap the "SR!>" key.

   - or -

➜ If the carriage assembly is stopped in the right reversing position, tap the "SR!<" key.

The carriage moves automatically in both directions

Starting with the operating system V 2.2 there is an automatic reference run. The carriage can move automatically in both directions.

---

5. Start the machine with the engaging rod.

   ▷ The carriage assembly carries out a reference run and stops after having loaded the reference data.
6. Press the engaging rod downward.
7. To stop the carriage assembly on the left side outside the needle bed, tap the "S<" or "S>" key and start the machine with the engaging rod.
8. To move the carriage assembly a few centimeters to the right, tap the "S>" key, start the machine with the engaging rod and stop it again immediately. The carriage assembly must still be positioned outside the needle space.
9. Switch back to the previous window.

Calling up and correcting machine data

1. Call up the "Basic settings" menu.
2. Call up the "Machine parameters" window.
3. Compare the displayed values with the target values on the machine data sheet and if necessary correct the values in the window "Machine parameter" and confirm them.
4. Switch back to the previous window.
5. Call up the "Needle bed parameters" window.
6. Compare the displayed values with the values on the machine data sheet. If necessary, correct the values on the machine data sheet.
7. Switch back to the previous window.
8. Call up the "NPK values" window.
9. Compare the displayed values with the target values on the machine data sheet. If necessary, correct the values in the "NPK values" window and confirm them.
10. Switch back to the previous window.
11. Call up the "Needle selection" window.
12. Compare the displayed values with the target values on the machine data sheet. If necessary, correct the values in the "needle selection" window and confirm them.
13. Call up the "Main menu".

Load knitting program and determine racking reference data

1. Load the knitting program.
2. Call up the "Machine start" window.
3. Tap on the key "SP from line 1".
4. Start the machine with the engaging rod.
   ▷ The carriage assembly moves slowly and stops in the right reversing position.
5. Wait until the "Racking finished" Message appears on the touch screen.
6. To switch on the needle selection, tap the needle selection "On" key in the "Machine start" window.

▶ The reference run is complete, the machine is ready to knit.

Further information:

■ Loading files, libraries and pattern folders [-> 56]

4.2.9 Adjusting racking position correction VPK

The fine adjustment of the transfer racking is carried out by means of the VPK value. With the "Racking position correction (VPK)" the rear needle bed is aligned exactly relative to the front needle bed.
The VPK value always remains saved, even if the operating system is imported again.

Key	Function
	Call up the "Service" menu
	Call up the "Service Racking" window
	Confirm input
	Call up "Main menu"

Keys for setting VPK value

Adjusting VPK:

1. Program an empty row with transfer racking and fix the knitting instruction.
2. Push up two opposing needles in the center of the needle bed.
3. Check whether the needle hook of the front needle dips into the pelerine spring of the rear needle.
4. If this is not the case: Push back needles and correct racking device.
5. Call up "Main menu".
6. Call up the "Service" menu.

7. Call up the "Service Racking" window.

"Service Racking" window

8. Enter the value in the "VPK" line using the linear regulator.

-1…-8	Correction to the left (1 step = 0.18 – 0.25 mm, according to the machine gauge)
+1…+8	Correction to the right (1 step = 0.18 – 0.25 mm, according to the machine gauge)

9. Confirm input.
   ▷ The needle bed moves lightly to the left or right.
10. Repeat steps 2 to 9 until the needle hook of the front needle dips into the pelerine spring of the rear needle.
11. The NPK values are automatically saved in the data specific to the machine (dongle data).

▶ The setting process is complete.

If you want, you can save VPK-value additionally:
➜ on a USB memory stick [🗎 403]
➜ on a network drive (button "Copy Dongle") [🗎 171]

Further information:

■ Helpful knitting rows [-> 334]

4.2.10 Adjusting basic racking correction VGK

The position of the rear needle bed relative to the front needle bed is set with the VGK value (factory setting).

If part of the racking device is replaced, e.g. the racking motor or the racking belt, the VGK value has to be set anew. During installation, make sure that the front and rear needle beds are opposite each other.
The VGK value always remains saved, even if the operating system is imported again.

Key	Function
	Call up the "Service" menu
	Call up the "Service Racking" window
	Confirm input
	Call up "Main menu"

Keys for setting VGK value

Setting VGK:

✔ Cast-off the stitches on both needle beds.

1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up the "Service Racking" window.

"Service Racking" window

4. Enter and confirm the value "0" in the line "VPK".

5. Tap the "Racking adjusting run" key. A message appears, answer this with "Yes".
   ▷ The needle bed moves to the left and right. The racking will be synchronized.
6. Tap the "Reference run V>REF" key. A message appears, answer this with "Yes".
   ▷ The needle bed moves to the left and right. The racking is carrying out a reference run.
7. Program an empty row with half racking and fix the knitting instruction.
8. Push up several opposing needles at various positions of the needle bed (left, center, right) on both needle beds until the needle hooks touch each other.
9. Check whether the needle heads of the front and rear needle bed are exactly in a line.
10. If this is not the case: Push back needles somewhat so that they do not touch each other anymore. In the "VGK" line, enter the value using the linear regulator.

-1…-150	Correction to the left (1 step = 0.01 mm)
+1…+150	Correction to the right (1 step = 0.01 mm)

11. Confirm input.
    ▷ The needle bed moves lightly to the left or right.
12. Check whether the needle heads of the front and rear needle bed are exactly in a line.
13. If this is not the case, repeat steps 10 to 12 until the needle hooks of the front and rear needle beds are exactly positioned in one line.
14. The VGK value is automatically saved in the data specific to the machine (dongle data).
15. Adjust VPK value (see [🗎 176]).
    (To be able to determine the VGK value you had to set the VPK value to "0" (in step 4). After having determined the VGK value you must set the VPK value again.)

▶ The setting process is complete.

If you want, you can save the VGK-value additionally:
➜ on a USB memory stick [🗎 403]
➜ on a network drive (button "Copy Dongle") [🗎 171]

Wrong selection - individual needles miss-knit

If a wrong selection occurs, then the synchronisation "Impulse sensor – control – selection system" is not optimal anymore. This has been caused by the big difference between the old and new VGK values.

➜ The test "Needle selection displacement" must be carried out for re-establishing the synchronisation [🗎 377].

Further information:

- Helpful knitting rows [-> 334]

4.2.11 Correcting position of stitch cams

Each stitch cam can be corrected for each carriage direction

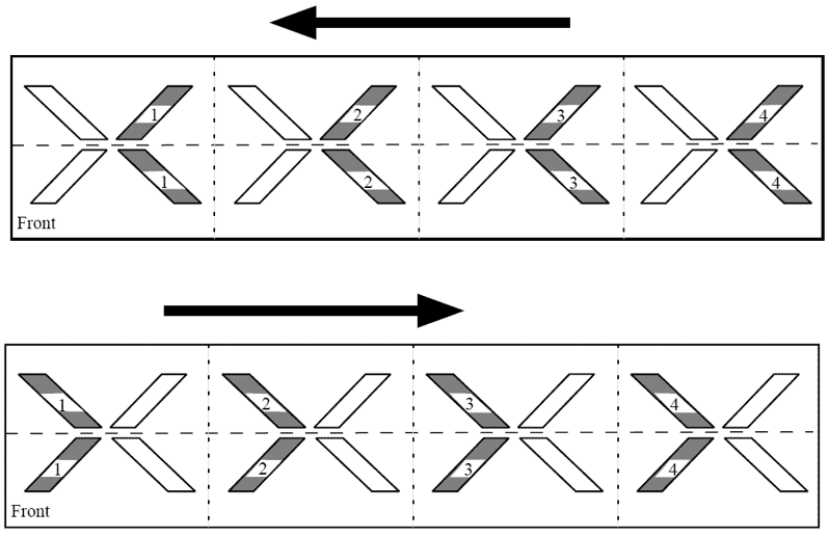
- for knitting
- for knitting with split-stitch technique

Reduce stitch tension: Value without sign or with "+" sign

Increase stitch tension: Value with "-" sign

The second stitch cam of a system is always corrected, as only it is active.

The stitch cams are numbered consecutively from left to right, regardless of the carriage direction.



	Meaning
System 1-n	Number of knitting system counted from left to right
<<	Carriage direction to the left
>>	Carriage direction to the right
n.n	Correction value for knitting
$ n.n	Correction value for knitting with split-stitch technique

Meaning of displays in NPK values window

Key	Function
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up "NPK values" window
	Reduce current value by one step
	Increase current value by one step
	End the setting process and save the changed values.
	Call up "Main menu"

Keys for correction of stitch cam position (NPK value)

Correcting position of stitch cams:

1. Call up "Main menu".
2. Call up the "Service" menu.
3. Call up the "Basic settings" menu.
4. Call up the "NPK values" window.
5. Change the NPK values for knitting and for knitting with split-stitch stitch and confirm the changes.

   ▷ The values are automatically saved in the data specific to the machine (dongle data).

▶ The setting process is complete.

If you want, you can additionally save the values:

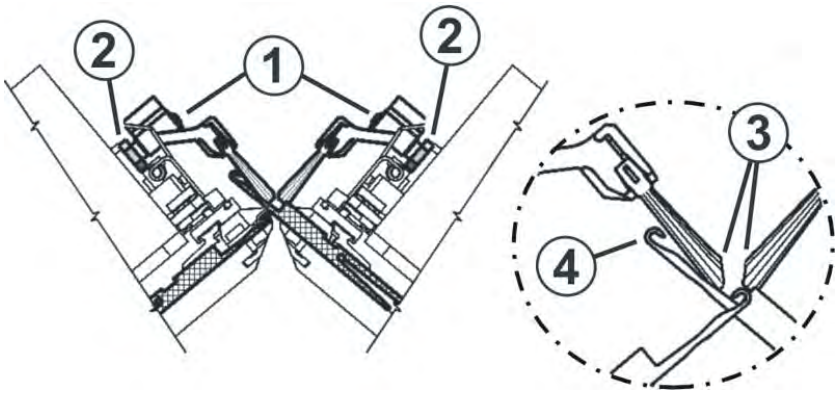
➜ on a USB memory stick [🗎 403]

➜ on a network drive (button "Copy Dongle") [🗎 171]

4.2.12 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 laying in the thread. They are swivel-mounted so, that they are always inclined in the direction of travel of the carriage assembly.



Inclination of needle brushes

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 (RR). The distance (4) is to be 0.5 mm to 1 mm.

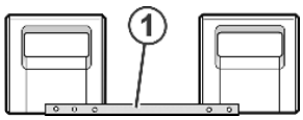
Key	Function
	Call up "Manual interventions" window

Key for calling up "Manual interventions" window

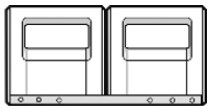
Adjusting needle brushes:

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. Call up "Manual interventions" window.
6. Move carriage assembly at low speed. To do this, press "Move stepwise" button and check the setting of the needle brushes.

4.2.13 Coupling carriage assembly wide or narrow



wide coupling



narrow coupling

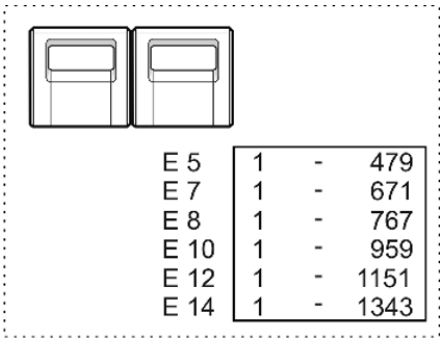
Both carriage assemblies can work together coupled wide in the tandem mode or coupled narrow.

The coupling width depends on:

- the fabric width
- the needed parking area for the yarn carrier between both fabrics

The following tables show you the relation between the coupling width, the fabric width and the parking area for the yarn carrier.

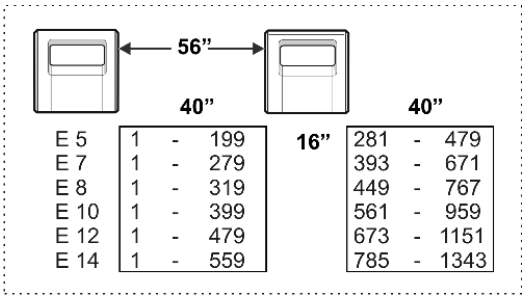
Needle area with 96" needle bed width



E 5	1	-	479
E 7	1	-	671
E 8	1	-	767
E 10	1	-	959
E 12	1	-	1151
E 14	1	-	1343

narrow coupling

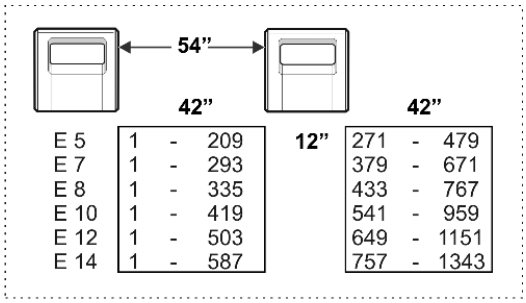
Coupling width 56"



E 5	1	-	199		281	-	479
E 7	1	-	279		393	-	671
E 8	1	-	319		449	-	767
E 10	1	-	399		561	-	959
E 12	1	-	479		673	-	1151
E 14	1	-	559		785	-	1343

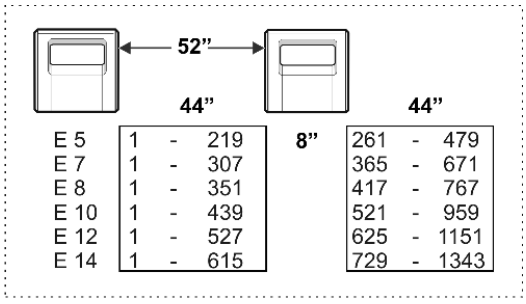
Needle area for coupling width 56"

Coupling width 54"



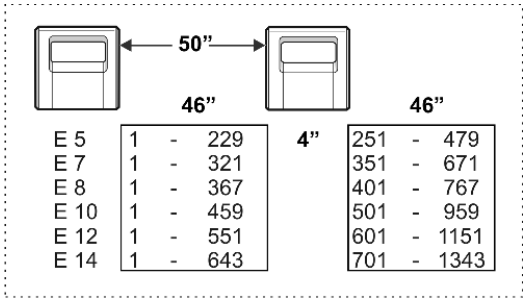
Needle area for coupling width 54"

Coupling width 52"



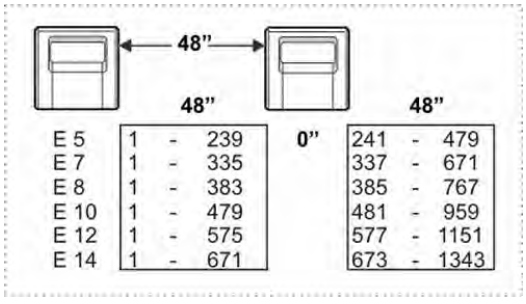
Needle area for coupling width 52"

Coupling width 50"



Needle area for coupling width 50"

Coupling width 48"



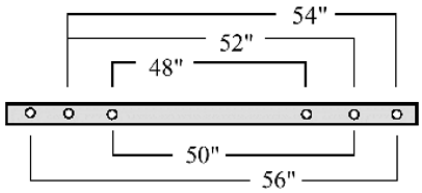
Needle area for coupling width 48"

Key	Function
	Call up "Main menu"
	Call up the "Service" menu
	Call up "Reference runs" window

Keys for the work step coupling carriage assembly wide or narrow

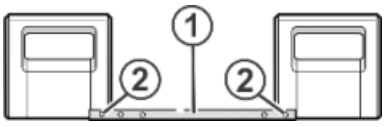
Couple carriage assembly wide

1. Program an empty row and fix the knitting instruction.
2. Start the machine with the engaging rod and stop it again when the carriage is located shortly after the left reversing position.
3. Switch off 40 V power supply.
4. Open the lock of the rear panel segments with the square wrench from the enclosed accessories and take off the segments.
5. loosen screws (2) and remove them.
6. For wide coupling (tandem machine), push the right carriage to the right until the coupling rod (1) can be mounted.



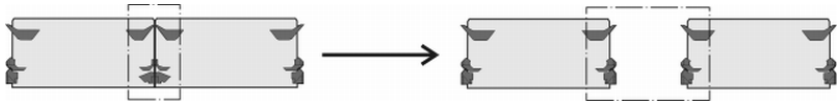
Coupling widths for CMS 933

7. Insert the screws (2) and tighten.



Coupling of carriage assembly

8. Remove the carriage part in order to replace the cams.



Replace cams for wide coupling

9. Place carriage part on contact surface and assembly with carriage assembly.
10. Close the rear panel.
11. Switch on 40 V power supply.
12. Call up the "Main menu".
13. Call up the "Service" menu.
14. Call up the "Reference runs" window.
15. Press the "SR!>" key and start the machine with the engaging rod.
    - ▷ The carriage assembly runs in the creep speed until it automatically stops and the message "Reconfiguration" appears on the display. The control adjusts to the new coupling width. After a short time the message disappears again.
16. Move the carriage to the left. Thereby in the window "Reference runs" tap on the key "S<" and start machine with the engaging rod.
17. Stop the machine when the left carriage is outside the needle bed.
18. In the window "Reference runs" tap on the key "S>". Pull up the engaging rod for short. The carriages may run only a few centimeters towards right.

▶ The reference run is completed.

19. Load the knitting program.

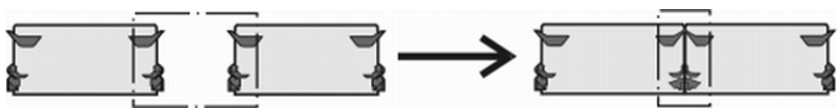
---

i If the carriage assembly operate coupled wide, the needles between both fabrics and at the right edge next to the right fabric must be free of fabric.

All yarn carriers must be positioned. Calling up yarn carrier assignment.

Couple carriage assembly narrow

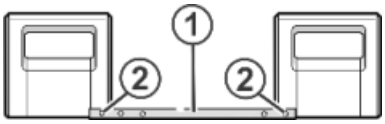
1. Program an empty row and fix the knitting instruction.
2. Start the machine with the engaging rod and stop it again when the carriage is located shortly after the left reversing position.
3. Remove the carriage part in order to replace the cams.



Replace cams for narrow coupling

4. Place carriage part on contact surface and assembly with carriage assembly.

5. Open the lock of the rear panel segments with the square wrench from the enclosed accessories and take off the segments.
6. loosen screws (2) and remove them.



Coupling of carriage assembly

7. For narrow coupling (tandem machine), push the left carriage assembly to the right and hook in the coupling rod (1)
8. Insert the screws (2) and tighten.
9. Close the rear panel.
10. Switch on 40 V power supply.
11. Call up the "Service" menu.
12. Call up the "Reference runs" window.
13. Press the "SR!>" key and start the machine with the engaging rod.
    ▷ The carriage assembly runs in the creep speed until it automatically stops and the message "Reconfiguration" appears on the display. The control adjusts to the new coupling width. After a short time the message disappears again.
14. Move carriage to the left. Thereby in the window "Reference runs" tap on the key "S<" and start machine with the engaging rod.
15. If the carriage is located outside the needle bed, stop the machine.
16. In the window "Reference runs" tap on the key "S>". Pull up the engaging rod for short. The carriage may run only a few centimeters towards right.

▶ The reference run is completed.

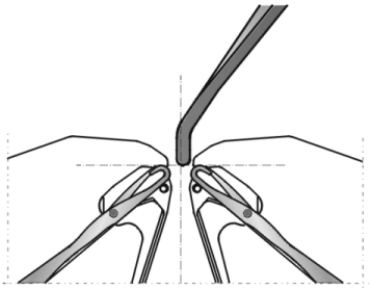
17. Load the knitting program.

Further information:

- Calling up yarn carrier assignment and allocation [-> 65]
- Helpful knitting rows [-> 334]
- Switching power supply 40 V off and on [-> 331]
- Removing and mounting carriage part [-> 348]
- Removing cam plate [-> 355]

4.2.14 Adjusting needle detector

The needle detector is correctly adjusted if:



Adjusting the needle detector

- it is near the holding-down jacks of the rear needle bed, however does not tap them
- the lower end of the needle detector is at the level of the needle hooks

	CAUTION
	Damage to the needle detector! If several yarn carriers are stopped at the same place, the needle detector will be damaged, as the yarn carriers cannot avoid the needle detector. ➜ Always stagger yarn carriers.

➜ Staggering yarn carriers.

Further information:

- Staggering yarn carriers [-> 122]

4.2.15 Adjusting yarn carriers

The yarn carriers are correctly adjusted if

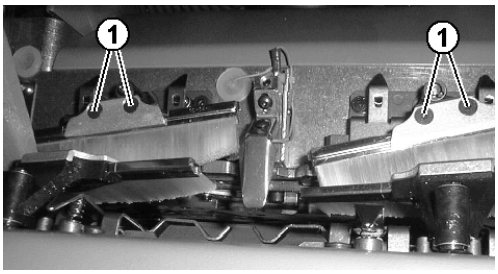
- the distance between the cam center of the knitting system and the yarn carrier in each system is identical in both carriage directions
- the thread is laid on the open latch at exactly the same point by each yarn carrier for both selvedge needles
- the yarn carrier tips move exactly between the needle 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 8 are also set 0.5 mm higher so that they do not touch the limiters (3)

Key	Function
	Call up "Manual interventions" window

Key for calling up "Manual interventions" window

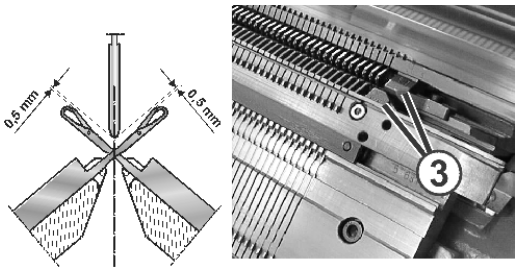
Adjusting yarn carriers:

1. Remove needle brushes by loosening screws (1).



Screws of needle brushes

2. Park the carriage assembly in needle space.



Adjusting yarn carriers

3. Adjust yarn carriers if necessary. When doing so, the carriage assembly must be stopped in the needle area.
4. Call up "Manual interventions" window.
5. Move carriage assembly at low speed. To do this, press "Move stepwise" button and check adjustment of yarn carriers.

Further information:

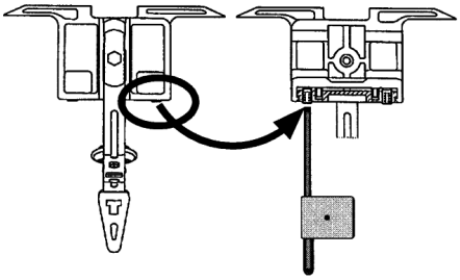
- Replacing yarn carrier [-> 362]

4.2.16 Adjusting yarn carrier guide

The yarn carrier guide must be adjusted if the yarn carrier can be lifted from the yarn carrier rail or a yarn carrier plunger is not put out of action.

Adjusting yarn carrier guide:

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.

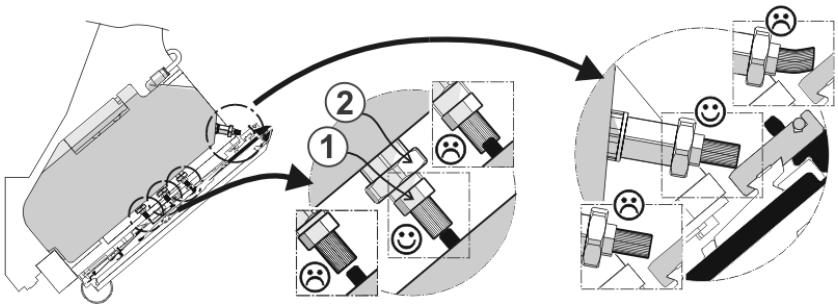


Adjusting yarn carrier guide

2. If necessary push the setting key inwards with the adjusting key from the accessories till the yarn carrier cannot be raised erect any more.
3. Turn the setting key back by one-eighth of a turn.

4.2.17 Adjusting the brushes of the central lubrication *

The brushes have been adjusted correctly if they touch the working butts lightly.



Brushes of the central lubrication

Adjusting the brushes of the central lubrication:

1. Release hexagon nut (2).
2. Adjust brushes on hexagon nut (1).
3. Retighten hexagon nut (2).
4. Adjust all brushes.

Further information:

- Symbols in this document [-> 12]

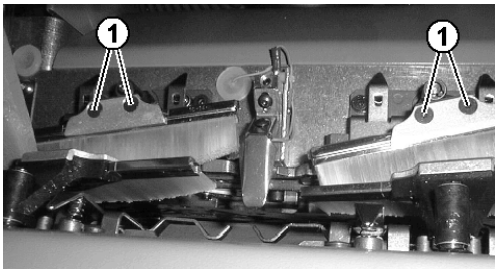
4.2.18 Adjusting intarsia yarn carrier (type 1) *

The yarn carriers are correctly adjusted if

- an unswiveled yarn carrier passes by a swiveled yarn carrier
- the distance between the cam center of the knitting system and the yarn carrier in each system is identical in both carriage directions
- 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 8 are also set 0.5 mm higher so that they do not touch the limiters (3)

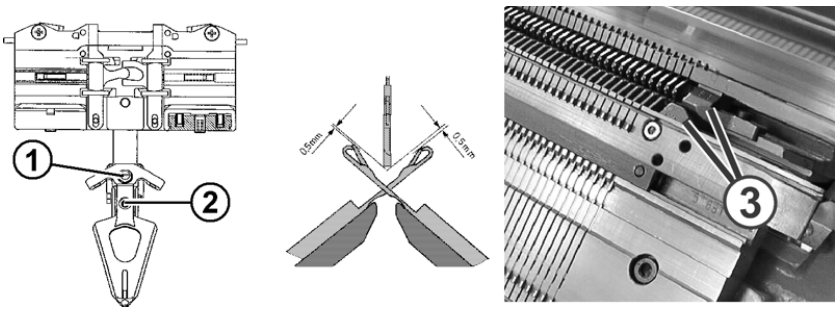
Adjusting intarsia yarn carriers:

1. Remove needle brushes by loosening screws (1).



Screws of needle brushes

2. Park the carriage assembly in needle space.



Adjusting the intarsia yarn carriers

3. To adjust the height of the yarn carrier, loosen the screw (1).
4. Adjust the height of the yarn carrier and retighten the screw (1).
5. To adjust the position of the yarn carrier head relative to the needle beds, loosen the screw (2).
6. Adjust the position of the yarn carrier head relative to the needle beds, retighten the screw (2) and coat it with a screw locking compound (e.g. Loctite 221).

Further information:

- Symbols in this document [-> 12]
- Intarsia yarn carrier * [-> 25]
- Mount intarsia yarn carrier * [-> 363]

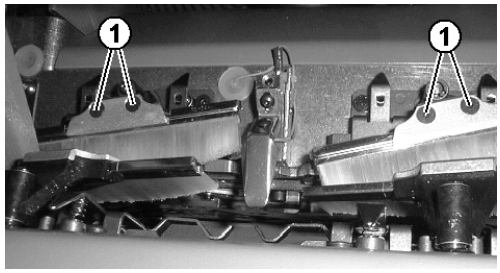
4.2.19 Adjusting intarsia yarn carriers (type 2) *

The yarn carriers are correctly adjusted if

- an unswiveled yarn carrier passes by a swiveled yarn carrier
- the distance between the cam center of the knitting system and the yarn carrier in each system is identical in both carriage directions
- 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 8 are also set 0.5 mm higher so that they do not touch the limiters (4)

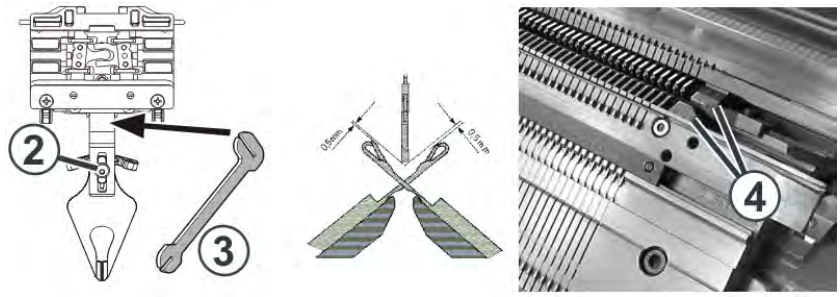
Adjusting intarsia yarn carriers:

1. Remove needle brushes by loosening screws (1).



Screws of needle brushes

2. Park the carriage assembly in needle space.
3. To adjust the height of the yarn carrier, loosen the screw (2).



Adjusting the intarsia yarn carriers

4. Adjust the height of the yarn carrier and retighten the screw (2).

5. In order to laterally adjust the position of the yarn carrier tip, bend the yarn carrier bow carefully (without using force) with the adjusting part (3).

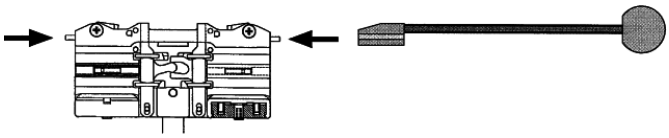
Further information:

- Symbols in this document [-> 12]
- Intarsia yarn carrier * [-> 25]
- Mount intarsia yarn carrier * [-> 363]

4.2.20 Shifting intarsia yarn carriers in area of carriage assembly *

Intarsia yarn carriers located in the area of the carriage assembly cannot be shifted by hand. They are shifted with the shifting device from the accessories.

Shift yarn carriers in area of carriage assembly:



Shifting device

➜ Press the lifters inward with the shifting device from the accessories and shift one or more yarn carriers out of the area of the carriage assembly.

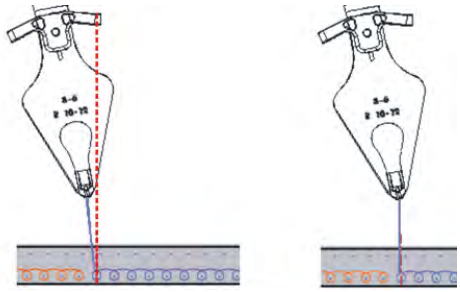
Further information:

- Symbols in this document [-> 12]

4.2.21 Intarsia yarn carrier - Adjust stopping point (basic setting, braking value) *

With an intarsia yarn carrier it is important that it is stopped exactly above the last needle of its knitting area. Otherwise the following error possibilities will be:

- During the knitting it may cause erroneous switchings as the control calculated the yarn carrier on another position than it is actually located on.
  Consequence: The yarn carrier is not swivelled or it is not taken along.
- The yarn can be knitted-in and this way an uncleaned colour edge would be the result.



Stopping position (on the left: wrong, on the right: correct)

If the intarsia yarn carrier does not stop exactly above the last needle, you have to correct the braking value and **not** the correction value.

> **Difference: braking value - correction value**
> Braking value: mechanical adjustment of the yarn carrier
> Correction value: knitting-technical and pattern related correction of the yarn carrier

An adjusting program is available for controlling the stopping positions. With this program you can easily check and adjust the braking values of the intarsia yarn carrier.

When creating the intarsia pattern on the M1plus (starting with version 5.3) you specify that the adjusting program is to be integrated in the pattern.

On the knitting machine you run the adjusting program before or also during the production. An embroidery stitch line is knitted with all the Intarsia yarn carriers used in the pattern for you to be able to check the correct stopping position quickly and easily.

You can correct the stopping position of the yarn carrier changing the braking values for the yarn carrier.

Further information:

- Symbols in this document [-> 12]

Which yarn carriers are located on the machine.

Carry out this section:

- with machines without clamping and cutting bed
- if the clamping and cutting bed is switched off

Only with these machines you can change the yarn carrier equipment.

With all the other machines there is predefined a permanent yarn carrier equipment that cannot be changed.
The functions "Move", "Delete", "Activate" are deactivated (grayed out).
-> Skip this section. It continues on Page [🗎 199].

Check the yarn carrier equipment before the production starts.
It is possible that the number of the yarn carriers has changed:

- several yarn carriers were removed for the previous pattern
- more (or less) yarn carriers are needed for the new pattern

The computer has to know about the new yarn carrier equipment to be able to allocate its specific braking value to every yarn carrier and also to a new yarn carrier.

Key	Function
	Call up the "Yarn carrier" window
	Call up the "Yarn carrier braking values" window
	Save changes and end setting process
	Call up "Additional function keys"
	Reset the default setting of yarn carrier arrangement
	Call up "Main menu"

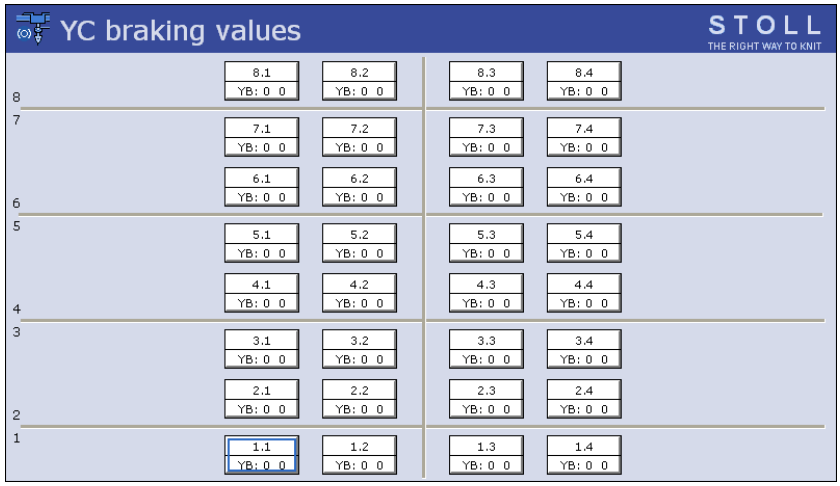
Keys for calling up the yarn carrier braking values

Correcting the stopping position of the yarn carrier:

✔ The knitting program must not be started (the "SP from line 1" key in the "Machine start " window must not be activated)

1. Call up the "Yarn carrier" window.
2. Call up the "Yarn carrier braking values" window.

   ▷ The last yarn carrier equipment saved is displayed.



"Yarn carrier braking values window"

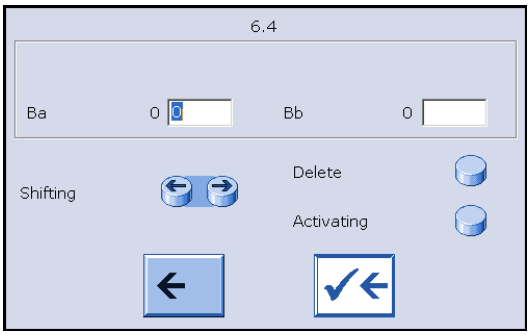
2.1 YB: 0 0	Yarn carrier present.
7.3	The yarn carrier is not present. It has been deleted manually.

- A maximum of 4 yarn carriers can be located on each yarn carrier track. The counting is carried out from the left to the right: n.1, n.2, n.3, n.4. (This is called a physical numbering.)
- If a yarn carrier is present, then its braking values are displayed.
- In the middle of the window you can see a vertical separating line.
  at the left of the separating line: The yarn carriers are positioned on the left machine side
  at the right of the separating line: The yarn carriers are positioned on the right machine side

3. Check the displayed yarn carrier equipment.
4. If necessary adapt the yarn carrier equipment to the new pattern (yarn carrier home position).

5. Cick the required yarn carrier.

   ▷ The setting window appears.



Moving yarn carriers	to the left	Only possible if no other yarn carrier is located on the left hand-side.
	to the right	Only possible if no other yarn carrier is located on the right hand-side.
Delete yarn carrier	Only the rightest yarn carrier can be deleted. Delete from the right to the left. i: Delete the yarn carrier only if you really are going to remove it from the machine. Its braking values are deleted. If you reassembly the yarn carrier, then the braking values must be redetermined.	
Activate yarn carrier	Reactivate a deleted yarn carrier. Activate from the left to the right. If two or more yarn carriers are to be activated, then activate the yarn carrier furthest to the left first.	
i: If an action is not possible, the key is inactive (gray)		

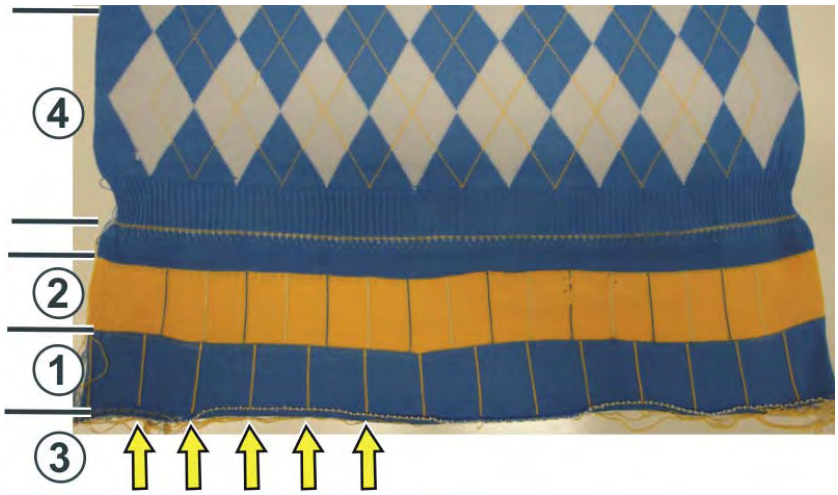
6. Save changes and end setting process for this yarn carrier.
7. Repeat the steps 5 to 6 until all the yarn carriers are located on their correct positions (yarn carrier home position).
8. Call up "Main menu".

Further information:

- Checking the braking values with the adjusting program [-> 199]

Checking the braking values with the adjusting program

An adjusting program is available for controlling the stopping positions. An embroidery stitch line is knitted with all the Intarsia yarn carriers used in the pattern for you to be able to check the correct stopping position quickly and easily.



1 Adjustment program Part 1

2 Adjustment program Part 2

3 Embroidery stitch lines of the intarsia yarn carriers (vertical line, one needle wide)

4 Pattern

When creating the intarsia pattern on the M1plus (starting with version 5.3 or higher) you specify that the adjusting program is to be integrated in the pattern. For this purpose activate the "Generate adjusting program" check box ("Pattern parameters" -> "Configuration" -> "Intarsia tab" -> "Valuate braking values for Intarsia yarn carriers" section).

On the knitting machine you run the adjusting program before or also during the production.

What is the structure of the adjustment program?

- All the intarsia yarn carriers, which are used in the pattern and swivel, are included in the adjustment program.
- Depending on the number of yarn carriers and the fabric width, the intarsia yarn carriers will be distributed on one or more partial programs.
- Program start: Set the cycle counter "RS39" ("RS18" with Setup1) to "1" After the program start the "RS39" is automatically set to the value "99" to ensure that a sufficient number of knitting rows is knitted for the adjustment of the yarn carriers.
- Proceed to the next partial program: with the "ctrl W" key
- Program end: set with the "ctrl W" key or the cycle counter "RS39" to "0".

Check the braking values

Key	Function
	Call up "Machine start" window
	Call up the "Cycle counters & counters" window
	Call up the "Yarn carrier" window
	Call up the "Yarn carrier braking values" window
	Save changes and end setting process
	End setting process without saving changes return to the "Yarn carrier braking values" window
	Call up "Additional function keys"
	Reset the braking values to standard values (with the machine stopped only)
	◆ proceed to the next partial program. ◆ Exit the adjustment program.

Keys to check the braking values

Checking the braking values:

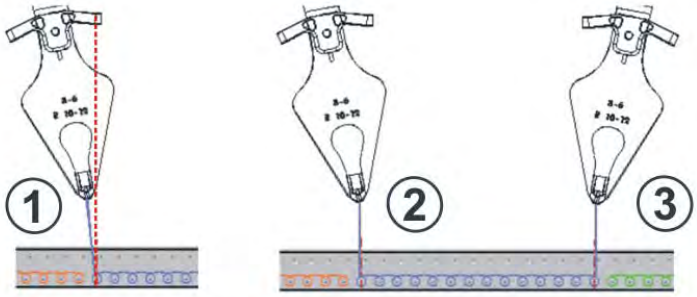
✔ If there are yarn carrier correction values entered in the knitting program, they have to be set to "0" temporarily. The correction value affects the stopping time and falsifies the checking of the braking value. (Note the correction values so that they can be entered again later on).

1. The knitting program is loaded and started (the "SP from line 1" key in the "Machine start " window)
2. Call up the "Cycle counters & counters" window, and set "RS 39" to "1" (Start adjustment program) (Setup1: RS18=1).

   ▷ The adjustment program is called up.
3. Start the machine with the engaging rod.

   ▷ The first part of the adjustment program is started.

4. Knit some rows.
5. Check the stopping position of the different yarn carriers.

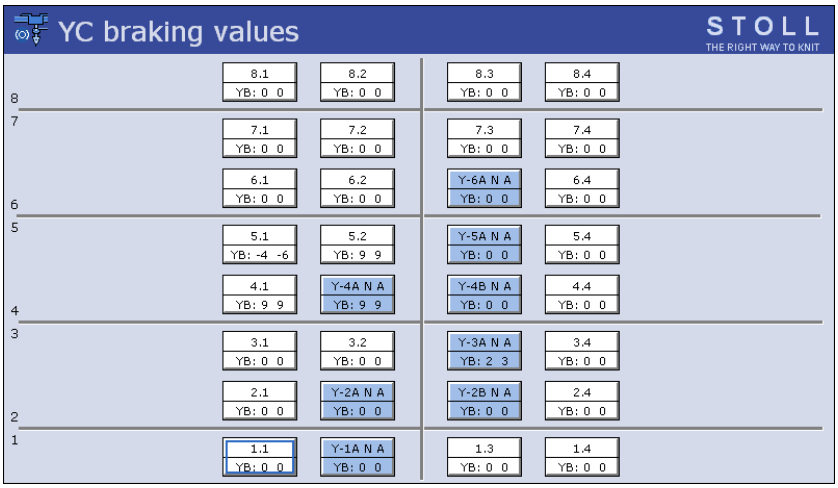


1 Wrong stopping position

2 Correct stopping position (left color field edge)
The yarn is located vertically, at the left of the needle center.

3 Correct stopping position (right color field edge)
The yarn is located vertically, at the right of the needle center.

6. If the stopping position is wrong correct the braking value for the yarn carrier.
7. Call up the "Yarn carrier" window.
8. Call up the "Yarn carrier braking values" window.



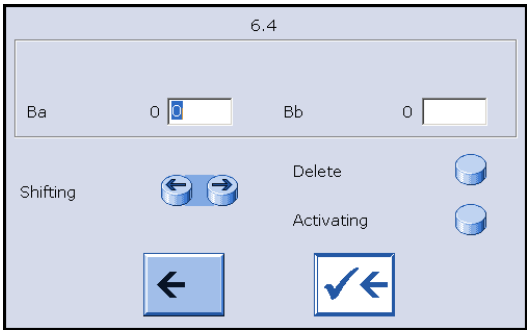
"Yarn carrier braking values" window

Yarn carrier designation (Y-3A)
(Sintral numbering)
Display of the yarn carrier type (N)
Display of the yarn type (A)
Braking value (YB)
left: 2, right: 3

The yarn carrier is present (is not used in the current knitting program)

9. Tap on the corresponding yarn carrier.

▷ The setting window appears.

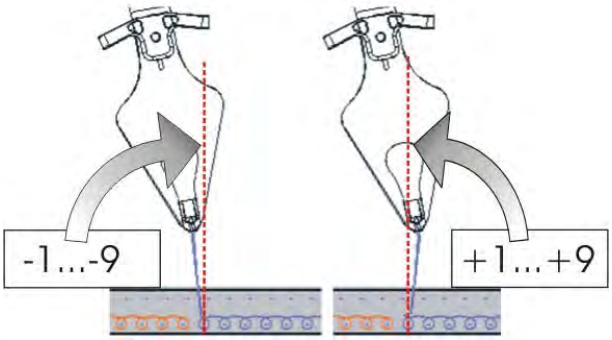


Ba: braking value left
Bb: braking value right

Value range: -9...0...9.
Step width: 1=1/32 inch=0.8 mm
Default: 0

i: In case of large deviations from the default value appears a note prompting you to check the yarn carrier.

10. Enter the braking value (Ba, Bb).
    -1…-9: if the yarn carrier is stopped to late (after the needle)
    +1…+9: if the yarn carrier is stopped to early (before the needle)



11. Save changes and end setting process for this yarn carrier.
12. If the stopping position of further yarn carriers is wrong repeat the steps 9 to 11.
13. Knit some rows.
14. Check the stopping positions. If necessary, repeat the steps 9 to 11.
15. Repeat several times the checking of both swivel directions of the intarsia yarn carrier.
16. If there are further yarn carriers to be checked, then proceed to the next partial program. (Additional function keys ->"ctrl W" key).
17. Repeat the steps 9 to 15.

18. If all of the yarn carriers are checked, tap the "ctrl W" key. It will be proceeded to the next partial program automatically.

- or -

➜ If all the partial programs are processed, the adjustment program is automatically exited and the production is started.

▶ The checking is completed.

---

i If you have set the yarn carrier correction values to "0", then enter the noted values in the knitting program.

---

i

➜ If some braking values are modified, then the data are automatically saved in the data specific to the machine (dongle data).

➜ The braking values do not depend on the patterns, but on the machine. These data are therefore not deleted when a new knitting program is loaded.

➜ The braking values always remain saved, even when the operating system is loaded again.

➜ If the braking values are no longer required, they have to be reset to "0" manually.

➜ Check the braking values from time to time as the conditions may change.

➜ With tandem operation: Separate braking values cannot be entered for the yarn carriers in the right carriage.

Possible reasons for the wrong stopping position

- Different lubrication
- Different cleaning of the yarn carrier rails
- Temperature variation during the production
- Adjusting yarn carrier guide
- Pressure plates are worn
- The yarn carrier is bent (very different braking values for the left and the right-hand side)

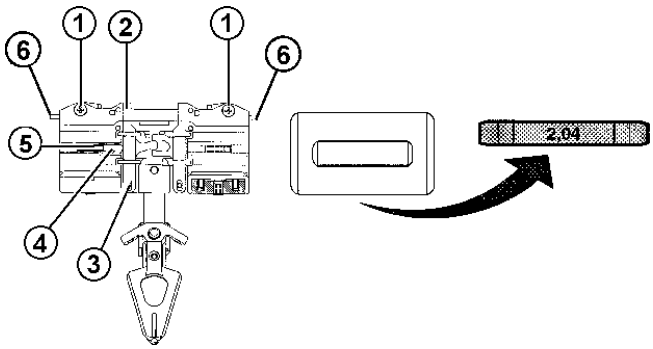
Further information:

- Adjusting yarn carrier guide [-> 191]
- Intarsia yarn carrier - check the pressure plates * [-> 204]

4.2.22 Intarsia yarn carrier - check the pressure plates *

Turning over or replacing the small pressure plates (intarsia yarn carrier type 1)

1. Dismantle yarn carrier.



Dismantling of small pressure plate

2. Loosen but do not remove the screws (1).
3. Lift the clamping lever (2)out of the locating screw (3) and remove it. When doing this, make sure that the spring pin (5) remains in the housing (4).
4. Check whether the thickness designation 2.04 or 2.06 is visible on the built-in pressure plate.
5. Remove the pressure plate from the clamping lever.

	CAUTION
⚠	**Complicated adjustment work is required when replacing the pressure plates!** If the various thicknesses and positions of the pressure plates are interchanged, complicated adjustment work is required to set the stopping point of the yarn carrier correctly. ➜ Do not interchange the various thicknesses and positions of the pressure plates!

6. If the marking 2.04 or 2.06 was visible on the built-in pressure plate, turn over the pressure plate and reinsert it.

- or -

➜ If the marking 2.04 or 2.06 was not visible on the built-in pressure plate, insert a new pressure plate of the same thickness with the marking facing upward.

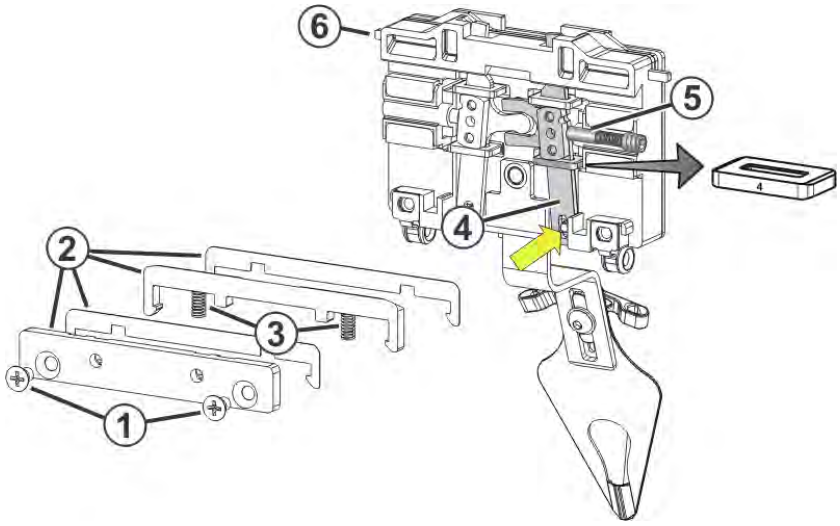
7. Press the spring pin (5) into the spring part (4) and insert the clamping lever (2).
8. Tighten the screws (1).
9. Make sure that the lifter (6) moves smoothly.

Further information:

- Replacing yarn carrier [-> 362]
- Symbols in this document [-> 12]

Turning over or replacing the small pressure plates (intarsia yarn carrier type 2)

1. Dismantle yarn carrier.



Dismantling of small pressure plate

2. Remove the screws (1).
3. Remove the parts (2). Make sure that the springs (3) are not lost.
4. Lift the clamping lever (4) out of the locating pin and remove it downwards. Make sure that the spring pin (5) remains in the housing.
5. Check whether the thickness designation 2, 4 or 6 is visible on the built-in small pressure plates.
6. Remove the pressure plate from the clamping lever.

	CAUTION
⚠	**Complicated adjustment work is required when replacing the pressure plates!** If the various thicknesses and positions of the pressure plates are interchanged, complicated adjustment work is required to set the stopping point of the yarn carrier correctly. ➜ Do not interchange the various thicknesses and positions of the pressure plates!

7. If the marking 2, 4 or 6 is visible on the built-in small pressure plate, turn over the pressure plate and reinsert it.

- or -

➜ If the marking is not visible, the pressure plate is already turned over. Replace the pressure plate by a new one with the same thickness. When assembling, make sure that the marking is visible.

8. Press the spring pin (5) into the housing and insert the clamping lever (4).
9. Insert the parts (2) and tighten the screws (1).

10. Make sure that the lifter (6) moves smoothly.

Further information:

- Replacing yarn carrier [-> 362]

4.2.23 Intarsia yarn carrier - Correct stopping point (correction value) *

Key	Function
	Call up the "Yarn carrier" window
	Call up the "Adjusting yarn carrier" window

Keys for correcting the stopping point

1. Call up the "Yarn carrier" window.
2. Tap the "Adjusting yarn carriers" key.
3. Enter the yarn carrier correction value.
4. Confirm entries.
5. Return to the "Yarn carrier" window.

Further information:

- Adjusting yarn carriers [-> 115]
- Intarsia yarn carrier - Adjust stopping point (basic setting, braking value) * [-> 195]
- Intarsia yarn carrier - check the pressure plates * [-> 204]
- Adjusting yarn carriers (Setup2) [-> 117]
- Adjusting yarn carriers (Setup1) [-> 119]
- Symbols in this document [-> 12]

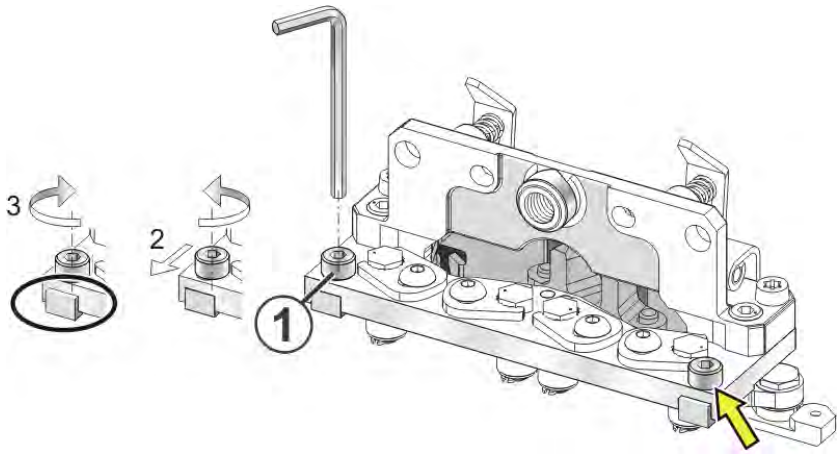
4.2.24 Float slider (holding-down jack control)

Valid for:	Type	Component type (or higher)
CMS 530	621, 627	002
CMS 520 CMS 740 CMS 822 CMS 933	620, 628 630 623, 632 771, 773	001

Problem	When swiveling the Intarsia yarn carrier, thread loops occur, which lead to errors in the fabric (thread loops, holes, drop stitches).
Reason	At the time of swiveling the Intarsia yarn carrier, the holding-down jacks are simultaneously closed. With some yarns this can cause problems - the thread piece "needle-yarn carrier" is clamped by the holding-down jacks. This thread piece cannot be bulled back by the lateral yarn tensioners. A thread loop is built, which can be knitted-in by the following knitting system.
Rectification	Modify the holding-down jack control. The opening angle of the float slider is adjustable. In the "open" position the holding-down jacks will no longer close completely so that the thread will not be clamped. i: Knitting-in the Intarsia yarn carrier. With longer floats it is possible that the tuck loop will not be laid-in reliably, for example with tuck {5} - - v - - or stitch {5} - - o - -. Rectification In the "Yarn Field Allocation" select the following for knitting-in. ◆ Module for knitting-in: Float {0} - knitting-in ◆ Binding or knot at the start: Knot Split
Tip	If possible: ◆ knit pattern with half racking (V#) ◆ Adjust the float slider in the "open" position

Change the opening angle of the float slider:

1. Loosen the screw (1) with an Allen key (SW 3).



2. Using the Allen key move the screw and with it the float slider downward.

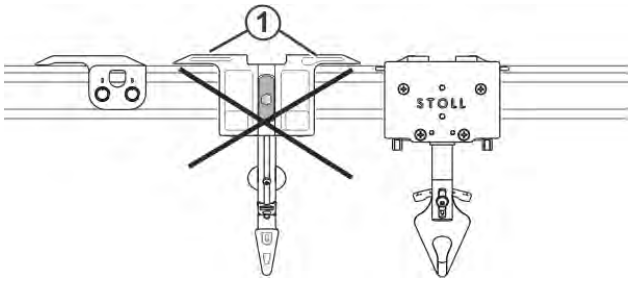
   ▷ The end of the float slider protrudes from the base plate.

3. Tighten the screw (1).
4. Repeat the process on the other side of the holding-down jack control.
5. Repeat this operation with all the holding-down jack controls of the machine.

4.2.25 Normal yarn carrier type 2

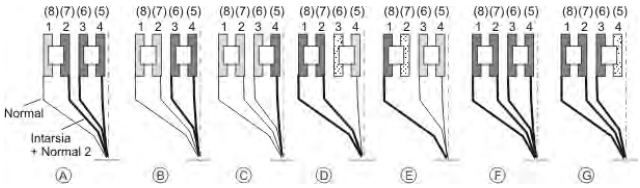
Normal yarn carrier type 1

Normal yarn carriers and intarsia yarn carriers cannot be used on the same track.



Basis: The disengaging arms (1) of the normal yarn carrier collide with the intarsia yarn carrier or the yarn carrier limiter.

Possible combinations for normal yarn carriers type1 and type2:

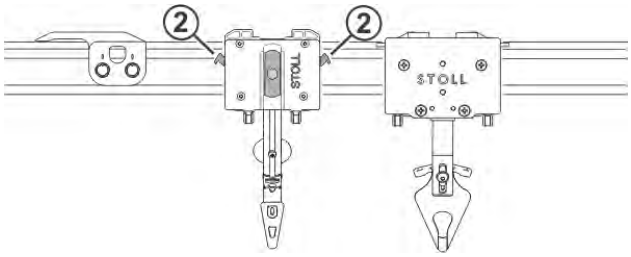


Each combination can be used with itself or with another combination.

i: Equip the yarn carrier tracks from inward to outward.

Normal yarn carrier type 2

That's why a new normal yarn carrier has been developed.

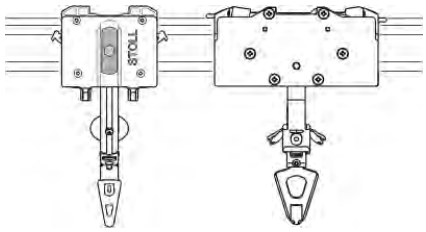
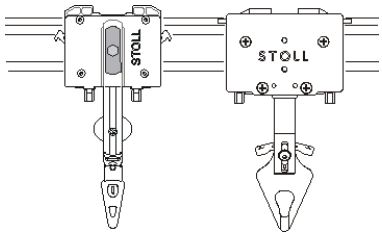
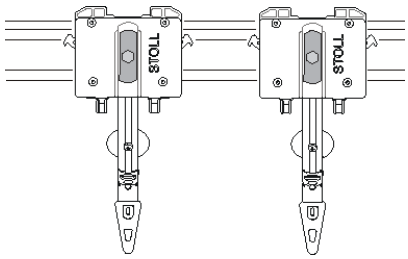


It has got no disengaging arms but lifters (2), similar to the intarsia yarn carrier. Thus, this yarn carrier can be used with intarsia yarn carriers on the same track.

The normal yarn carrier type 2 is used for:

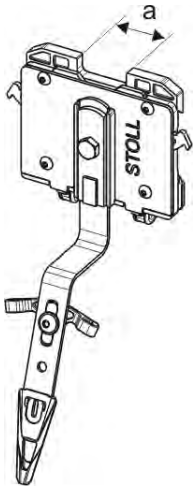
- "normal" knitting
  The yarn carrier knits for example the 2x1 fabric start, and some intarsia yarn carriers are additionally located on the same rail.
  You had to use an intarsia yarn carrier for the 2x1 fabric start so far (cost saving).
- Plating with 2 yarn carriers.
  The normal yarn carrier type 2 is used for plating. This was not possible before.

The normal yarn carrier can be used with both types of intarsia yarn carriers on the same yarn carrier rail.

Normal yarn carrier type 2	Intarsia yarn carrier type 1	
Normal yarn carrier type 2	Intarsia yarn carrier type 2	
Normal yarn carrier type 2	Normal yarn carrier type 2	

Plating with the normal yarn carrier type2

Depending on the machine gauge there are different models.

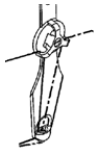
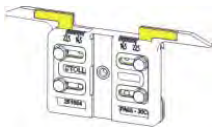
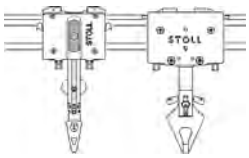


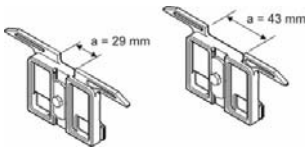
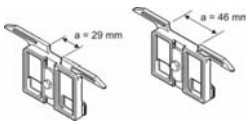
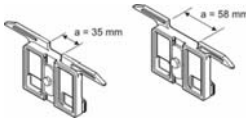
Engaging width (a)	
43 mm	CMS 933, CMS 822, CMS 530, CMS 520 E10 | E12 | E14 | E16 | E18 | E6.2 | E7.2 | E8.2 | E9.2
46 mm	CMS 933, CMS 822, CMS 530, CMS 520 E5 | E7 | E8 | E2,5.2 | E3,5.2 | E5.2
	CMS 740, CMS 730 T, CMS 530 T all gauges
29 mm	Standard yarn carrier ("normal" knitting)
23 mm	**i**: only usable under certain conditions. Depending on the machine gauge (≥ E10) and the machine speed, the needle latches can be damaged. Remedy: Increase the engaging width.

Further information:

- Adjusting yarn carriers [-> 189]

4.2.26 Plating – the different possibilities

		Remarks	Gauge / Machine
1 yarn carrier (assembled on one yarn carrier rail)	Double bow yarn carrier 	◆ For thin, elastic yarn (e.g. lycra) ◆ adjustable engaging width ◆ The left and right engaging widths may be different ◆ Special yarn carrier ◆ Clamping/cutting (setting: 2x8)	All gauges, except E3, E4 Further information [🗎 213]
	Double eyelet yarn carrier 	◆ Non-adjustable engaging width ◆ Clamping/cutting (setting: 2x8)	E3, E4 Further information [🗎 218]
2 yarn carriers (assembled on two yarn carrier rails)	Yarn carrier carriage with adjustable engaging width 	◆ Engaging width individually adjustable (26 to 46 mm) ◆ The left and right engaging widths may be different	All gauges, except E3, E4 not for: CMS 520 C CMS 830 C Further information [🗎 215]
	Normal yarn carrier type 2 	◆ The only possibility of plating when intarsia yarn carriers are located on the same rail ◆ For intarsia yarn carriers of types 1 and 2 ◆ The yarn carrier is usable for a "normal" knitting with intarsia yarn carrier	All gauges, except E3, E4 not for: CMS 502 CMS 520 C CMS 830 C CMS 730 S CMS 830 S Further information [🗎 209]

		Remarks	Gauge / Machine
2 yarn carriers (assembled on two yarn carrier rails)	2 yarn carrier carriages  43 mm: ID 257 241	◆ The cheapest solution: Only one additional yarn carrier carriage (43 or 46 mm) has to be bought. The yarn carrier bow will be taken from a normal yarn carrier. ◆ Different yarn thicknesses can be processed (different yarn carrier bows are usable). ◆ Non-adjustable engaging width	E10 | E12 | E14 E16 | E18 | E6.2 E7.2 | E8.2 | E9.2 not for: CMS 730 S CMS 830 S
	2 yarn carrier carriages  46 mm: ID 244 998		E5 | E7 | E8 E2,5.2 | E3,5.2 E5.2 CMS 730 S CMS 830 S
	2 yarn carrier carriages  35 mm: ID 257 610 58 mm: ID 257 612	◆ 2 special yarn carrier carriages ◆ Different yarn thicknesses can be processed (to this purpose, different yarn carrier bows are to be assembled) ◆ Non-adjustable engaging width	CMS 520 C CMS 830 C

Further information:

- Symbols in this document [-> 12]

4.2.27 Plating - Double bow yarn carrier

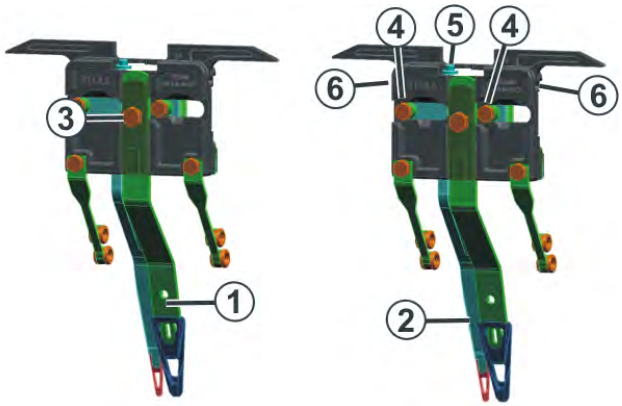
Clamping and cutting bed 2x16

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.

Carry out the settings in the "Machine Configuration 2" window.
(BootOkc --> Restart and Configuration --> Machine configuration 2)
Setting: 2x16/8

Further information:

Adjust the double bow yarn carrier



1	Central bow (fixed)	Plating Yarn
2	Follower bow (movable, following the central bow)	Basic Yarn

Central bow (1) - adjust height:

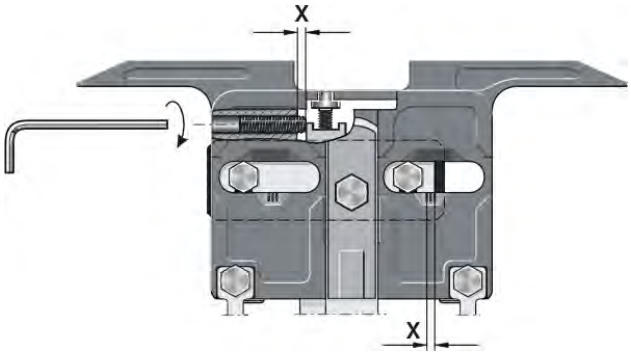
1. Loosen the screw (3) (turn by 90 degrees).
2. Adjust the central bow the same way as the normal yarn carrier.
3. Retighten the screw.

Follower bow (2) - adjust height:

1. Loosen both screws (4) (turn by 90 degrees).
2. Adjust the height turning the screw (5).
   Standard 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.

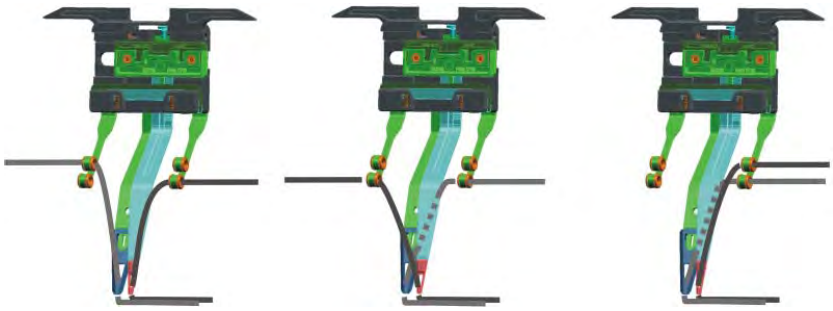
Follower bow (2) - carry out the lateral adjustment:

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.



Adjusting the distance for the left side (distance visible on the right scale)

Thread the double bow yarn carrier



Threading possibilities

Colored plating pattern

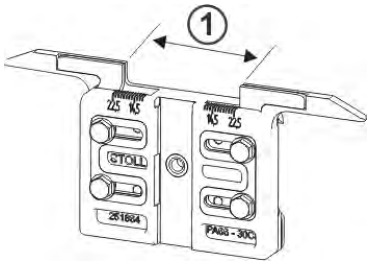
The light, visible thread on the fabric front side is the plating yarn (threaded in the fixed central bow)

The dark thread is the basic yarn (threaded in the movable follower bow)

i When an elastic thread is knitted, it is said that it is plated which is technologically not quite correct. The yarn is actually knitted with the plating process, and from the technological point of view, the elastic thread is the basic yarn, and the visible one is the plating yarn.

4.2.28 Plating - Plating yarn carrier carriage

Not for CMS 520 C, CMS 830 C



Two yarn carriers which differ depending on the engaging width (1) on the yarn carrier carriage, are used for plating with normal yarn carriers. The engaging width is adjustable individually (23-46 mm) on this yarn carrier carriage.

Combination possibilities of the yarn carriers:

- 2 plating yarn carrier carriages
- 1 standard yarn carrier, and 1plating yarn carrier carriage

Example for a plating pattern

Colored plating pattern

The light, visible yarn on the fabric front side is the plating yarn (yarn carrier with the smaller engaging width)

The dark yarn is the basic yarn (yarn carrier with the larger engaging width)

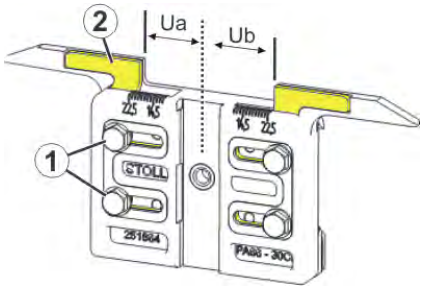
i When an elastic thread is knitted, it is said that it is plated which is technologically not quite correct. The yarn is actually knitted with the plating process, and from the technological point of view, the elastic thread is the basic yarn, and the visible one is the plating yarn.

Clamping and cutting bed 2x16

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.

Carry out the settings in the "Machine Configuration 2" window.
(BootOkc --> Restart and Configuration --> Machine configuration 2)
Setting: 2x16/8

Setting



Adjust 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) hand-side.
Both values may be equal (symmetrical setting) or may differ.

Recommended engaging width (specifications in millimetres)

Gauge	ahead	following
E10 | E12 | E14 E16 | E18 | E6.2 E7.2 | E8.2 | E9.2	29 Ua: 14.5 Ub: 14.5	43 Ua: 21.5 Ub: 21.5
E5 | E7 | E8 E2,5.2 | E3,5.2 E5.2	29 Ua: 14.5 Ub: 14.5	46 Ua: 23.0 Ub: 23.0
CMS 730 S CMS 830 S	33 Ua: 16.5 Ub: 16.5	42 Ua: 21.0 Ub: 21.0

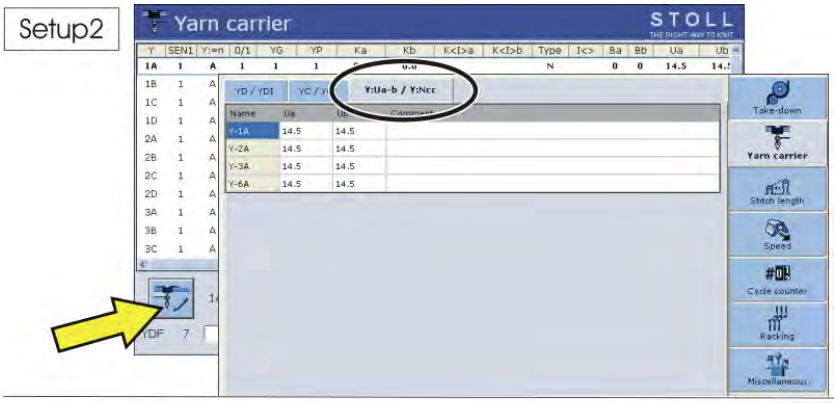
The engaging width of the standard yarn carrier is 29 mm (CMS 730 S, CMS 830 S: 33 mm).

Settings on the knitting machine

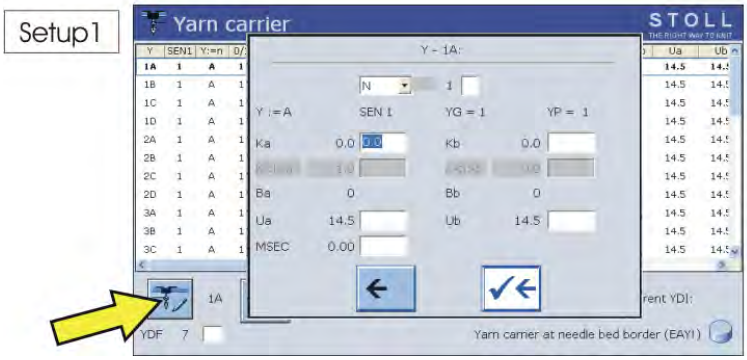
If you change the engaging width, you have to enter the changed values (Ua, Ub).

- Setup2: "Yarn carrier" window ->"Adjust yarn carrier" window-> "Y:Ua-b / Y:Ncc" tab
- Setup1: "Yarn carrier" window -> "Adjust yarn carrier" window

Setup2



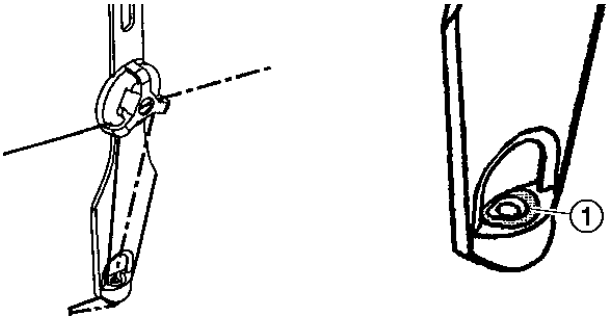
Setup1



4.2.29 Plating - Double eyelet yarn carrier

Note the following items when working with this yarn carrier:

1. Set yarn carrier as deep as possible.
2. Thread the basic yarn into the oblong hole (1).



Oblong hole of plating yarn carrier

3. Set the yarn tension of the basic yarn somewhat higher than for the plating yarn.

Example for a plating pattern

Colored plating pattern

The light, visible yarn on the fabric front side is the plating yarn
The dark yarn is the basic yarn (threaded in the oblong hole)

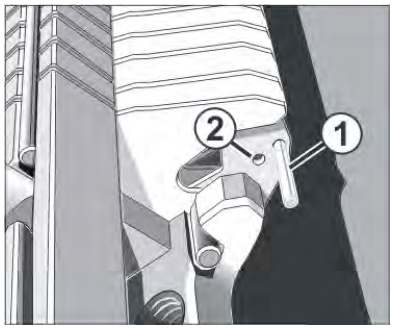
i When an elastic thread is knitted, it is said that it is plated which is technologically not quite correct. The yarn is actually knitted with the plating process, and from the technological point of view, the elastic thread is the basic yarn, and the visible one is the plating yarn.

Define the yarn carrier as a plating yarn carrier in the knitting program (e.g.: "Y-3A:P;"). The indication is important for yarn carrier checking. This order takes into account the wider widths of the plating yarn carrier tip when positioning the yard carrier.

4.2.30 Changing the position of the knock-over wire

Valid for:	Type	Component type (or higher)	Gauge
CMS 530	621	002	E12 E16 E18 E6.2 (E12m.10) E7.2 E8.2
CMS 520 CMS 502 CMS 740 CMS 822 CMS 933	620 626 630 623 773	001	

The position of the knock-over wire affects the stitch appearance.

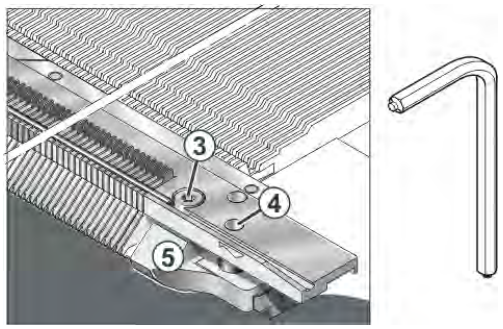


- Position 1: Under normal circumstances the position of the knock-over wire does not need to be changed.
- Position 2: For some patterns it is possible to improve the stitch appearance if the stitch is taken down from the needle with a steeper angle.

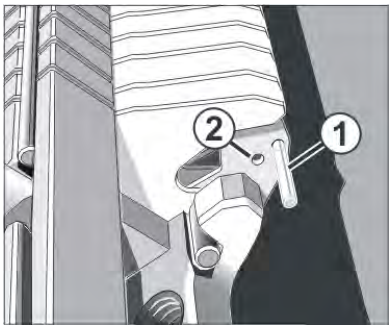
		Application area	To be observed
1	Standard	◆ all the fabric types	
2	Special	Only in case of a problem with: ◆ single jersey fabric ◆ Plating ◆ multi-system knitting	◆ Adapt the stitch tension of the net row. ◆ with a double jersey fabric the selvedge stitch might tear.

For replacing the knock-over wire you need a small pair of pliers.

1. Cast-off or transfer the stitches of the needle bed, which is converted.
2. Stop the carriage in the left reversing position.
3. Remove screw (3) on left and right-hand sides of jack bed. Use the special hexagon screwdriver from the accessories for this purpose.



4. Loosen the screw (4) on the left and right-hand sides of the jack bed.
5. Remove the limiter (5) on both sides.
6. Pull out the wire (1) with the pair of pliers.



7. Push in the wire in position (2).
8. Reassemble the needle bed in the reverse order.

4.3 Working with files

	CAUTION
	Computer viruses! Loss of data or production. Computer viruses can creep into the machine through unscanned data via USB port or network. ➜ Bring in only virus free data on to the knitting machine.

This chapter contains information on:

- Help on working in the windows [-> 221]
- File manager [-> 227]
- Working with files, libraries and folders [-> 231]
- Displaying file in pattern editor [-> 236]
- Clear knitting memory [-> 238]
- Copying files [-> 240]
- Selecting the current folder [-> 243]
- Carrying out a program check [-> 246]

4.3.1 Help on working in the windows

The following help items should be heeded so that you may work in the various windows.

Call up direct help

Key	Function
	Call up "Direct Help" for the key pressed next

"Direct help" key

➜ To receive direct help on a specific key in the menu, first tap the "direct help" key and then the key for which you want help.

Positioning cursor

The text is entered at the point at which the cursor (insert mark) is located.

➜ To move the cursor to a certain position, touch that position.

Marking text

A word or a text block is marked for being copied, moved or deleted.

1. To mark a word, tap the word twice.
2. To mark a line, tap the line three times.
3. To mark a text block, drag your finger from the starting position to the end position.
   - or -
   On the 1st level of the SINTRAL editor, use both keys "Set beginning of a marking" and "Set end of a marking".

Deactivating marking

➜ To cancel a marking, touch any spot.

Setting/deactivating write protection

Key	Function
	"Set Write Protection": Set write protection of the selected file
	"Deactivate Write Protection": Deactivate write protection of the selected file

"Activate write protection" and "Deactivate write protection" key

➜ If a write-protected file is loaded, the information "Write protection" appears in the status line of the SINTRAL editor.

Entries in selection window

Selection windows are open when some keys are selected. The following entry is possible:

- a text can be entered with the virtual keyboard
- a selection occurs manually by tapping a key

The entries must be confirmed by the "Confirm entry" key.

Key	Function	Key	Function
	Return to the 1st level in the SINTRAL editor		Confirm input and run in the SINTRAL editor

Function keys in the selection windows

Call up "Search" selection window

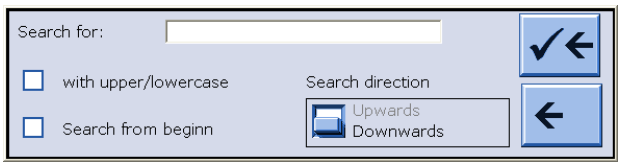
The corresponding location is sought when you enter line numbers or text and select the keys.

Key	Function
	"Search": search for a specific term
	"Carry on searching": Continue searching for a certain term

"Search" and "Continue" keys

1. Call up the "Search" selection window with the "Search" key.

   ▷ The "Search for" window appears.



"Search" selection window

2. Enter the line number or text to be searched for with the virtual keyboard.
3. Select options for uppercase/lowercase letters and the search direction.
4. To start the "Search from begin", select the "Yes" key.

   - or -

➜ Select the "No" key if you only want to search from here.

5. To activate the search, tap the top arrow key,

   - or -

➜ To exit the window, tap the bottom arrow key.

6. To find other instances of the text, tap the "Continue" key,

   - or -

➜ To start the next search, enter a new line number or text with the virtual keyboard.

CAUTION

If the message "Search title not found" appears:

Either the text searched for is not contained in the knitting program or the options are not set correctly.

➜ Check the text entered.

➜ Change the search direction.

Call up "Replace" selection window

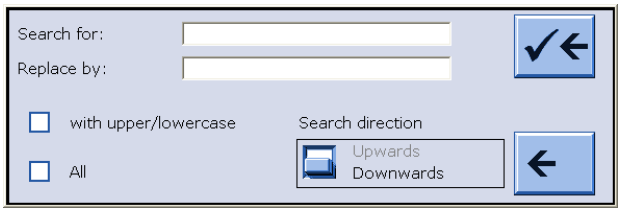
This is replaced in the loaded file by entering line numbers and commands and selecting the keys.

Key	Function
	"Replace": search for a certain term and replace it by a new one

"Replace" key

1. Call up the "Replace" selection window. Answer the safety prompt.

   ▷ The "Replace by" window appears.



"Replace" selection window

2. Enter the text to be replaced via "Search for" with the virtual keyboard.
3. Enter the text to be inserted via "Replace by" with the virtual keyboard.
4. Selecting the "All" key, the text (without prompt in Item 7) is replaced throughout the entire file.
5. Select options for uppercase/lowercase letters and the search direction.
6. To activate the search, tap the top arrow key,

   - or -

➜ To exit the window, tap the bottom arrow key.

CAUTION

If the message "Search title not found" appears:

Either the text searched for is not contained in the knitting program or the options are not set correctly.

➜ Check the text entered.

➜ Change the search direction.

7. Answer the question in the newly opened selection window. Press the key "1" to confirm.

   - or -

➜ For repeated prompting, press the "0" key if the term is only to be replaced once.

   - or -

➜ Press the "ESC" key to cancel.

Call up "Go to" selection window

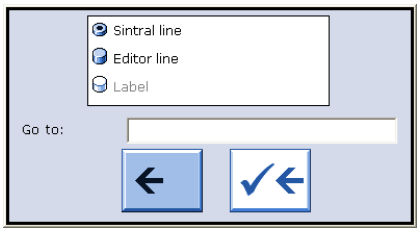
You can jump to the corresponding point in the loaded file by entering line numbers or names and selecting the keys.

Key	Function
	"Go to" a certain position

"Go to" key

1. Call up the "Go to" selection window with the "Go to" key.

   ▷ The "Go to" window appears.



Selection window for "Go to" function key

2. Enter the line number or name to be searched for with the virtual keyboard.
3. To go to Sintral line numbers, tap the "Sintral line" key,

   - or -

➜ To execute a real line jump, tap the "Editor line" key,

   - or -

➜ To jump to the named line, tap the "Label" key.

4. To activate the search, tap the right arrow key,

   - or -

➜ To exit the window, tap the left arrow key.

Automatic calling of virtual keyboard

The virtual keyboard is automatically activated when various function keys are selected. Either a number block appears for inputting numbers or an alphanumeric keyboard appears for entering letters and numbers.

The virtual keyboard contains three switchover keys:

- SHIFT key
- CPS LCK key
- CTRL key

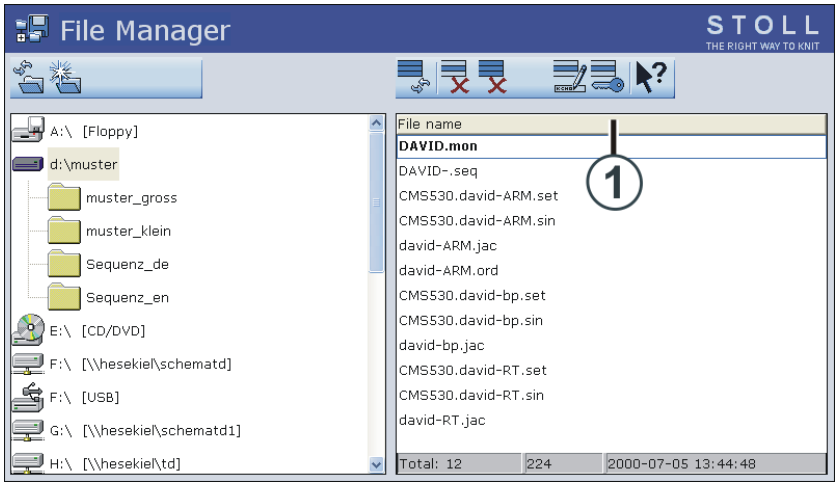
To use a switchover key, e.g. to enter a special character, first press the switchover key and then the key with the special character. To return to normal characters, press the switchover key again.

Key	Function
	Switch on virtual keyboard
	Switch off virtual keyboard
SHIFT	SHIFT key: switch over between uppercase and lowercase letters and between numbers and special characters
CPS LCK	CPS LCK key: switch over between uppercase and lowercase letters; the setting of numbers or special characters is maintained
CTRL	CTRL key: switch over to function keys F1 to F10 and keyboard codes (short cuts)

Switchover keys

4.3.2 File manager

Files and folders (directories and images) are managed in "File -Manager" window.



"File manager" window

All actions pertaining to folders are mentioned on the left side. A new folder can be created, for example.

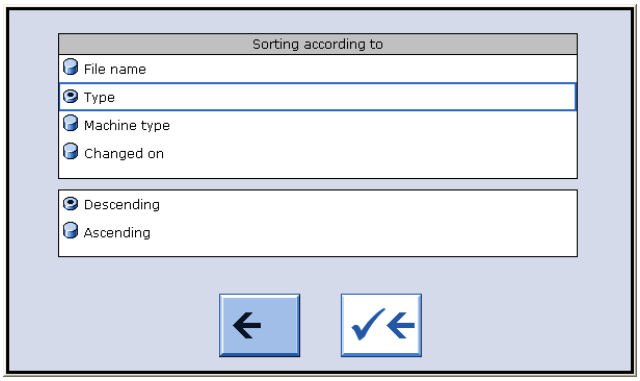
You have access to the following data media:

- USB Memory Stick
- Hard disk of the computer in the knitting machine
- Online
- Network

On the right hand-side the files from the selected folders are displayed. This list of files appears in alphabetical order (standard setting), and the number of existing files is displayed on the status line (Total:).

Setting the sort sequence

The sort sequence can individually be adjusted. To do so, click on the header line (1). Select and confirm the sort sequence in the "Sort by" window.



Setting the sort criteria

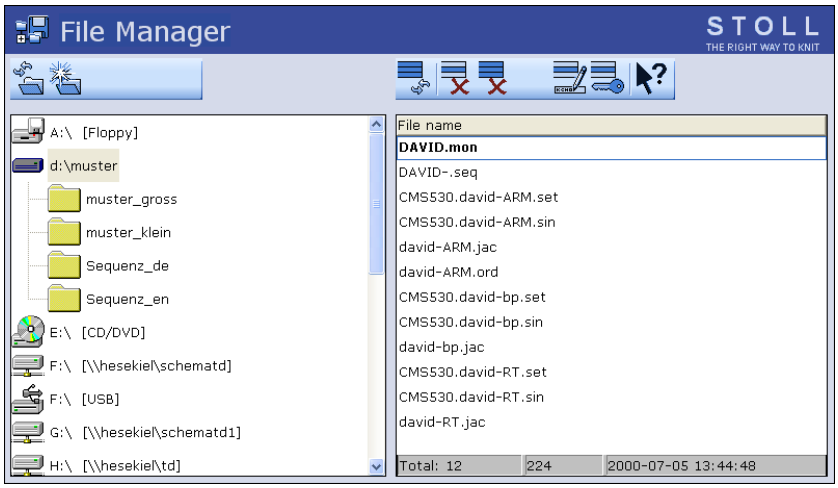
Key	Function
	Call up the "Load & save" window
	Call up "Additional function keys"
	Call up "File manager" window
	Call up "Main menu"

Keys for the "File manager" window

Call up "File manager" window:

1. From the "Main menu" call up the "Load & Save" window.
2. Call up "Additional function keys".
3. Call up the "File Manager" window.

Actions in the "File manager" window



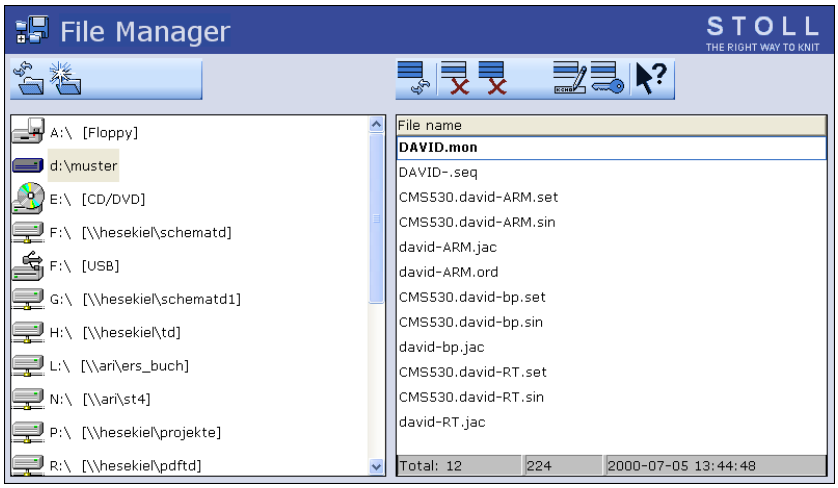
"File manager" window

Key	Function	Key	Function
	"Update": Refresh the contents of all the folders		"Delete all": Delete all files in the selected folder
	"Create folder": Create folder in the selected directory		"Display file": Display selected file
	"Copy folder": Copy selected folder, including contents (subfolders, files) to the target folder.		"Rename file": Change name of selected file
	"Delete folder": Delete selected folder, including contents (subfolders, files)		"Set Write Protection": Set write protection of the selected file
	"Rename folder": Change the name of the selected folder		"Deactivate Write Protection": Deactivate write protection of the selected file
	"Update": Update the contents of the folder		Call up "Direct Help" for the key pressed next
	"Delete file": Delete selected file		

Keys in the "File manager" window

Call up the selection window "Create folder"

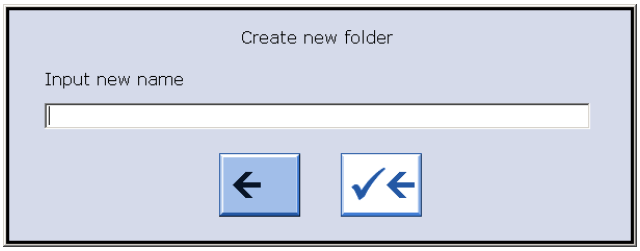
With the selection of a drive or a folder in the list on the left side, the key "Create folder " appears.



"Create folder"key in window "File-Manager"

1. Tap the desired folder in the list on the left in which the new folder is to be created.
2. Call up the selection window with the key "Create folder".

   ▷ The window "Create new folder" appears



Selection window "Create new folder"

3. Enter the name of the new folder with the virtual keyboard.
4. To save the new folder, press the right arrow key,

   - or -

➜ To exit the window, tap the left arrow key.

Further information:

- KnitLAN connection [-> 255]
- Selecting the current folder [-> 243]

4.3.3 Working with files, libraries and folders

Working with files (Sintral, jacquard, setup), libraries (Auto-Sintral) and pattern folders occurs in the "Load & save".

The file list is divided into machine type, file name, type and changed_on:. Sorting is possible in each of the 4 columns by pressing the column header. In the status line of the list, the number of existing files (total:), the file size and the date/time of the last change to the selected file are displayed.

You have access to the following data media:

- Removable data carrier (on the USB socket)
  for example: USB-Memory-Stick, floppy disk drive, CD drive, DVD drive, external hard disk
- Hard disk of the computer in the knitting machine
- Online
- Network drive

i	If "EALL" is activated when loading, the previously loaded pattern is completely deleted.

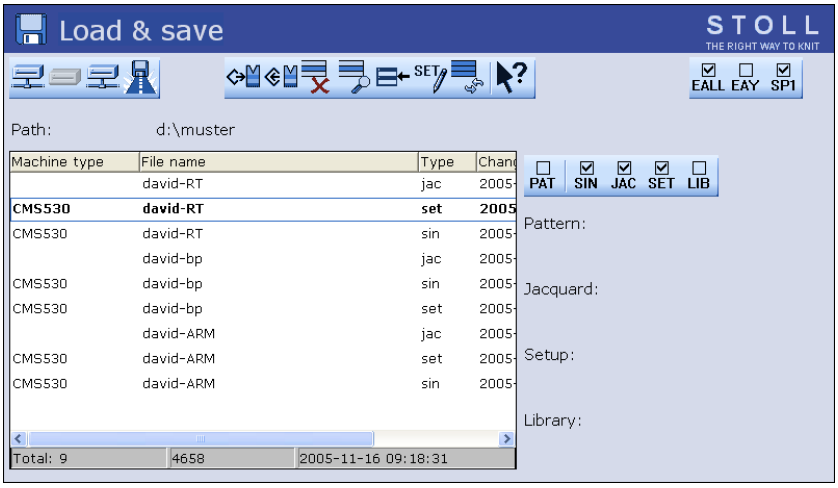
Keys	Function
	Call up the "Load & save" window
	Call up "Main menu"

Keys for "Load & save" window

Work with files and folders:

	**WARNING** **Data loss!** Files and folders might be deleted accidentally if you do not proceed carefully! ➜ Create a back-up copy of each folder!

1. From the "Main menu" call up the "Load & Save" window.



"Load & save" window

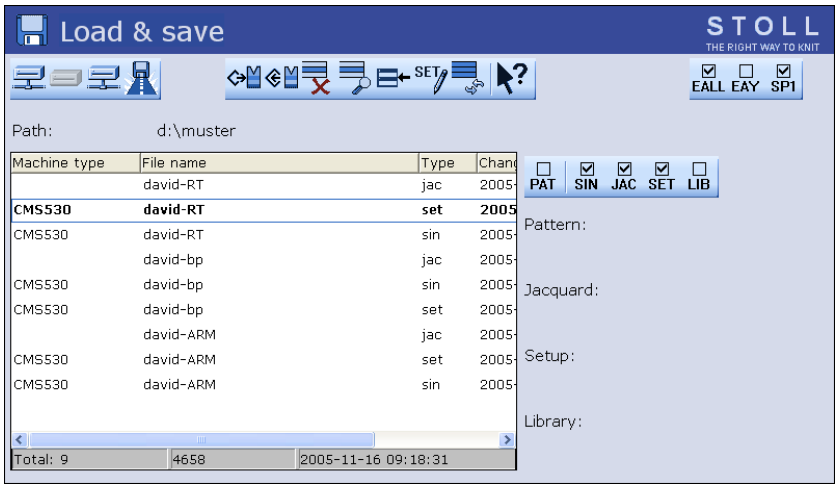
2. Set the desired path with one of the "Direct pattern folder selection" keys.
3. Use the PAT/SIN/JAC/SET/LIB keys to select whether the entire pattern of the current machine (PAT) or individual file types are to be listed.
4. Select file.
5. Select action.
6. If an additional prompt appears, tap the "1" key to confirm,

   - or -

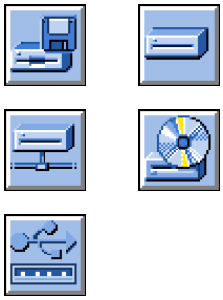
➜ Press the key "0" to cancel.

7. Call up "Main menu".

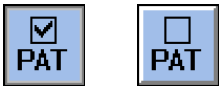
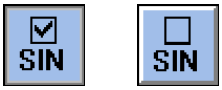
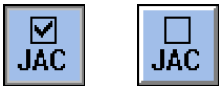
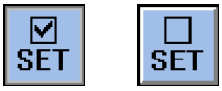
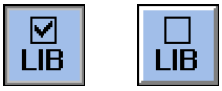
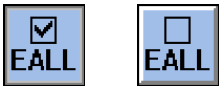
Actions in "Load & save" window



"Load & save" window

Key	Function
	"Direct folder selection": predefined folder selection
	"Current folder selection": Open the dialog box for definition of the current folder
	Display the content of the Zip file (for Setup2)
	Close the zip file (for Setup2)
	Load selected file and accompanying pattern elements
	Load pattern with selected setup data (for Setup2)
	Save selected pattern parts in the current folder

Keys in "Load & save" window

Key	Function
	Save pattern with selected setup data (for Setup2)
	Delete selected file
	Display selected file
	"Add": add selected file and corresponding pattern elements to pattern already loaded
	Editing the setup data (for Setup1)
	"Update": Update the contents of the folder
	Call up "Direct Help" for the key pressed next
	Activate/deactivate "Entire pattern selection".
	Activate/deactivate "Sintral selection"
	Activate/deactivate "Jacquard selection"
	Activate/deactivate "Setup selection"
	Activate/deactivate "Library selection"
	Activate/deactivate "EALL selection"

Keys in "Load & save" window

Key	Function
 	Activate/deactivate "EAY selection"
 	Activate/deactivate "SP1 selection"
 	Activate/deactivate "YLC selection"

Keys in "Load & save" window

Further information:

- KnitLAN connection [-> 255]
- Selecting the current folder [-> 243]
- Copying files [-> 240]
- Displaying file in pattern editor [-> 236]
- Setup2 Editor [-> 273]
- Setup1 - Editing the setup file [-> 301]

4.3.4 Displaying file in pattern editor

The selected file from the "Load & save" window is displayed in the "Pattern editor" window (preview).

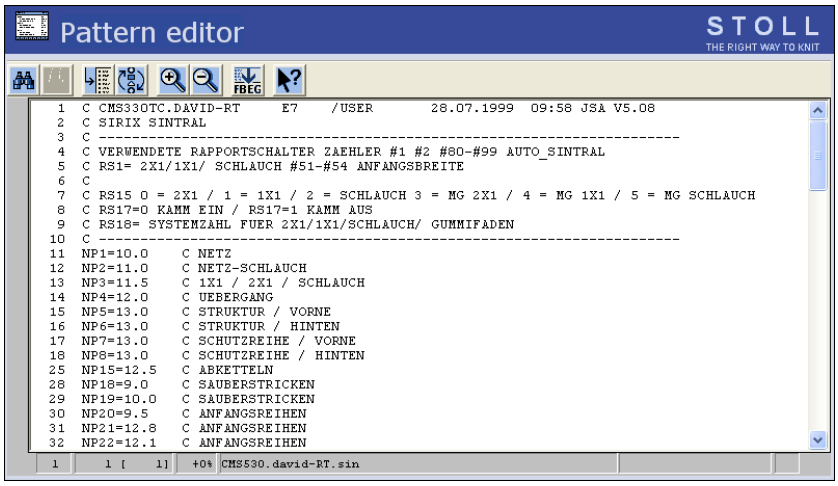
Key	Function
	Call up the "Load & save" window
	"Display file" key
	Call up "Pattern editor" window

Keys for the "Pattern editor" window

Displaying file in pattern editor:

1. From the "Main menu" call up the "Load & Save" window.
2. Select the file to be viewed in the file list.
3. Tap the "Display file" key.
4. The "Pattern editor" window is open.

Actions in the "Pattern editor" window



"Pattern editor" window

Key	Function
	search for a specific term
	"Continue": Continue to find a certain term
	"Go to" a certain position
	Carry out the "Quick jump" corresponding mark (e.g. from FBEG to FEND)
	"Enlarge": Display text enlarged
	"Reduce": Display the text decreased
	"Function list": Toggle on/off the display of pattern functions.
	Call up "Direct Help" for the key pressed next

Keys in the "Pattern editor" window

4.3.5 Clear knitting memory

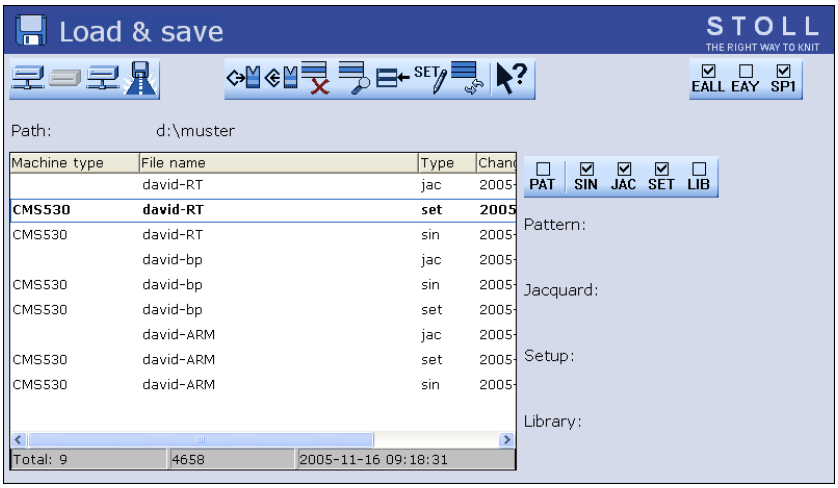
The current knitting program with which your knitting machine works is saved in the knitting memory. When you delete the knitting memory, this has no influence on the saved patterns and files on the data carriers.

Key	Function
	Call up the "Load & save" window
	Call up "Additional function keys"
	Call up "Delete knitting memory"
	Call up "Main menu"

Keys for deleting the knitting memory

Clear knitting memory

1. Call up the "Load & save" window.



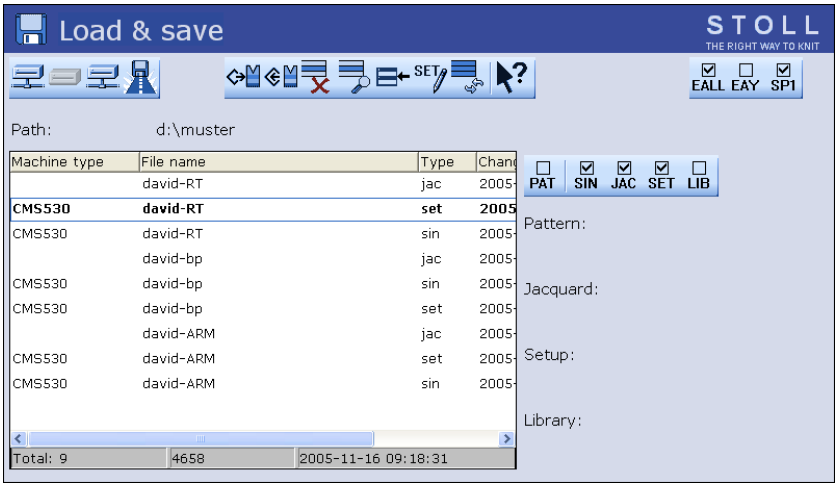
"Load & save" window

2. Call up "Additional function keys".
3. Call up "Delete knitting memory".
4. Call up "Main menu".

> If the "EALL" key is not selected, individual files (sin, jac or Autosintral) of the knitting memory can be deleted.

Deleting individual files in the knitting memory:

1. Call up the "Load & save" window.



"Load & save" window

2. Select the file via the SIN or JAC key.
3. Call up "Additional function keys".
4. Call up "Delete knitting memory".
5. Call up "Main menu".

4.3.6 Copying files

Files are copied from one drive to another in the "Copying catalog" window. This list of files appears in alphabetical order, the number of existing files is displayed on the status line (Total:) of the list.

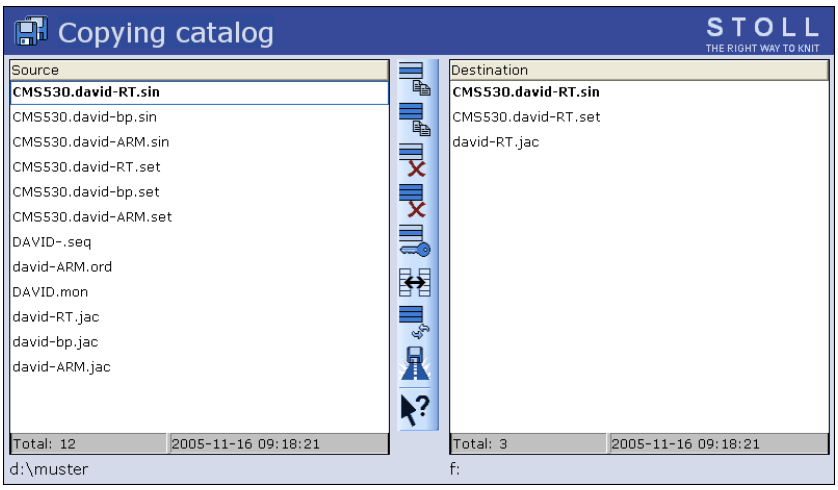
In the following example, the files are copied from the hard disk to the USB memory stick (backup copy).

Key	Function
	Call up the "Load & save" window
	Call up "Additional function keys"
	Call up the "Copying catalogue" window

Keys for the "Copying catalog" window

Copy file from the hard disk to the USB memory stick :

1. Insert the USB memory stick into the USB socket.
2. From the "Main menu" call up the "Load & Save" window.
3. Call up "Additional function keys".
4. Call up the "Copying catalog" window.



Path specifications in the "Copying catalog" window

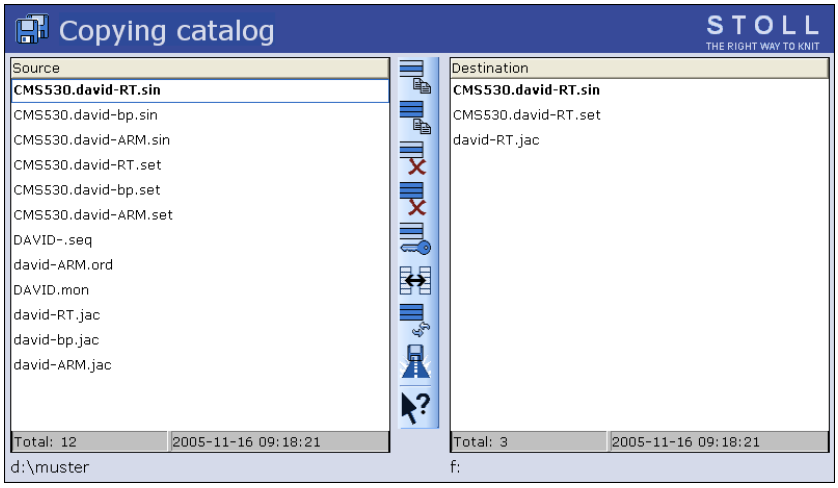
5. Check whether the path in the "Source" and "Target" lists is correctly displayed. The path is displayed at the end of each list.
6. If this is not so, change the path with the "Select current folder" key.
7. Tap the desired file in the left-hand list ("Source").

8. Tap the "Copy file" key.

   ▷ When the file is copied, it appears in the right list ("Target").

9. To copy other files, repeat steps 7 and 8.

Actions in "Copying catalog" window



Path specifications in the "Copying catalog" window

Key	Function	Key	Function
	"Copying a file": Copy file selected in Source to Target		"Deactivate Write Protection": Deactivate write protection of the selected file
	"Copy all": Copy all files from Source to Target		"Current folder selection": Open the dialog box for definition of the current folder
	Delete selected file		Call up "Direct Help" for the key pressed next
	"Delete all": Delete all files in the selected folder		"Change content": Exchange contents of Source and Target; Source is always on the left, Target on the right
	"Set Write Protection": Set write protection of the selected file		"Update": Update the contents of the folder

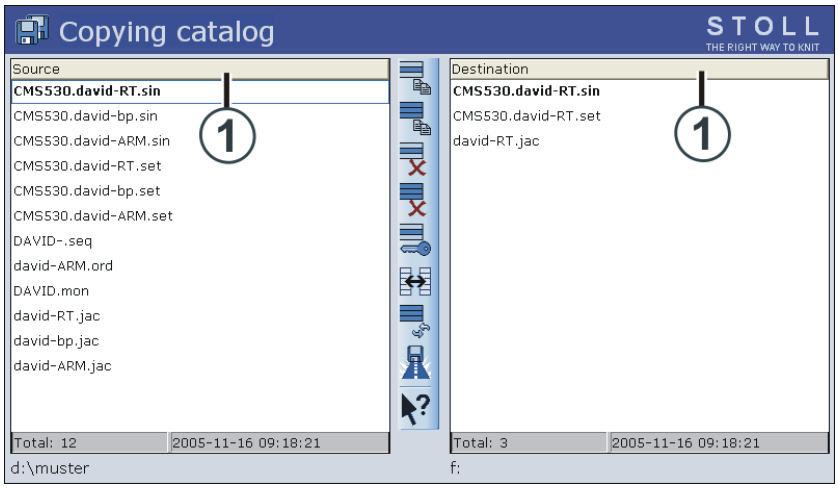
Keys in the "Copying catalog" window

Execute the action:

1. Tap the list for which the action is to be carried out.
2. Tap the desired button.
3. To carry out additional actions, repeat steps 1 and 2.

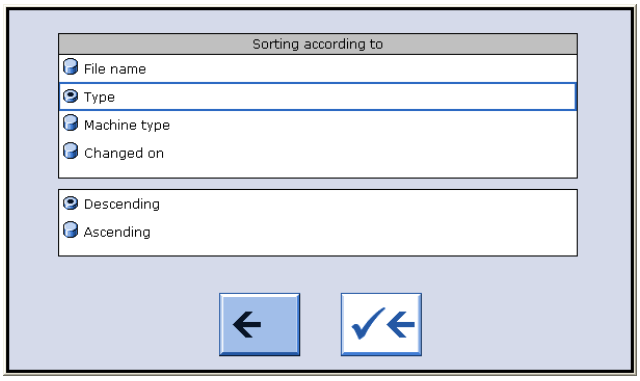
Setting the sort sequence

The sort sequence can individually be adjusted. To do so, click on the header line (1).



"Copying catalog" window

Select and confirm the sort sequence in the "Sort by" window.



Setting the sort criteria

Further information:

- Selecting the current folder [-> 243]

4.3.7 Selecting the current folder

General information

Pattern files can be saved to various drives (memory locations) of the knitting machine or to another computer on the network.

To load a file into the knitting machine from another drive, the entire path must be specified. By path, we mean the specification of where the file is located, for example on a drive of the M1 pattern workstation.

A path contains the following information:

1. Drive letter (or computer name) (e. g.: "D:" or "\\SERVER01")
2. Specification of the subdirectories (e. g.: "\PATTERN" or "Stoll\M1\Extract\")

Standard setting

Following drives are set by default in the keys of "Direct folder selection":

Key	Drive	Explanation
	F:\	USB Memory Stick
	D:\	Hard disk
	Name:\	Network drive

Standard settings of the drives

Selecting the current folder

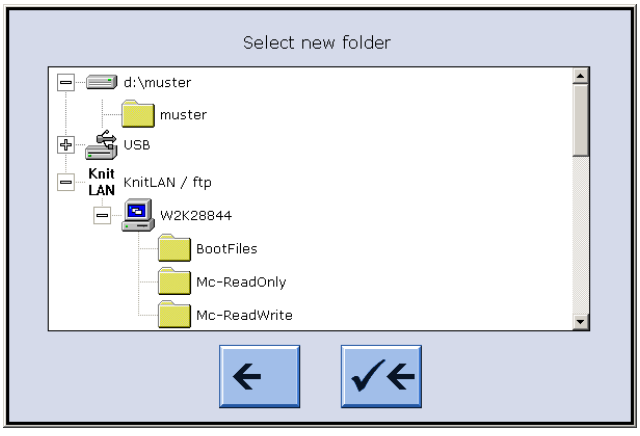
The selection of the patterns from the "Load & save" window is applied in the "Catalog order data ", "Catalog Sequence data" and "Catalog Sequence lists" windows.
(Exception: The specification in the "Copying catalog" window is only effective for this window.)
Using the "Select current folder" key, you specify the drive to which the 3 "Direct folder selection" keys are linked.

Key	Function
	Call up the "Load & save" window
     	"Direct folder selection" key The symbols of the 3 keys "Direct folder selection" are adapted based on the linked drive: ◆ USB Memory Stick ◆ Network drive ◆ CD drive (USB) ◆ Hard disk ◆ KnitLAN ◆ Floppy disk drive (USB)
	"Select the current folder" key
	End setting process and save changes
	End setting process without saving changes

Keys for changing a path

Change the path of "Direct folder selection" key:

1. From the "Main menu" call up the "Load & Save" window.
2. Tap "Direct folder selection" key for which the path is to be changed.
3. Tap on the key "Current folder selection".
   ▷ The input window "Select new folder " appears.

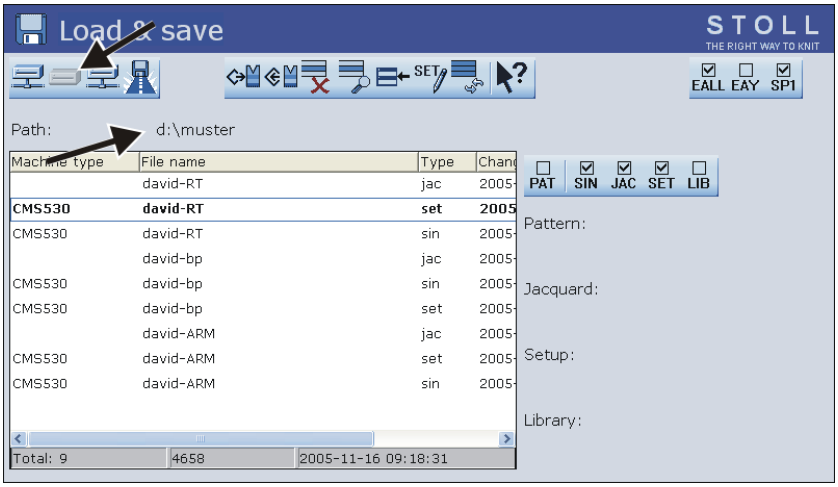


"Select new folder" window

4. Select the new path.

5. End setting process and save changes.

▶ In the "Load & Save " window, the display of the key "Direct folder selection" is adapted to the new path. The path is displayed below it.



Display of the set path

4.3.8 Carrying out a program check

If you carried out changes in the knitting program you can have your inputs checked. With it the knitting program will be checked for its knitting ability. If an error is detected, an error message will be displayed in the lower area of the window. Tapping the "?" key will display notes about the reason and remedy of the problem.
Please note that only program errors, so-called syntax errors can be found. Errors in the jacquard area cannot be detected.

During the program test, the pattern is displayed in the upper area and the TP messages in the lower area. The window size of both areas can be changed.

Key	Function
	Call up "Main menu"
	Call up "Editor" window
	Call up "Additional function keys"
	Call up "Program test" window

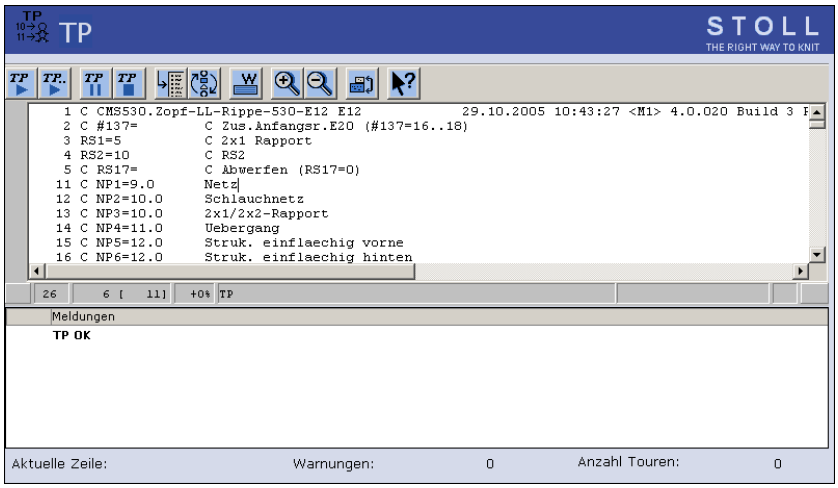
Keys for the "Program test" window

Call up "Program test" window:

✔ A knitting program is being loaded.

1. From the "Main menu" call up the "Editor" window.
2. Call up "additional function keys".
3. Call up the"Program Test" window.

Actions in "Program test" window



"Program test" window

Key	Function
	"Start program test": Start program test from 1st line
	"Start program test": Start program test from a certain line on
	"Interrupt program test": Interrupt program test and restart it
	"End program test"
	"Go to" a certain position
	Carry out the "Quick jump" corresponding mark (e.g. from FBEG to FEND)
	"Display warning": Activate/deactivate presentation of warnings during a program test
	"Enlarge": Display text enlarged

Keys in the "Program test" window

Key	Function
	"Reduce": Display the text decreased
	"Change size": Change window size of pattern and error output
	Call up "Direct Help" for the key pressed next

Keys in the "Program test" window

4.4 Working with the Sintral editor

Minor changes or additions to the knitting programs are processed with the Sintral editor. To be able to process a knitting program with the Sintral editor, the knitting machine must be stopped. During production you can view the knitting program only.

Further information:

- Help on working in the windows [-> 221]

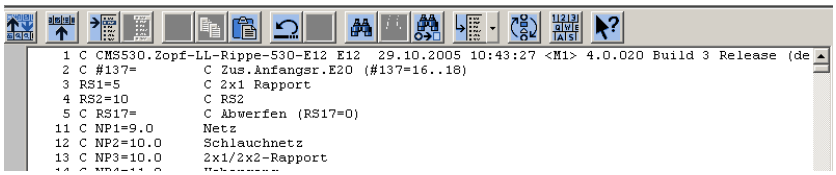
4.4.1 Activating Sintral editor

Key	Function
	Call up the "SINTRAL-editor" window

Key for the "Sintral Editor" window

➜ Call up the "SINTRAL-editor" window.

▶ The window of the first level in the "SINTRAL Editor" appears. The file currently loaded is shown in this window.



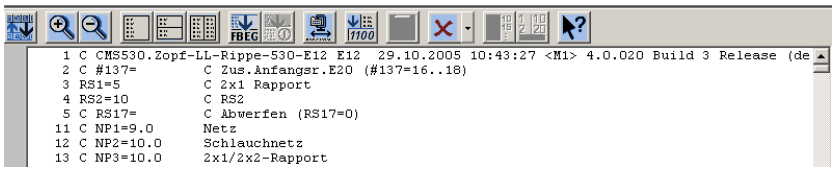
Window of the first level in the "SINTRAL editor"

Key	Function	Key	Function
	"Switch toolbar": Switch over toolbar to second level		search for a specific term
	Display the toolbar for "Mask jump".		"Continue": Continue to find a certain term
	"Start of marking": Set the beginning of a marking. An existing marking is removed.		"Replace": search for a certain term and replace it by a new one
	"End of marking": Set the end of a selection		"Go to" a certain position
	"Cut": Cut selected area		"Go to" submenu is opened
	"Copy": copy selected area		Carry out the "Quick jump" corresponding mark (e.g. from FBEG to FEND)
	"Insert": reinsert copied or cut area		Activate and deactivate display of "Keyboard"
	"Undo action": the previous action is undone (also possible several times)		Call up "Direct Help" for the key pressed next
	"Redo": Restore an undone action (also possible several times).		

Keys of the first level in the "SINTRAL editor"

2nd level of "SINTRAL Editor"

Pressing the "Switch over toolbar" key, the window goes to the 2nd level of the "SINTRAL Editor".



Window of the second level in the "SINTRAL-Editor"

Key	Function	Key	Function
	"Switch toolbar": Switch over toolbar to first level		"Pack and unpack jacquard": Pack or unpack selected jacquard lines
	"Enlarge": Display text enlarged		"Set jacquard start": Set start of jacquard on current line
	"Reduce": Display the text decreased		Switch over between current pattern and "Auto-Sintral"
	"Remove tile window": Remove tile window (horizontally or vertically)		"Delete all": delete the complete pattern
	"Tile window horizontally": Tile window horizontally		"Delete" submenu is opened
	"Tile window vertically": Tile window vertically		"Sort" marked area ascending by line numbers
	"Function list": Toggle on/off the display of pattern functions.		"Renumber": Reissue line numbers in the selected area
	Activate and deactivate display of Sintral "error messages"		Call up "Direct Help" for the key pressed next

Additional keys of the second level of the "SINTRAL editor"

"Auto-Sintral" function key

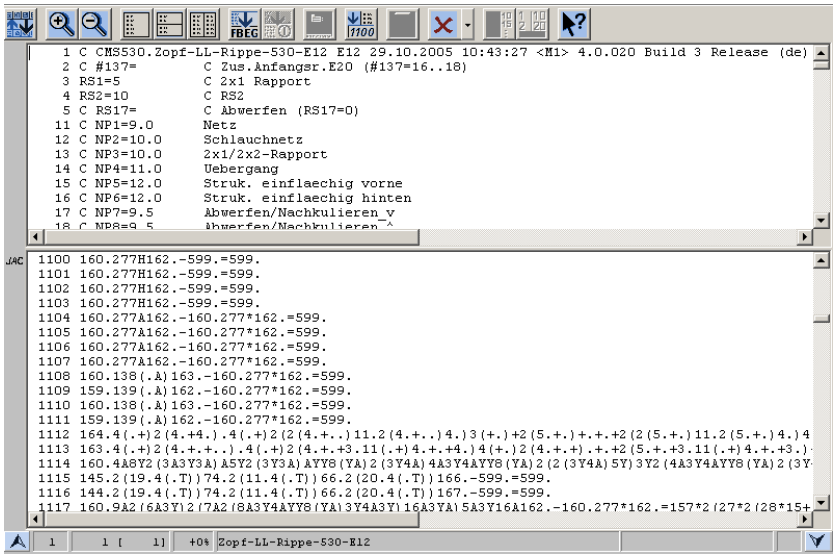
To activate this key, "Auto-Sintral" must be loaded. In the editor now one can switch between the currently loaded pattern and "Auto-Sintral".

Key	Function
	Switch over between current pattern and "Auto-Sintral"

"Auto-Sintral" key

"Tile window horizontally" function key

This function makes two editors available which work independently of one another. When opening, the jacquard is jumped to in the lower editor. The size of the division is changed via both arrow keys on the left or right sides at the bottom edge of the screen.



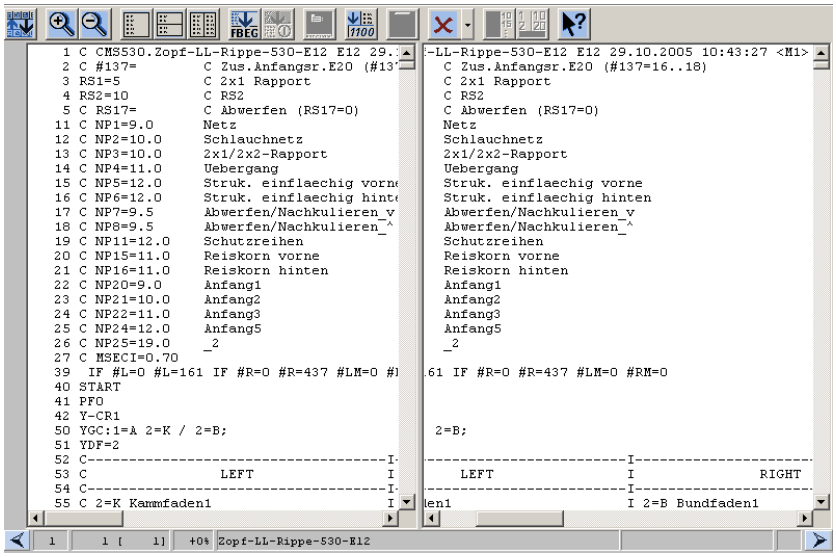
Window for the function "Tile window horizontally"

Key	Function	Key	Function
	enlarge lower part		enlarge upper part

Function keys for the function "Tile window horizontally"

"Tile window vertically" function key

This function makes two editors available, which both always show the same lines. Vertical scrolling in one editor changes the second editor simultaneously. Horizontal scrolling only changes one editor, and the start of a long line can be displayed in the left editor and the rest on the right one. Selections will immediately be copied in the other editor. The size of the division is changed via both arrow keys on the left or right sides at the bottom edge of the screen.



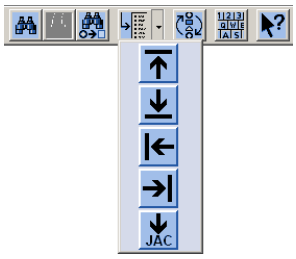
Window for the "Tile window vertically" function

Key	Function	Key	Function
	enlarge right part		enlarge left part

Function keys for the function "Tile window vertically"

Call up "Go to" submenu

Press the arrow key next to the "Go to" key. You can jump to the start or the end of the file or line using this submenu.



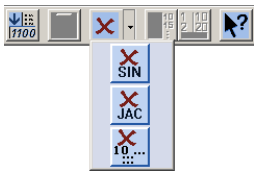
Window "Go to" submenu

Key	Function	Key	Function
	Go to the start of the file		Go to the start of the line
	Go to the end of the file		Go to the end of the line
	Go to the begin of jacquard		

Function keys in "Go to" submenu

Call up "Delete" - submenu

Press the arrow key next to the "Delete" key. Sintral, jacquard or a line from the loaded file can be deleted via this submenu.



Window "Delete" submenu

Key	Function	Key	Function
	Delete Sintral from file		Delete specified line from file
	Delete jacquard from file		

Function keys in "Delete" submenu

4.4.2 Go to help in function and error list

After loading and checking a file, the corresponding functions and error messages can be displayed in the "SINTRAL editor". You can jump in these lists using the following keys.

Key	Function
	"Go to help for next"
	"Go to help for previous"

Keys for go to help

➜ To jump to the next function / to the next error in the knitting program, tap the "Go to help for next" key.

- or -

➜ To jump to the previous function / to the previous error in the knitting program, press the "Go to help for previous" key.

4.5 KnitLAN connection

Valid for:
This description applies only to machines for which the connection to the Stoll Nameserver is not active. If the connection to the Stoll Nameserver is active, the "Network favorites" key is not available since the KnitLAN connection will be configured on the Stoll Nameserver.

The KnitLAN connection helps in the transmission of data and patterns between the machine and an M1 or an FTP-Server (FTP = File Transfer Protocol, network protocol for data transmission).

The KnitLAN connection takes the place of the previous online program. In this chapter the setting of the KnitLAN connection is described. The selection of computers for "My network" is described in the MCNET2 manual.

You can use the KnitLAN connection for:

- Transmitting knitting programs
- Monitoring production
- Collecting machine data

Requirements:

- Machine and M1 are networking
- Operating system of the machine: V 1.2 (or higher)
- Software version of M1: V 3.9 (or higher)

Configure the KnitLAN connection:

Key	Function
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up the "Network favorites" window
	Opens the understructure of the marked network.
	Closes the substructure of the marked network.
	Transfers the selected computer in the field "KnitLAN / ftp"
	Deletes the selected computer

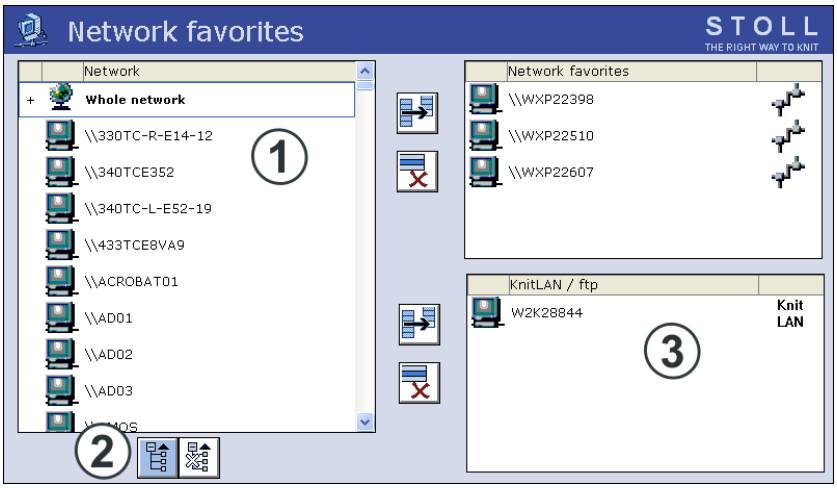
Keys for setting the KnitLAN connection

Key	Function
	Call up "Main menu"

Keys for setting the KnitLAN connection

Call up the "Service" menu.

4. Call up the "Basic settings" menu.
5. Call up the "Network favorites" window.

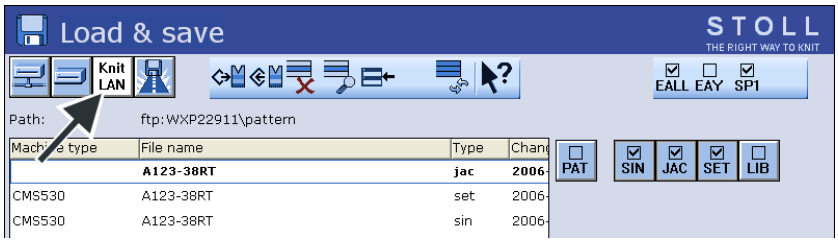


"Network favorites" window

1 Display of network environment which machine is integrated in.
2 Opens the understructure of the marked network.
3 Computers which are used for KnitLAN (e. g. pattern workstations) or computers on which a FTP server is installed.
FTP = File transfer protocol (network protocol for data transmission).

6. From the entire network (1) select the computer of the M1.
If only the entire network is displayed, then open the substructure with the (2) key.
7. Transfer the selected computer into the "KnitLAN / ftp" (3) field.
8. If another computer needs to be selected, repeat steps 4 and 5.
9. Call up the "Main menu".

You can apply the KnitLAN connection to one of the "Direct folder selection" keys. The key is indicated with the symbol "KnitLAN". You can see the contents of the folder on the M1 in the selection field.



Working on the M1:

1. The access to the KnitLAN directories ("D:\\Stoll\\M1\\KnitLAN\\Bootfiles" and "Mc-ReadWrite") must be open to run the online connection from the M1 to the OKC machines.
   Select the directory, call up the Context Menu, Properties, Share tab, Share Folder
2. In the Windows firewall you have to call up the firewall settings and allow the Stoll FTP service as an exception. (Start > Control panel > Windows firewall, tab: Exceptions).
   The program "Stoll FTP service" can be found under the installation path of the M1 (e.g. "C:\Program Files\Stoll\M1\Bin\ftpservice.exe")

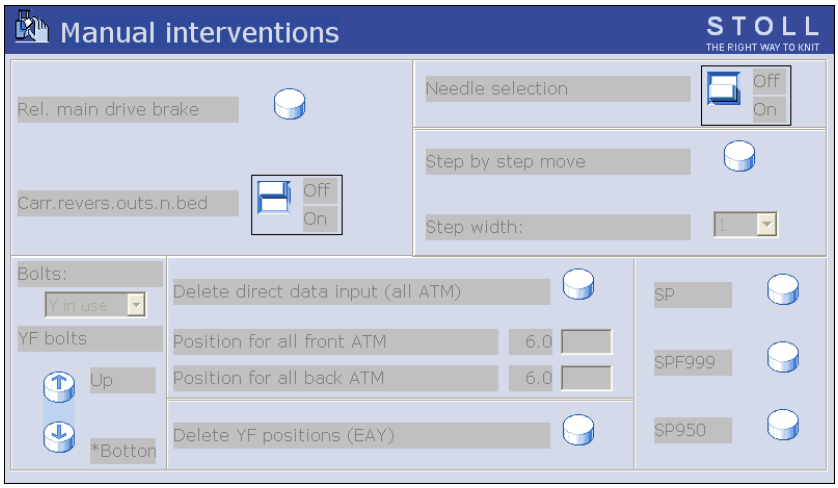
Further information:

- Selecting the current folder [-> 243]

4.6 Defining user profile

In the standard configuration each knitting machine user can open and make changes to any window of the user interface. However, in some cases this is not desirable and not every user is to be able to change data and machine settings. This can be set with the "User profile" window. In this window, rights as to which changes may be carried out and which may not, can be assigned to a user or a user group. If a window is blocked, it can be called up and the data viewed, however changes are not possible (exception: the password is known to the user and he/she can enable the window).

The operating elements in a blocked window are shown on a light gray background.



Blocked window "Manual interventions"

The assignment of the rights is reserved for an authorized person and protected by a password.

Any number of user profiles can be defined, for example for:

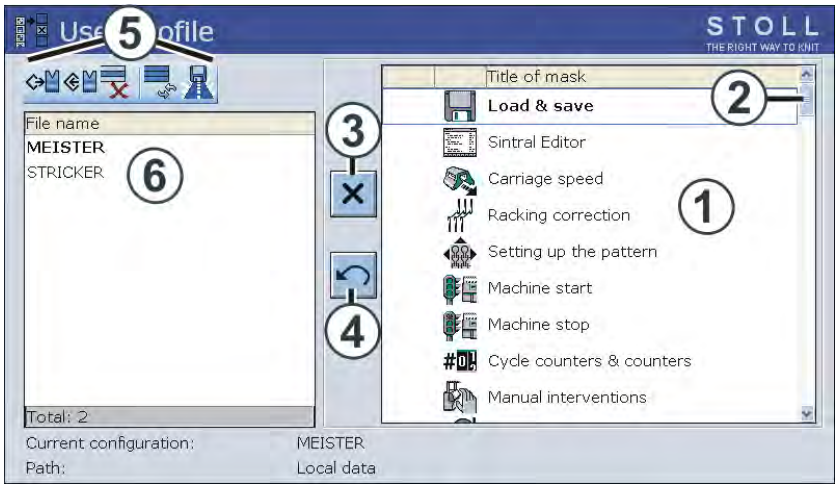
- Knitters
- Personnel of the night shift
- Setup personnel (technicians)
- Foremen/Forewomen

	CAUTION
	The window is protected by a password! When calling up a window, a password is always requested. This serves the purpose of security so that no unauthorized persons have access to this window. ➜ The password must remain secret. ➜ Uppercase and lowercase letters can be used in a password.

➜ Note the password and keep it in a safe place.

i	If the password is lost, the Stoll Helpline can help with a special password.

The "User profile" window



"User profile" window

Field	Function
1	Selection list of the window to be enabled or disabled. It is possible to scroll down/up in the selection list with the scroll bar (2). Additional windows are then available for selection.
3	Switch for blocking or enabling a window
4	Reset all changes
5	Operations for the selected user profile
6	Select or define user profile

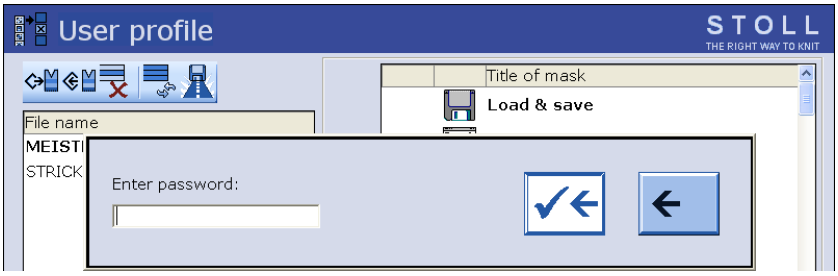
Defining user profile

Key	Function
	Call up the "Service" window
	Call up "User profile" window
	Confirm password
	Return to previous window (cancel process)
	Block window
	Enable window
	Call up "Additional function keys"
	Enable all windows
	Block all windows
	Call up "Main menu"

Keys for defining "User profile"

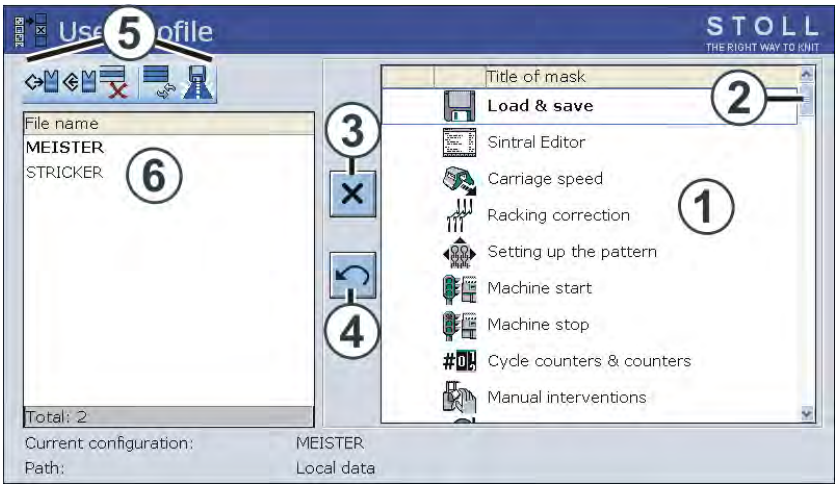
Defining user profile:

1. Call up the "Service" window.
2. Call up "User profile" window.



Entering password

3. Enter and confirm the password with the keyboard. In the standard configuration, the first password is "MASK.ACCESS". It is written in uppercase letters and without quotation marks.



"User profile" window

4. Block window: Tap the corresponding window in the selection list (1) and tap on the "Block window" (3) switch.

   - or -

➜ Tap the corresponding window in the selection list with a double click.

5. Enable window: If a window is blocked, then enable it again with a double click.

   - or -

➜ Tap the switch (3).

6. Only enable a few windows: First block all windows ("Additional function keys" key and "Block all windows" key) and then enable the few windows again.
7. Enable all windows: Tap the "Additional function keys" key and enable all windows again with the "Enable all windows" key.
8. Give a name to the user profile and save it.
9. Define another user profile if necessary.
10. For the user profile to become effective, it must be activated with the "Load" key.
11. Call up "Main menu".

Saving, loading, deleting user profiles ...

The user profile can be saved, loaded and deleted.

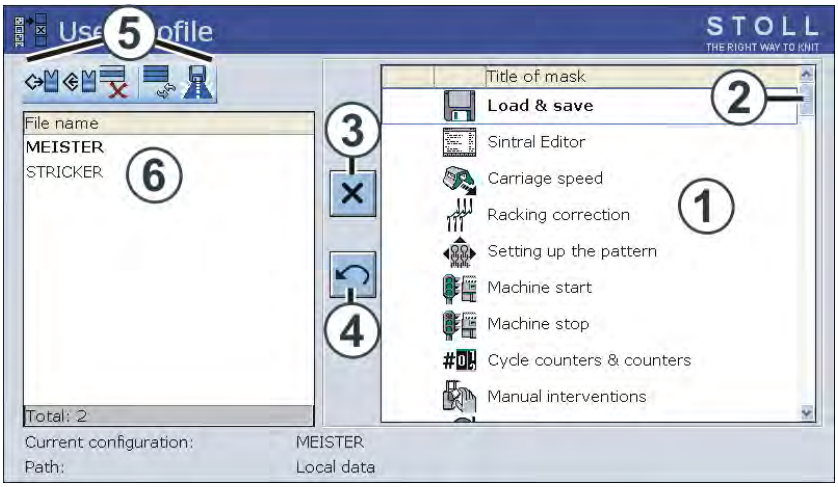
So that the same user profiles are active on all knitting machines, save the user profiles to USB memory stick or a network drive and load them in each machine.

Key	Function
	Call up the "Service" window
	Call up "User profile" window
	Confirm password
	Confirm selection
	Call up "Main menu"

Keys for "Saving, loading, exporting user profile ..."

Saving, loading, deleting user profiles ...:

1. Call up the "Service" window.
2. Call up "User profile" window.



"User profile" window

3. Enter and confirm the password with the keyboard.
4. Select the desired program point (5) (loading, saving, deleting ...).
5. Select a user profile. Tap on the desired user profile in the field (6).
6. Confirm selection.
7. If additional user profiles are to be called up, repeat the steps 4 to 6.
8. Call up "Main menu".

Enabling blocked window

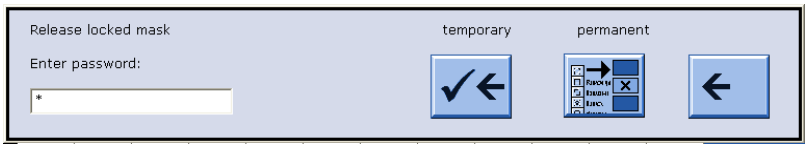
During production it may be necessary to open a blocked window and carry out a change or action. Or you find that it is necessary for this window to be enabled for the active user. Naturally, this is only possible for a person who knows the password.

Key	Function
	Call up "Additional function keys"
	Tap "Password"
	Confirm password
	Return to previous window (cancel process)
	Call up "User profile" window

Keys for "Enabling blocked window"

Enabling blocked window:

1. Display the "additional function keys" in the blocked window.
2. Tap the "Password" key.
3. Enter the password with the keyboard.



"Enabling blocked window" window

4. Enable window once by tapping the "Confirm password" key.

- or -

➜ Change the user profile by tapping the "User profile" key.

Change password

From time to time you should change the password to be sure that it has not become known. Carry out this activity on all knitting machines.

If the knitting machine is connected with the STOLL pattern workstation, the password can be changed simultaneously on all the knitting machines with the help of on-line connection (see section "On-line commands" at the end of this chapter).

Key	Function
	Call up the "Service" window
	Call up "User profile" window
	Confirm password
	Call up "Additional function keys"
	"Change password"
	Call up "Main menu"

Keys for "Change password"

Modify password:

1. Call up the "Service" window.
2. Call up "User profile" window.
3. Enter and confirm the password with the keyboard.
4. Call up "Additional function keys"
5. Tap the "Change password" key.

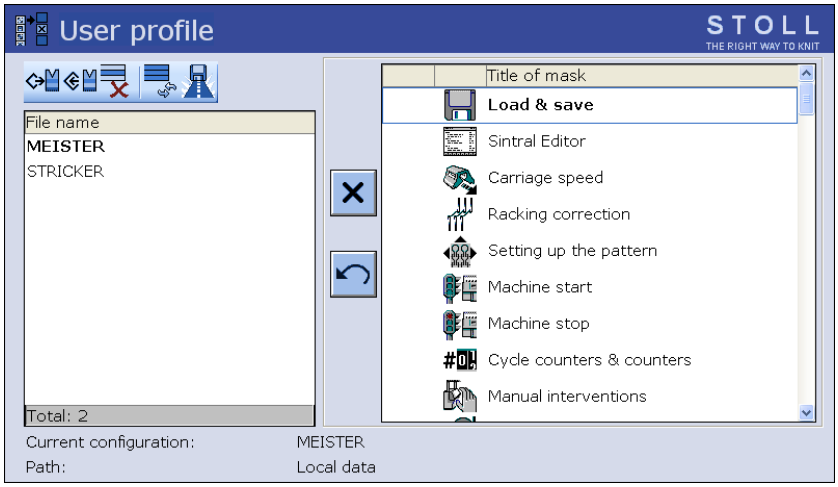
"Change password" window

6. Type in the new password in the top line.
7. Type in the new password again in the bottom line.
8. Confirm the password.
9. Call up "Main menu".

Examples of how a user profile can be specified

Example 1:

The machine settings are to be blocked. To do this, block the four windows in the selection list.



"User profile" window

Example 2:

When beginning work with user profiles, there is an uncertainty as to which windows are required for daily work and which are not. We suggest using the following procedure:

1. First block all windows.
2. The knitter begins working with the machine.
3. If it is necessary to change something in a window, the knitter reports this and the window is enabled in the user profile.
4. Save the user profile.
5. Continue this stepwise determination of the user profile for a certain period of time. This may, for example, be for a working day or a week.

Online commands

If the knitting machine is connected with the STOLL pattern workstation, the password and the user profile can be changed simultaneously on all the machines with the help of the on-line connection. The condition is that the password is written in uppercase letters.

Commands	Function
setuserlevel Password User profile name Example: The password is "JOE", the user profile is "david". The complete command is: setuserlevel JOE david	Activate the same user profile on all knitting machines
setulword OldPassword NewPassword Example: The old password is "JOE", the new one is "JOHN". The complete command is: setulpassword JOE JOHN	Activate the same password on all knitting machines

Commands for activating user profile and password

To enter the commands on the pattern preparation unit the following steps are necessary:

1. Activate program"Online".
2. Select the "Display call-round ->" program point in the "NET" program.
   ▷ The "call-round" window appears.
3. Type in the corresponding command and confirm.

5 Setup Data

The knitting program consists of:

- Sintral program (*.sin)
- Jacquard program (*.jac)
- Information about production:
  - Specification of the stitch length
  - Distance between yarn carriers and fabric selvedge
  - Carriage Speed...

You can handle this information about production as follows:

- define it with every pattern anew
- define it in a separate file which you can reuse with every pattern
  This file is called Setup file

Your advantages working with a setup file:

- The setup-data are centralized in one setup-file
- Clear operation of all setup data on the machine.
- Clear separation of variable pattern parameters and constant Sintral knitting specifications.
- All the parameters that are relevant when knitting-in the pattern are located in the setup file.
- The complete pattern (Sintral, Jacquard, Setup) can be transferred to another machine.
  You can reduce the machine set-up time of the pattern by this.
- The Setup file can be applied to other pattern.
  You can reduce the machine set-up time of the pattern by this.

5.1 Background

A short review

Setup-data were introduced for CMS machines (starting with ST 711) in 1998.
Following data can be saved to the setup-file:

- WMF(Fabric take-down menu)
- NP (All NP values)
- YD (Position of yarn carriers at the fabric selvedge)
- MSEC (indirect MSEC-setting)
- YLC (Yarn Length Control STIXX/ASCON)

This was the first step to write the pattern related parameters into a separate file. The purpose is to reduce the time of setting up the machine.
Some pattern related parameters were still written in Sintral functions. Leading to setup work when converting the pattern for other machines.

You can use the extended setup-data from now.
In order to distinguish them they will be called Setup2 and the previous data Setup1.

The target of Setup2

Transferring a pattern from one machine to another without changing the Sintral program.

Setup2 is extended by the following parameters:

- Yarn carrier staggering (YD / YDI)
- Correcting the Normal Yarn Carriers (YC / YCI)
- Cycle counters
- Racking Corrections
- Correction of the stitch length of the right carriage with tandem operation (NPR)
- Yarn length control at the left and right-hand side
- Correction of the loop sinking depth (NCC)
- Comments

5.2 Comparing Setup1 to Setup2

	Setup1	Setup2
Fabric take-down functions (WMF)	8 functions	50 fabric take-down functions (WMF)
		50 Auxiliary take-down functions (W+F) Switching auxiliary take-down on and off (W+1, W+0)
		Tabs for WM% and WMK%
Yarn carrier staggering YD	One staggering (YD)	21 staggerings (YD, YDI1-YDI20)
Yarn carrier corrections	One correction	20 corrections (YCI1-YCI20) Some corrections for all 32 yarn carriers can be defined with each function.
	◆ The Setup file does not contain the correction of the normal yarn carriers. ◆ Correction of Intarsia yarn carrier in the KI / K<I> tab	All yarn carrier corrections (normal and intarsia) are part of the YCI tab
		with tandem operation: the correction values for the right carriage are part of the Y:Oa-b tab
Correction values for stitch cam position (NP)	100	100
Specifications for the carriage speed (MSEC)	9	20
Correction of the loop sinking depth (NCC)	no part of the setup-file	A correction value per yarn carrier is possible
Yarn length	Indications for yarn length control on the right	Indications for yarn length control on the right and left
Cycle counters	no indications possible	39 cycle counters
Racking Corrections	VKA to VKZ, no part of the setup-file	50 Indices for racking corrections (VCI)
Comments	no indications possible	for each indication possible

	Setup1	Setup2
Correction of stitch length for right carriage in tandem operation (NPR)	Not possible	possible
Additional information such as: ◆ Machine Number ◆ Online Number ◆ Host Name	Not possible	possible
File Extension (File Extension)	.set	.setx (XML file)
File extensions for extracted patterns (File Extension)	.sin; .jac and .set	.sin; .jac and .setx files in a compressed folder (.zip file) 

5.3 Using Setup1 or Setup2

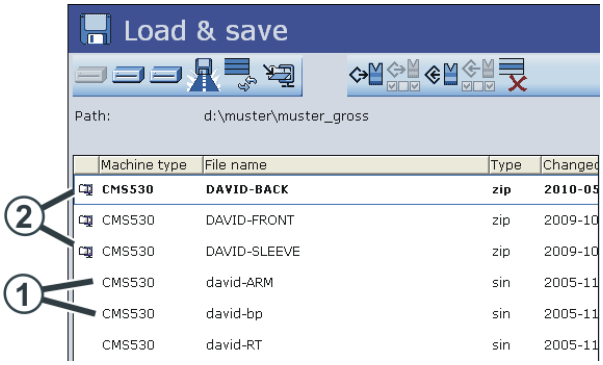
Setup1	usable for all machines (OKC, ST 468, ST 268, ST 168, ST 811, ST 711)
Setup2	usable with all OKC machines (starting with V 2.1)
Converting Setup2 --> 1	Possible with M1plus (starting with V. 5.2) only. Example: How to convert a Setup2 patter for a CMS 530 to a pattern for a CMS 330: 1. Load the pattern and call up the "Change Machine/Gauge/ Setup Type..." menu. 2. Set the corresponding setup type for the machine in the "Machine Explorer". 3. Start technical processing.  or  4. Run the "Generate MC Program..." function. 5. Run the "Extract MC Program..." function. ▶ The sin; jac and set files will be generated.
Converting Setup1 --> 2	Setup1 patterns cannot be converted automatically into Setup2. Example: How to convert a Setup1 pattern for a CMS 330 to a Setup2 pattern for a CMS 530: 1. Load the pattern and call up the "Change Machine/Gauge/ Setup Type..." menu. 2. Set the corresponding setup type for the machine in the "Machine Explorer". 3. Modify and complete the parameters and functions corresponding to Setup2. 4. Start technical processing.  or  5. Run the "Generate MC Program..." function. 6. Run the "Extract MC Program..." function. ▶ The sin; jac and setx-files will be saved to a zip-file.

How to generate a setup-file?

- Generating it together with the pattern on the M1plus.
  Starting with the 5.2 version of the M1plus you can choose among **Setup in Sintral**, Setup1, Setup2
- Generating it manually (with Setup1 only)

5.4 Loading knitting program

You can quickly recognize whether it is a pattern with Setup1 or Setup2 data



1 Setup1 pattern

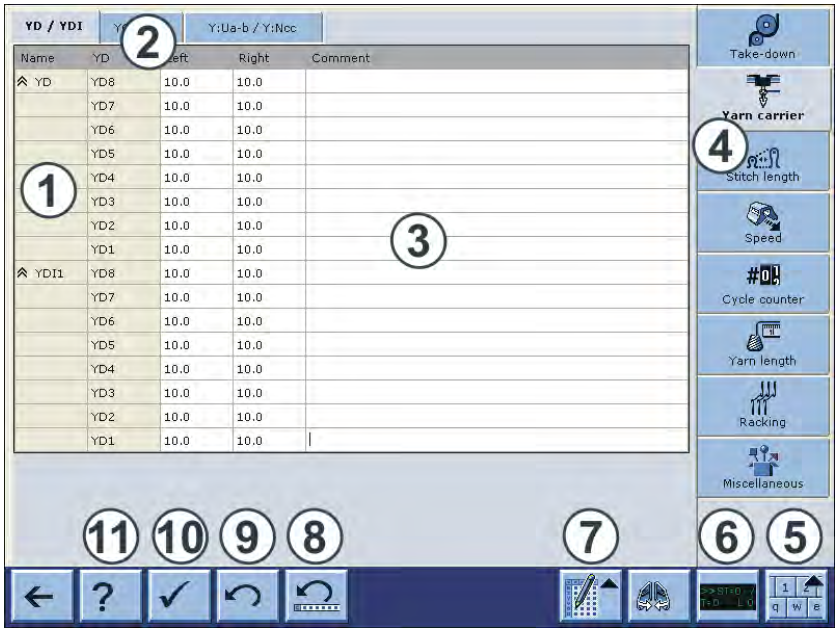
2 Setup2 pattern

A Setup2 pattern is saved in a zip file. The icon of compressed (zipped) folder is displayed in front of the pattern.

5.5 Setup2 Editor

5.5.1 Overview of the Setup2 Editor of the CMS

The Setup2 data will be displayed in the "Setup2 Editor".



	Explanation
1	Row
2	Tabs of a menu
3	Table
4	Call-up the individual menus
5	Switch on or off the virtual keyboard i: The menu keys are covered by the active virtual keyboard. Switch off the virtual keyboard in order to switch to another menu.
6	Activate and deactivate the state line (only display of the values, no window call up possible)
7	Switch on or off the table tools
8	Undo the last editing of a line
9	Undo the last editing of a cell
10	Save all values of the actual tab (table)
11	Call up the online help of the selected tab.

i: With file mode only

	Save the Setup2 file (setx)

Calling up the Setup2 Editor on the machine

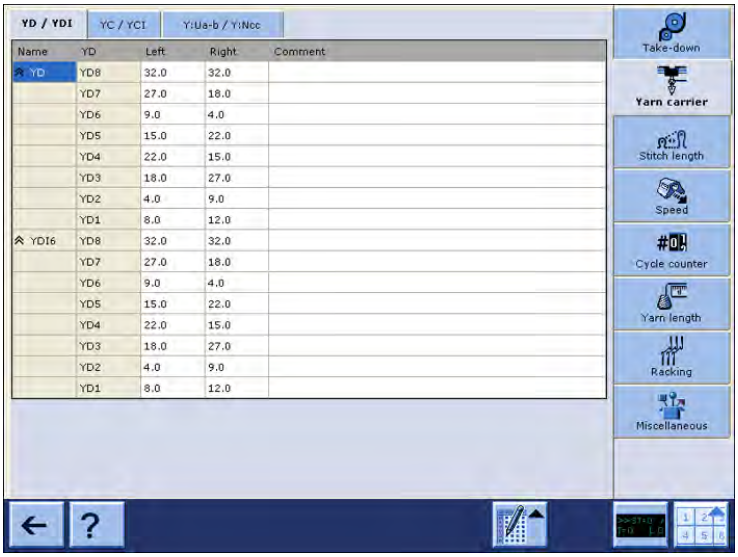
How to call up the Setup2 Editor with the Setup data of the actual pattern:

Key	Function
	Call up the "Setup2 Editor" window

Key to call-up the "Setup2 Editor" window

1. Call up the "Setup2 Editor" in the "Main menu".

   ▷ The "Setup2 Editor" window appears.



How to open the Setup2 file in the Setup2 Editor:

You can edit Setup2 data independently to the running production by the file mode.

1. Call up the "Load & save" window.
2. Get the Zip file displayed.

3. Tap the Setup2 file (*.setx).

▶ The "Setup2 Editor" window appears in the file mode.

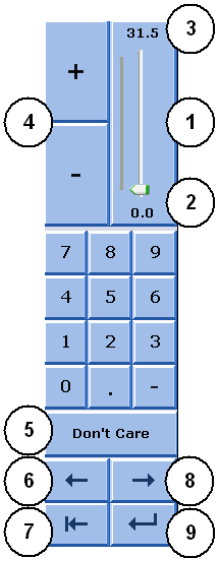
Helpers for Input

Depending on the active input field appears:

- the numeric keyboard
- the alpha-numeric keyboard (for comments)
- the input helper for list fields
- The input helper for NP measure units

	Explanation
	Switch on the virtual keyboard
	Switch off virtual keyboard

The numeric keyboard

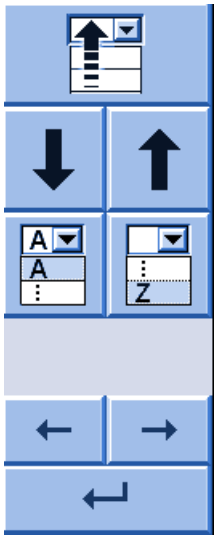


	Explanation
1	Slider
2	Shows the maximum value of the selected field
3	Shows the minimum value of the selected field
4	Increase or decrease the value by one step
5	Apply value from the previous row The applied value will not be displayed. An entry field without entry has the "Don't Care" property. An entry field with "Don't Care" is empty. i: "0" does not correspond to "Don't Care"
6	Move cursor: one field to the left
7	Delete the number to the left of the cursor
8	Move cursor: one field to the right
9	Confirm input. The cursor jumps to the next field.

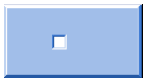
The alpha-numeric keyboard

Key		Function
		
	TAB	Jump to the next field.
	CPS LCK	Shift between uppercase and lowercase letters; the setting of numbers or special characters is maintained
	SHIFT	Shift between uppercase and lowercase letters and between numbers and special characters
	BACKSPACE	Move the cursor by one step to left and delete the character there
	ENTER	Confirm input
	LEFT	Move the cursor by one step to left
	RIGHT	Move the cursor by one step to right

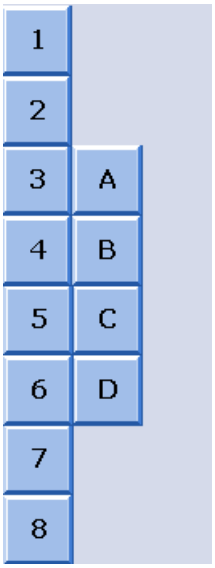
The input helper for list fields

Element		Function
		Fold open selection field
		Fold closed selection field
		Move cursor: one line upwards
		Move cursor: one line downwards
		Move cursor: one character to left
		Move cursor: one character to the right
		Move cursor: to first input of selection field
		Move cursor: to last input of selection field
		Confirm input

The input helper for NP measure units

Element	Function
	Switch all values to NP
	Switch all values to millimeters
	Switch a single value to mm
	Switch a single value to NP

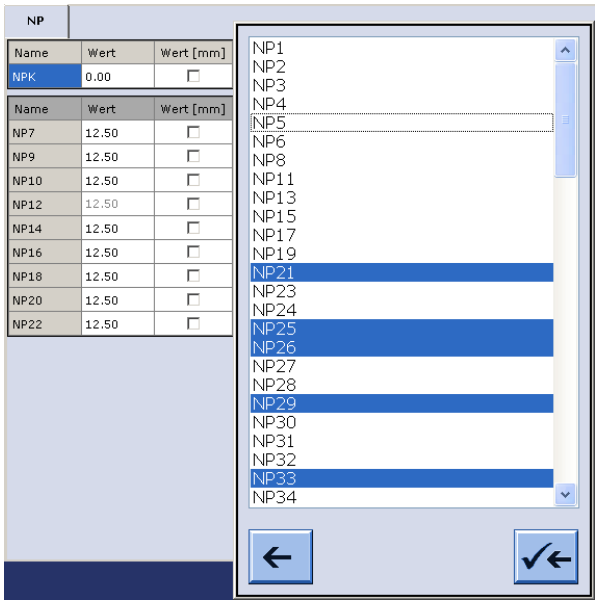
The Input Helper for Yarn Carriers (YLC tab)

Element	Function
	Enter yarn carrier specification Example: 3A
	Delete entry
	Move cursor: one character to left
	Move cursor: one character to the right
	Confirm input

Adding a table row

You will find only those entries in the selection list which are not yet part of the table.

Example:



Some NP are part of the table.
Select NP indices in the "Add Rows" dialog box from those not yet listed in the table.
Multiple selections are possible.

Apply the selected NP indices to the table with  .

You can cancel the procedure with  .

Switching on or off the table tools

	Explanation
	Switch on the table tools
	Switch off the table tools

Table Tools

	Explanation
	Go to row. Select the desired line in the selection list The cursor jumps to the desired line of the table. i: Active with more than 21 lines.
	Adding a table row
	Delete the selected line
	Copying the values (of a line)
	Inserting the copied values
	Copying several lines ("Yarn Carrier", "YD/YDI" and "YC/YCI" tab)
	Pasting the copied lines ("Yarn Carrier", "YD/YDI" and "YC/YCI" tab)

File tools

	Explanation	
	Display the content of the Zip file	In the "Load & save" window 
	Close the zip file	
	Load pattern	
	Load the pattern with selected Setup data	
	Save Pattern	
	Save the pattern with selected Setup data. ➜ Select the desired Setup data in the "Save with configuration" dialog box	
	Deleting file Delete selected file	
	Display selected file With a Setup2 file (.setx) the Setup2 Editor appears in the file mode	
	Add Add selected file and corresponding pattern elements to pattern already loaded.	
	Save the setup file	In the file mode of the "Setup2 Editor" only

5.5.2 Take-down

WMF (tab)

	Explanation	Value range
WMF…	Fabric take-down function	WMF1 to WMF50
WM min	Minimum fabric take-down value (with Fully Fashion)	Minimum value: 0 Maximum value: 31.5 Step width: 0.1
WM max	Maximum fabric take-down value (value must always be specified)	Minimum value: 0 Maximum value: 31.5 Step width: 0.1
N min	Minimum number of needles (with Fully Fashion)	Minimum value: 0 Maximum value: Needle number of the CMS Step width: 1
N max	Maximum number of needles (with Fully Fashion)	Minimum value: 0 Maximum value: Needle number of the CMS Step width: 1
WMI	Fabric take-down impulse	Minimum value: 0 Maximum value: 15 Step width: 1
WM^	Open the brake of the active take-down system (main take-down or comb take-down) for a maximum of 2.5 seconds, take-down roller or comb take-down turn back by a maximum number of the indicated degrees (depending on the fabric tension and the fabric take-down value). CMS 5xx, 7xx, 8xx: 9-60 degrees CMS 9xx: 9-120 degrees If either of both the conditions is fulfilled, then the brake is closed again. Fabric take-down value (n=0-31.5) becomes active again at the reversion.	No turning back: 0 Minimum value: 9 Maximum value: 120 Step width: 1
WMC	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. 0= no stop motion, 1= insensitive, 32= very sensitive	Minimum value: 0 Maximum value: 32 Step width: 1

	Explanation	Value range
WM+C	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	Controlling the 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
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

W+F (tab)

		Explanation	Value range
W+F…		Auxiliary Take-down function	W+F1 - W+F50
W+F On	☑	Switch on auxiliary take-down. The auxiliary take-down will be closed. The speed of the auxiliary take-down W+=n is active	
	☐	Switch off the auxiliary take-down. The auxiliary take-down will be opened.	
W+=		Input of the speed of the auxiliary take-down Turning value n (1-15)	Minimum value: 1 Maximum value: 15 Step width: 1
W+P		Contact pressure n (0-10), only for machines with 72 and 84 inch working width	Minimum value: 0 Maximum value: 10 Step width: 1
W+C		Monitoring of auxiliary take-down. If the auxiliary 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
Comment		Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

WM% WMK% (tab)

	Explanation	Value range
WM%	Modify the fabric take-down value by n percent	-80 to 80

	Explanation	Value range	
WMK%	Changing the fabric take-down value by n percent while the comb take-down is working. The value is active till the fabric is taken down by the main take-down.	-80 to 80	
Comment	Comment		ASCII Characters
			All characters and numbers (UTF-8)

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

5.5.3 Yarn carrier

YD / YDI (tab) Staggering the yarn carriers at the fabric selvedge.

	Explanation	Value range
YD	Distance between yarn carriers and fabric selvedge Collapse (reduced display) Expand (expanded display)	
YD1 : YD8	Distance of the yarn carriers on track 1 to 8 from the left and right fabric selvedge	Minimum value: 0 Maximum value: 160 Step width: 0.5=1/32 inch=0.8 mm
YDI	Additional, indirect yarn carrier staggering (YDI1 to YDI20) Collapse (reduced display) Expand (expanded display)	Minimum value: 0 Maximum value: 160 Step width: 0.5=1/32 inch=0.8 mm
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

YC / YCI (tab) Yarn carrier corrections

	Explanation	Value range
YC	Direct yarn carrier correction Collapse (reduced display) Expand (expanded display)	
YCI	Yarn carrier correction index YCI1 to YCI20 Collapse (reduced display) Expand (expanded display)	
Y	Corrections of yarn carrier 1A to 8D	
Ka	Yarn carrier correction value (left) for not swiveled yarn carrier if the yarn carrier is positioned within the fabric.	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
Kb	Yarn carrier correction value (right) for not swiveled yarn carrier if the yarn carrier is positioned within the fabric.	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
K<I>a	Intarsia yarn carrier correction value (left) for swiveled intarsia yarn carrier	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
K<I>b	Intarsia yarn carrier correction value (right) for intarsia swiveled yarn carrier	Minimum value: -120 Maximum value: 120 Step width: 0.5=1/32 inch=0.8 mm
MSEC	Carriage speed if this yarn carrier is used (technical fabrics).	
V	Reduce carriage speed (n) for yarn carrier (n = 0..3). The speed is reduced to 75% from carriage reversal point until achievement of the operating range of the yarn carrier. Finally it can be chosen between the following possibilities: ◆ 1 = Acceleration up to 100% ◆ 2 = Braking down to 50%, maintain speed over a fabric width of 2 inches, acceleration up to 100% ◆ 3 = Braking down to 50%, maintain speed over a fabric width of 5 inches, acceleration up to 100% ◆ 0 = Cancelling out of carriage speed specific to yarn carrier	
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

Y:Oa-b (tab) Tandem machine: Correction of the yarn carriers in the right carriage

	Explanation	Value range
Y-1AR : Y-8DR	Specification of the yarn carrier in the right carriage.	
Oa	Right carriage during tandem operation: Yarn carrier correction value a (stopping position on the left). The correction value refers to the stop value of the left carriage.	Minimum value: -8 Maximum value: 8 Step width: 0.5=1/32 inch=0.8 mm
Ob	Right carriage during tandem operation: Yarn carrier correction value b (stopping position on the right).	Minimum value: -8 Maximum value: 8 Step width: 0.5=1/32 inch=0.8 mm
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

Y:Ua-b / Y:Ncc (tab)

- Adjusting the engaging width when plating with normal yarn carriers.
- Control the loop sinking depth of the clamping and cutting needles

	Explanation	Value range
Y	Corrections of yarn carrier 1A to 8D	
Ua	Adjust the engaging width (left) when plating with normal yarn carriers.	Minimum value: 11.5 mm Maximum value: 23 mm (CMS-C: 35 mm) Step width: 0.5 mm
Ub	Adjust the engaging width (right) when plating with normal yarn carriers.	
NCC	Only for machines with clamping-cutting bed: Control of the loop sinking depth of the clamping and cutting needles. Standard setting: n=0 e.g.: sink the cutting needles by 5 steps deeper: NCC=5	Minimum value: -10 Maximum value: 10 Step width: 1
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

Width (tab)

The M1plus enters the width of the inlay yarn carrier in the "Yarn carrier carriage width" field.

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

5.5.4 Stitch lengths

NP 1-100 (tab)

	Explanation	Value range
NPK	Correction for all stitch cams	Minimum value: -2 Maximum value: 2 Step width: 0.05
NP1 - NP100	Stitch cam position 1 to 100	
Value	Stitch length in NP values or mm	
Value [mm] ☐	Specification in NP values.	Minimum value: 6.5 Maximum value: 22.5 Step width: 0.05
Value [mm] ☑	Settings in millimeters. Setting the yarn length per stitch (Yarn Length Control).	Minimum value: 2.20 Maximum value: 33.00 Step width: 0.01
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]

NPR (tab) Correction of the stitch cam position for the right carriage (for tandem operation only)

	Explanation	Value range
NPR	Correction of the stitch cam position for the right carriage	
Front	Correction value depending on system in front or rear and on carriage direction to the left or to the right	Minimum value: -2 Maximum value: 2 Step width: 0.05
Back		
<<		
>>		
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

5.5.5 Carriage speed

Different carriage speeds can be entered for different knitting situations. The indirect carriage speed only becomes effective when it is slower than the normal speed.

	Explanation	Value range (meters/second)
MSECK	Carriage speed for small knots over m rows, standard: 1 row	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
MSEC	Speed (normal speed)	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
MSEC0	Speed for empty rows (S0)	Minimum value: 0.05 Maximum value: 1.40 Step width: 0.05
MSEC1	Speed for transfer rows	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
MSECI	Speed with Intarsia Yarn Carrier	Minimum value: 0.05 Maximum value: 1.00 Step width: 0.05
MSECC	Speed outside the needle bed when the yarn carrier is brought in the clamp or taken out of the clamp.	Minimum value: 0.05 Maximum value: 0.50 Step width: 0.05
MSEC2-20	Speed for knitting rows	Minimum value: 0.05 Maximum value: 1.20 Step width: 0.05
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- Helpers for Input [-> 275]
- Setup2 Editor [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]
- File tools [-> 281]

5.5.6 Cycle counters

The cycle counter specifies how often a pattern area is to be repeated. Which cycle counter controls which pattern area is defined in the knitting program.

	Explanation	Value range
RS1 - RS39	Cycle counters 1 to 39	1-99999
Comment	Comment	ASCII Characters

Further information:

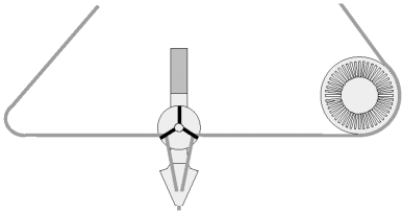
- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

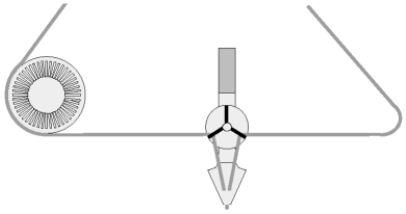
5.5.7 Yarn length

YLC

	Explanation
"YLC-mode for patterns"	Determine the yarn length control mode. i: On the CMS the mode can be changed here. Reasonable input: 0, 1, 5, 7, 8

"Correction for all measuring wheels"	Enter a correction value for all measuring wheels
"Maximum deviation of the target value per knitting row"	Stopping the machine when exceeding the correction value (Standard = 15%).

"Wheel"	right device: Select measuring wheel (n=1 to 8). left device: Select measuring wheel (n=9 to 16).
"Y"	Select the yarn carrier (1A to 8D) working with this measuring wheel.
"Yarn Quality" for yarn disposition only	"Yarn Quality" Example: Nm 28/2 Enter **28** here
	"Number of Yarn Threads" Enter the number of individual threads. Enter **2** here
	"Number of Threads " Enter the number of threads per yarn carrier here
	NM/TEX Select unit for the yarn thickness. Enter NM here
"Correction > +/- [%]"	Enter correction value for an additional thread from the from the left. The correction value has an effect in the carriage direction to the right. 

	Explanation
"Correction < +/- [%]"	Enter correction value for an additional thread from the from the right. The correction value has an effect in the carriage direction to the left. 
"Comment"	Comment (ASCII Characters)

Further information:

- Helpers for Input [-> 275]
- File tools [-> 281]
- Table Tools [-> 280]
- Setup Data [-> 267]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Comparing Setup1 to Setup2 [-> 269]

YLC3 (tab) Determining the correction values by a test fabric

Fabric Type	Explanation
0-R	Single jersey fabric knit on the rear needle bed.
R-0	Single jersey fabric knit on the front needle bed.
D-1x1	Double jersey, 1x1 knitting mode
D-2x1	Double jersey, 2x1 knitting mode
D-2x2	Double jersey, 2x2 knitting mode
D-RR	Double jersey, DJ knitting mode
Value	Setting the yarn length per stitch.
Value [mm]	☑ Specification of the mm value. ☐ Specification of the NP value
Comment	Comment (ASCII Characters)

Further information:

- Helpers for Input [-> 275]
- File tools [-> 281]
- Table Tools [-> 280]
- Setup Data [-> 267]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Comparing Setup1 to Setup2 [-> 269]

YLC5 (tab)

i: This tab appears on the CMS only. 

An original piece is generated for the YLC5 mode (Masterpiece).
The data will be saved in a separate file (<pattern name>.stx).

- You can see the path specification of the YLC5 data in this tab.
- If you want to use the valuated YLC5 data (Masterpiece) also for differing yarns, enter the deviation of the yarn elongation in percentage in the "Yarn correction" cell.
- Changing the minimum width.
  Change the minimum width only if the error message "YLC: deviation from set value of measuring wheel x too large" is displayed.
  Enter the change in the "Minimum width" line.
  Value range: - 2 E…0…+ 2 E (E = Number of needles per inch = Gauge of the machine)
  Example for E16: -32…0…+32 needles
  i: Afterwards you need to knit the original piece again.

Further information:

- Helpers for Input [-> 275]
- File tools [-> 281]
- Table Tools [-> 280]
- Setup Data [-> 267]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Comparing Setup1 to Setup2 [-> 269]

5.5.8 Racking

The racking instructions are valid for one carriage stroke.

	Explanation	Value range
VCI…	Racking function	VCI1 to VCI50
VK	Racking correction by m steps (0-10)	Step width: 1/70 of the needle distance
Dir	Direction of the racking correction < - to the left > - to the right ? - not defined, will be defined on the machine	
VV	Racking speed n (1-32), without an instruction VV=32	
V+/-	V+ - Overracking, in addition to the racking specification positive value: Overracking in racking direction negative value: Overracking in opposite to the racking direction	(n=1-24, step width: 1/8 of the needle distance)
Comment	Comment	ASCII Characters

Further information:

- Table Tools [-> 280]
- Helpers for Input [-> 275]
- File tools [-> 281]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

5.5.9 Miscellaneous

General data about the machine are displayed.

Data about the machine cannot be modified here.

	Explanation	
#137	Needle gauge	These data derive from the "Select Machine" dialog box of the M1plus
#195	Needle hook gauge	
#156	Coupling width (with tandem machines)	

Machine-No.	Stoll machine number:	These data are entered automatically at the machine.
Hostname	Name of the computer within the network	
Online-ID	KnitLAN-ID	

Comment	General comment about the Setup file		ASCII Characters
			Display only

Further information:

- Table Tools [-> 280]
- File tools [-> 281]
- Helpers for Input [-> 275]
- Overview of the Setup2 Editor of the CMS [-> 273]
- Setup Data [-> 267]
- Comparing Setup1 to Setup2 [-> 269]

5.5.10 Data Mode and File Mode

The "Setup2 Editor" of the CMS and of the M1plus differs between the editing of Setup2 files (.setx) and of data of the loaded pattern (.mdv / .zip).

		Data Mode	File Mode
Origin of the data		Loaded pattern	Setup2 files (.setx)
Calling up		By the "Pattern Parameters" / "Setup-Data…" menu	By the "MC-Program" / "Display MC Program..." / "MC-Setup..." menu
			 / .setx 
Save		Button "Apply"	Menu  "Save"
			
Effect of editing		Direct in the pattern Direct in the fabric	Modified Setup2 file
Difference in editing		Restricted possibilities due to the situation	Restricted possibilities due to the situation
File Tools		Not available	Menus "File" "Edit" "?" 
		Not available	
Title		"<pattern name> - <CMS...> - Setup2"	"Sintral Editor - <file name>.setx"

5.6 Setup1 - Editing the setup file

The Setup data editor allows setup data to be edited without loading them into the machine beforehand. It is thus possible to edit another setup file while the machine is knitting a pattern. Each group of setup data has its own tab with the corresponding input fields in the "Setup data editor" window.

If no STIXX device is connected to the machine, the "STIXX" and "STIXX3" tabs are not displayed although the setup file contains STIXX data.
The STIXX data cannot be edited.
If the set-up data are saved, then existing STIXX data (not displayed) are also saved.

The following events can prevent a correct saving of setup data:

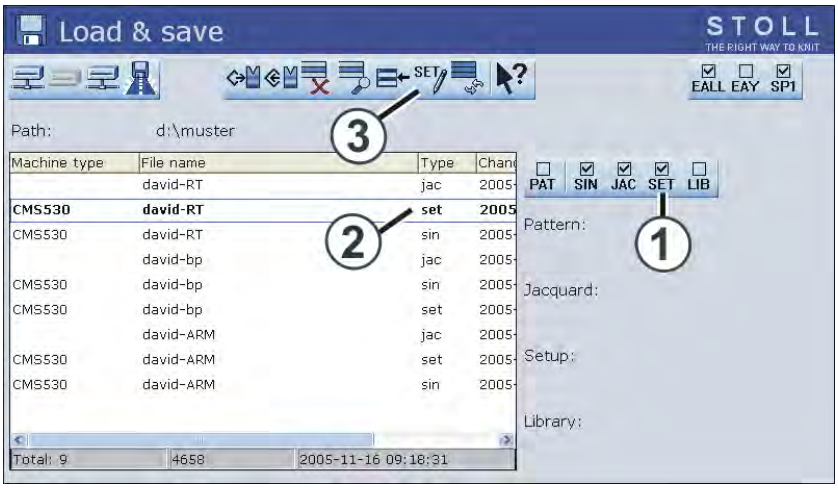
- The setup file is write protected.
  This is displayed by a touch. The write protection can be deactivated by the additional function key "Deactivate write protection".
- Limiting values do not agree with each other.
  The limiting values of the entered setup data are compared to data of current machine and checked.
  Conflicts may therefore arise if a setup file of a different machine is being edited on the machine.
- The tabs "NP1..50", "NP51..100", "WMF" and "MSEC" can contain empty input fields.
  This is because of the M1 that only deposits the used NP, WMF and MSEC data into setup file.
  When saving data from setup data editor, only the used NP, WMF and MSEC data are also saved in setup file.

Key	Function
	Call up the "Load & save" window
	Activate the "Setup selection"
	Call up the "Setup data editor" window
	Call up "Additional function keys"
	"Activate write protection" key
	"Deactivate write protection" key
	Call up "Main menu"

Keys for the "Setup data editor" window

Activating the Setup data editor

1. Call up the "Load & save" window.

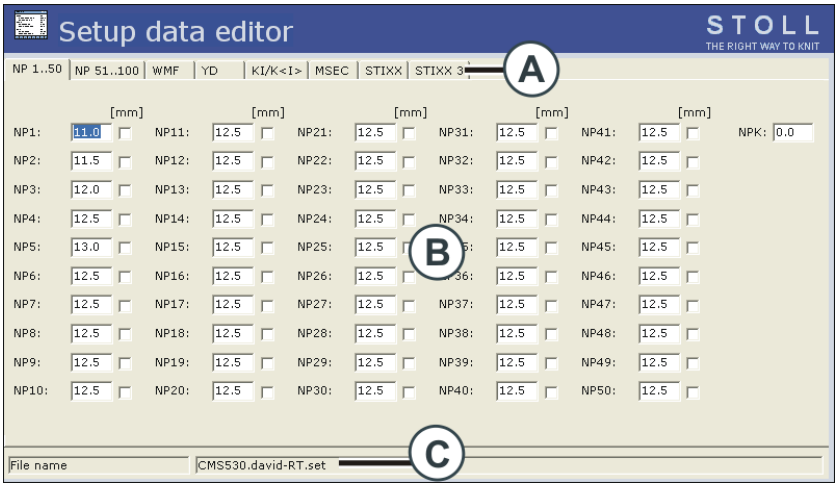


"Load & save" window

2. Activate the "Setup selection" key (1).
3. Select the desired setup file (2).

   ▷ The "Setup data" editor key is displayed (3).
4. Tap the "Setup data editor" key (3).

▷ The "Setup data editor" window is open.



"Setup data editor" window

A Total of 8 tabs:
The STIXX and STIXX3 tabs are only displayed if a STIXX device is connected.

B Working area
changes, depending on the selected card.

C Status bar:
with the file name of the loaded setup file.

The "Setup data editor" window contains a maximum of 8 tabs:

Card	Meaning
NP 1..50	Stitch cam position with index 1 to 50
NP 51..100	Stitch cam position with index 51 to 100
WMF	Specifications for take-down value
YD	Distance between yarn carriers and fabric selvedge
KI/K<I>	Correction value of yarn carriers in fabric area
MSEC	Specifications for carriage speed in m/sec
STIXX	Specifications for the STIXX yarn length measuring device (STIXX menu)
STIXX3	Specifications for the STIXX yarn length measuring device (STIXX3 menu)

Tabs in the "Setup data editor" window

Working with the setup data editor

Set/deactivate write protection:

✔ The Setup data editor window is open.

1. Call up "Additional function keys".
2. Tap the "Activate write protection" key in order to activate the write protection.

- or -

➜ Tap the "Deactivate write protection" key in order to deactivate the write protection.

Editing the setup file:

1. Tap the tab to be edited.
2. Select the desired field.
3. Overwrite the value.
4. Confirm input.
5. Repeat steps 1 or 2 to 4 for further inputs.

- or -

➜ Call up "Main menu".

6 Maintenance of the knitting machine

This chapter contains information on:

- Minimize wear [-> 305]
- Cleaning the knitting machine [-> 307]
- Lubricate knitting machine [-> 318]

6.1 Minimize wear

All parts of the knitting machine have carefully been selected and checked by Stoll. Nevertheless, they are subject to wear due to wear. You can keep the wear to a minimum if you lubricate, clean and check the machine regularly.

The following table contains an overview of the wearing parts and the possible causes for excessive wear.

Wearing part	Possible causes of increased wear
Fabric take-down rollers	◆ Excessive fabric take-down values ◆ Contact pressure too high/low ◆ Yarns harmful for e.g. abrasive, sanding yarns or yarn finishes like greases or oils ◆ UV radiation (including direct sunlight) ◆ Cleaning agents harmful to rubber, e.g. ether or fuels. Recommendation: Use cleaning petrol for cleaning
Needle brushes, Brushes of the central lubrication	◆ Incorrect adjustment
Feed wheel rollers	◆ Sanding yarn ◆ Allowing the feed wheel to run unnecessarily
Needle bed elements, cams	◆ Excessive fabric take-down values ◆ Yarn too thick ◆ Insufficient lubrication ◆ Insufficient cleaning
Yarn guiding parts (deflectors, yarn control device, etc.)	◆ Sanding yarn
Yarn carrier, yarn carrier slide block	◆ Insufficient lubrication ◆ Sanding yarn

Wearing parts

Wearing part	Possible causes of increased wear
Yarn carrier magnet	◆ Magnet may not come into contact with grease or oil
Belt on auxiliary take-down	◆ Following a fault on the auxiliary take-down (fabric winding device), the residual threads were not removed carefully
Belts (drive, racking, comb take-down, auxiliary take-down)	◆ Belt tension too high: Danger of bearing damage (adjustment with measuring device by Stoll technician) ◆ Belt tension too low: Danger of position errors (racking, auxiliary take-down)
Energy chain trailing cable	◆ Heavy soiling ◆ Laying down of objects ◆ Damage to depositing gutter ◆ Not moved into position carefully after work at the rear of the machine

Wearing parts

Further information:

- Adjusting needle brushes [-> 183]
- Yarn table [-> 436]
- Lubricate knitting machine [-> 318]
- Cleaning the knitting machine [-> 307]
- Adjusting the brushes of the central lubrication * [-> 191]

6.2 Cleaning the knitting machine

To retain 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 to 24 operating hours	Clean vacuum device 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
3 to 6 months	Thoroughly cleaning needle bed
6 months	Clean the knitting systems

Cleaning plan

We recommend the use of following cleaning agent:

Cleaning agent	Cleaning work
Cloth, suction, compressed air	on the entire knitting machine
Special cleaning agent for plexiglas (note the manufacturer's specifications)	Touch screen and covers
Cleaning petrol (note the manufacturer's specifications)	Roller rubber of the take-down roller

Cleaning agent

Plastics, in particular the transparent covers, may not be cleaned with alcohol or spirit, but instead only with a special cleaning agent for plexiglas.

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

- Cleaning the touch screen [-> 308]
- Cleaning suction and lint container * [-> 309]
- Vacuuming off knitting machine [-> 310]
- Cleaning needle bed [-> 311]
- Cleaning the active thread clamp [-> 311]
- Cleaning the permanent brakes [-> 312]
- Cleaning the friction feed wheel * [-> 312]
- Cleaning main drive fan * [-> 313]
- Cleaning fan and radiators in right control unit [-> 314]
- Cleaning filter mat of power supply unit [-> 314]
- Thoroughly cleaning needle bed [-> 315]
- Clean the knitting systems [-> 317]

6.2.1 Cleaning the touch screen

Use a clean, soft cloth for cleaning. If heavy soiling is present, use a cleaning agent suitable for plexiglas. To prevent menus and function keys from being activated when cleaning, two options are available:

- Disconnect machine main switch
- Deactivate touch screen using the "Block input" key

Key	Function
	Call up the "Service" menu
	"Block input" key

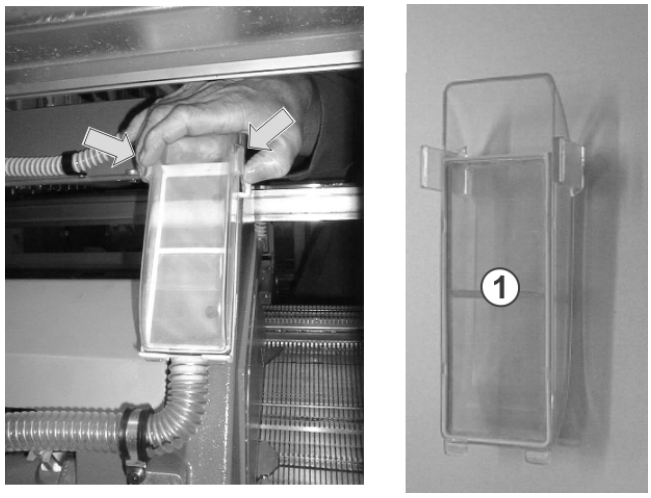
Keys for cleaning the touch screen

Cleaning the touch screen:

1. Call up the "Service" menu from the "Main menu".
2. Tap the "Block input" key.
3. Clean the touch screen.
4. Reactivate the screen again after cleaning. For this purpose, trigger a manual stop, e.g. by pushing open a cover over the needle bed.

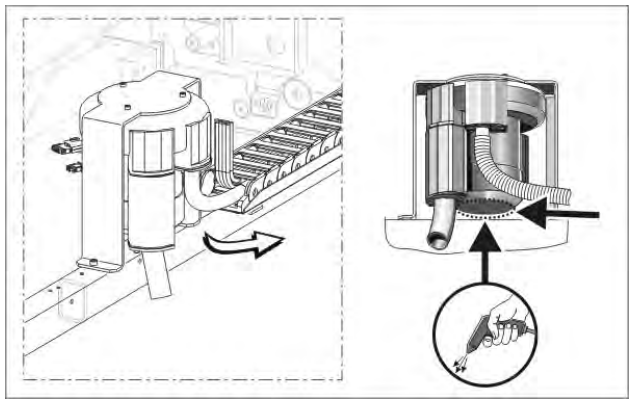
6.2.2 Cleaning suction and lint container *

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.



Lint container and filter

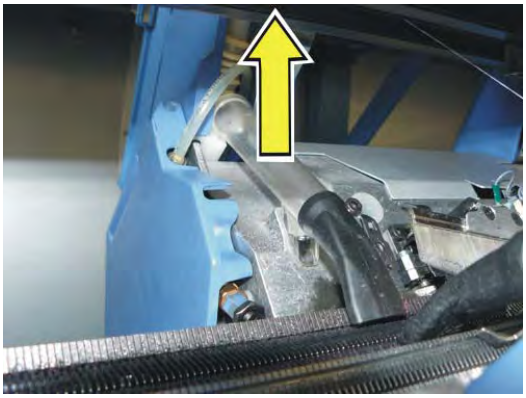
4. Empty the lint container.
5. Clean filter (1) of lint container.
6. Reinstate the lint container.
7. Remove left rear panel segment.
8. Clean motor cover.



Cleaning motor cover

	CAUTION
	Damage to the suction tube! The suction tube will be damaged at the coupling point of the suction tube and the hose if you lift it by the suction nozzle. ➜ Lift the suction tube always in the middle so that the coupling point "suction tube - hose" is separated.

9. Lift the suction tube in the middle until the fixing clip is pulled out of the carriage.



Suction tube

10. Blow out the suction tube with compressed air.

Further information:

- Symbols in this document [-> 12]

6.2.3 Vacuuming off 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.

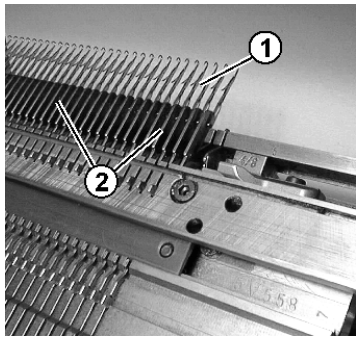
1. Stop the knitting machine.
2. Vacuum fluff and dust off the knitting machine.

6.2.4 Cleaning needle bed

The pelerine springs of the needles should be cleaned daily, however at least once a week. The entire needle bed is cleaned every 12 to 26 weeks.

Cleaning needle bed:

1. Transfer all stitches to the rear needle bed.
2. Slide open all covers over the needle bed.



Cleaning the needle bed

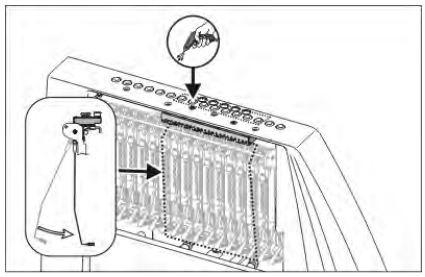
3. Push up all needles of the front needle bed completely.
4. Vacuum off dirt in the area of the needle hook/pelerine spring (1) and in the area of the needle bed (2).
5. Close all covers over the needle bed again.
6. Transfer all stitches to the front needle bed and clean the rear needle bed in the same way.

Further information:

- Thoroughly cleaning needle bed [-> 315]
- Helpful knitting rows [-> 334]

6.2.5 Cleaning the active thread clamp

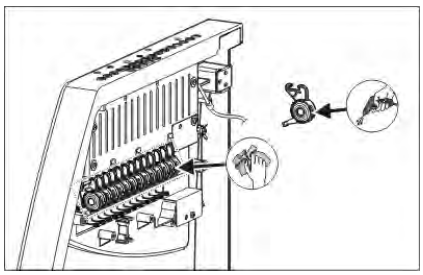
1. Bring the lateral yarn tensioner in still position. Thereby the active thread clamp is open.



Cleaning the active thread clamp

2. Blow the eyelets in the lateral safety door by compressed air.

6.2.6 Cleaning the permanent brakes



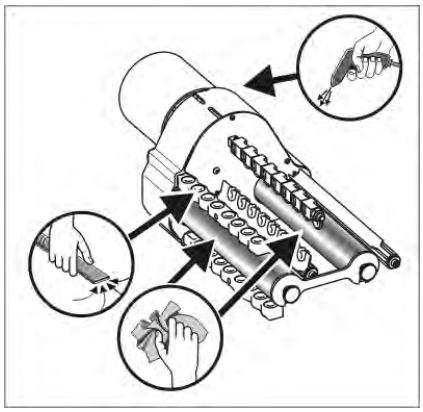
Cleaning the permanent brake

➜ Clean both the brake settings of each permanent brake with a cloth.

In case it is very dirty, then the permanent brake can be dismantled and can be blown out with compressed air.

1. 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.
2. Blow out the permanent brake with the compressed air.

6.2.7 Cleaning the friction feed wheel *



Cleaning the friction feed wheel

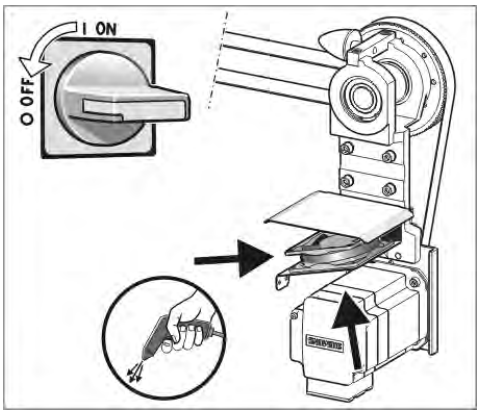
1. Suck in the fluff and dust from the friction feed wheel.
2. Remove dirt (e. g. paraffin) from the friction rollers.

Further information:

- Symbols in this document [-> 12]

6.2.8 Cleaning main drive fan *

1. Switch off the machine and wait until the machine is currentless.
2. Swing open the cover on the right-hand control unit.



Main drive fan

3. Clean fan.
4. Close the cover on the right control unit.
5. Switch on machine.

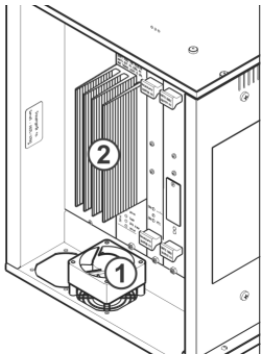
> **i** The control checks the motor temperature when switching on machine main switch. The fan only runs at higher motor temperature.

Further information:

- Symbols in this document [-> 12]

6.2.9 Cleaning fan and radiators in 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.



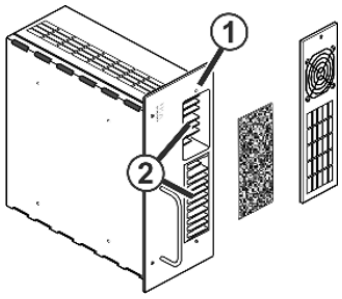
Control unit

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.

> The fan is temperature-controlled.

6.2.10 Cleaning filter mat of power supply unit

1. Swing open the cover on the left control unit.



Fan power supply unit

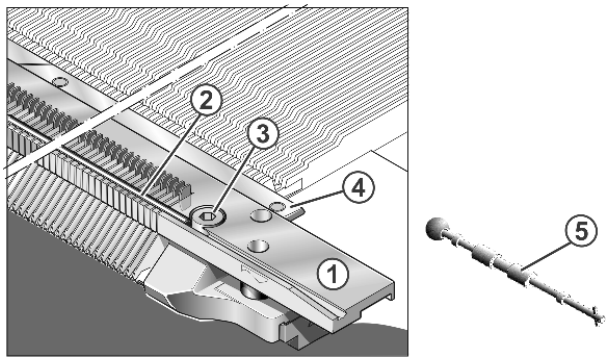
2. Remove screw (1) and hinge down the housing toward the front.
3. Remove filter mat and blow it out with compressed air.
4. If heavy soiling is present, vacuum off and blow out the radiator (2).
5. Replace filter mat.
6. Swing in the cover on the left control unit.

6.2.11 Thoroughly cleaning needle bed

The needle bed is cleaned daily by the operator. In addition, it must be cleaned thoroughly every 12 to 26 weeks.

i	If the needle bed it not cleaned thoroughly and carefully, a non-uniform stitch appearance results during production due to needles that do not run smoothly, and the operation of the machine can no longer be ensured.

Thoroughly cleaning needle bed:



Thorough cleaning of needle bed

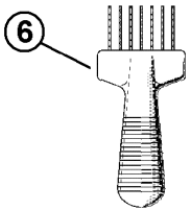
✔ No fabric may be hanging on the needle bed.

✔ The required tools (groove cleaner and extraction hook) are included with the accessories.

1. Remove needle rail (4) with extraction hook (5).
2. Remove screw (3) on left and right-hand sides of jack bed.
3. Take off jack bed (1).
4. Remove needles, coupling part, intermediate slider and selector jacks.
5. In case of CMS 520 C and CMS 830 C take off the selection jack bed additionally.

	CAUTION
⚠	**Dirt-caked needle channels due to oil or cleaning agent!** When the needle channels are cleaned with oil or cleaning agent, the dirt swells up and clogs the needle channels. ➜ Do not clean needle channels with oil or cleaning agent. ➜ Push dirt out of needle channels and blow out needle channels with compressed air.

6. Push dirt out of needle channels with groove cleaner (6).



Groove cleaner

7. Clean groove for pelerine spring of needle.
8. Blow out dirt with compressed air from the needle bed.
9. Make sure needles, coupling part, intermediate slider and selector jacks are undamaged.
10. Clean needles, coupling part, intermediate slider and selection jacks with oil.
11. Pull out wire (2) to enable jack bed to be guided into holding-down jacks more easily during assembly.
12. Reassembly needle bed.
13. Lubricate needles, coupling part, intermediate slider and selector jacks. If a central lubrication is installed, then use the setting "Initial lubrication" for approx. 15 minutes.

---

i The needle hooks and the holding-down jacks can be cleaned quickly and easily with the needle bed cleaning apparatus (special attachment).

Further information:

- Cleaning needle bed [-> 311]
- Lubrication interval [-> 319]

6.2.12 Clean the knitting systems

1. Stop the knitting machine.
2. Move the carriage assembly into the left reversing position.
3. Set the main switch to "0" and wait until the touch screen is switched off.
4. Remove the carriage part.

	CAUTION
	**Damage to the knitting systems!** Dirt will be blown into the guides of the movable parts and the knitting systems will be damaged if they are blown out with compressed air. ➜ Always vacuum off the knitting systems, never blow them out.

5. Vacuum off the knitting systems and selection systems.

	CAUTION
	**Damage to the selection systems and impulse givers!** The selection systems and impulse givers will be damaged if they are cleaned with acetone or trichlorethylene (Tri). ➜ Clean the selector systems and pulse generators with a clean cloth.

6. Clean the selector systems and pulse generators with a clean cloth.
7. Check the cams for wear and damage.
8. Apply oil to the cams with a brush.
9. Set the carriage part on the needle bed again.
10. Repeat step 4 to 9 for all carriage parts.
11. Set the main switch to "1".

▶ The carriage position is re-referenced.

Further information:

■ Removing and mounting carriage part [-> 348]

6.3 Lubricate knitting machine

This chapter contains information on:

6.3.1 Lubrication interval

To retain the operability of the knitting machine and ensure the quality of the fabric, the knitting machine must regularly be lubricated.

Lubrication interval	Lubricating work
adjustable Recommendation: Every 6 - 10 operating hours; select shorter interval if necessary	Oiling the needle bed
10 operating hours	Oiling the jack bed, oiling the yarn carrier rods, oiling the control of the holding-down jacks
100 operating hours	Oiling the carriage guide rail, greasing the impulse sensor rails, greasing coupling part and intermediate sliders, oiling the lifting slide
6 months	Greasing the racking device, greasing the adjustment pieces

Lubrication schedule

> **i** Only the named lubricants or others recommended by Stoll may be used. Other lubricants may damage the machine, e. g. due to insufficient lubricating action, rust on metal parts or damage to the electrical cable insulation and the plastic parts. We point out here that failure to observe this, will void our warranty services.

Lubricants

Use only the lubricants found with the accessories of the machine or those listed in the lubricating schedule.

	Label	ID
Oil	Silvertex T46	230 614
Grease	OKS 270	229 372
	OKS 475	005 351
	Klueber Staburags NBU 12/300 KP	231 191

> **i** In the first weeks after setting up the knitting machine, select shorter lubricating intervals.

6.3.2 Setting lubricating interval for needle bed

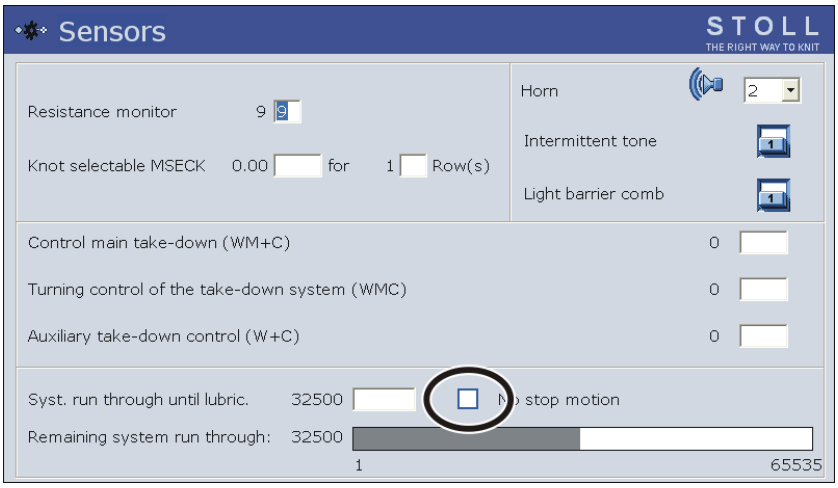
For the needle bed a lubricating interval of between 1 and 65.535 courses can be set. A mean value for a three-system machine is 25,000 courses. However, this value depends highly on: Machine speed, temperature and number of knitting systems. We recommend: Selecting a shorter lubricating interval instead of a longer one. After the lubricating interval expires, a message appears stating that the needle bed must be oiled.

Key	Function
	Call up the "Machine settings" window.
	Call up "Additional function keys"
	Call up "Sensors" window
	Confirm input
	Call up "Main menu"

Keys for setting the lubricating interval

Set lubricating interval:

1. Call up the "Machine settings" window.
2. Call up "Additional function keys".
3. Call up the "Sensors" window.



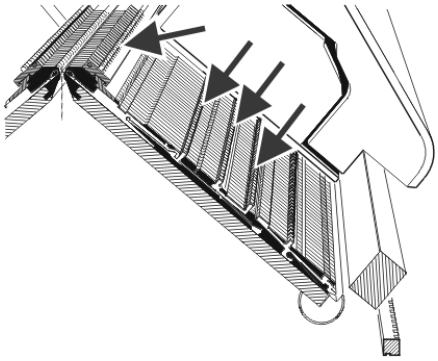
"Sensors" window

4. Input "Syst. run through until lubric.".
5. If the machine is to be stopped after reaching the system run-throughs, then deactivate the check box.

6. Confirm input.
7. Call up "Main menu".

6.3.3 Setting of central lubrication

All machines with four or more knitting systems are equipped with a central lubrication as a standard equipment.



Lubrication points of the central lubrication

The central lubrication can be activated/deactivated. If it is deactivated, monitoring of the lubrication interval is automatically activated.

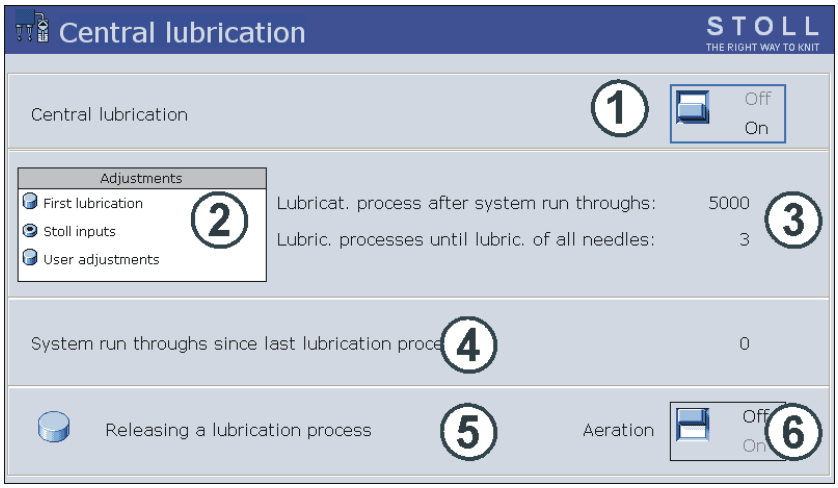
When central lubrication is deactivated, the following lubrication tasks must be performed manually again:

- Oil needle bed
- Oiling jack bed

> The needle bed and jack bed must be oiled manually before a new machine has been set up and for a machine which has been out of operation for a longer period of time or which has just had a gauge conversion. Then use the "Initial lubrication" setting for approx. 15 minutes.

Key	Function
	Call up the "Machine settings" window.
	Call up "Additional function keys"
	Call up the "Central lubrication" window
	Call up "Main menu"

Keys for adjusting the central lubrication



"Central lubrication" window

Field	Explanation
1	Switch on/off the central lubrication
2	Three settings are available for the lubrication interval:
	Initial lubrication: This setting is used for the initial lubrication of a new machine at the Stoll 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. The values cannot be modified.
	User settings: In this mode, the values can be changed by the user. (Attention: An improper setting could lead to insufficient oiling. Ensure that the central lubrication applies sufficient oil to the needle bed.)
3	Each setting consists of two values.
	Lubricat. process after system run-throughs: Setting of the number of knitting systems after which lubrication occurs. The lubrication procedure stretches across the current traversing path of the carriage.
	Lubric. processes until lubric. of all needles: Setting of the number of lubrication procedures after which the entire needle bed is to be lubricated.
4	Number of system run-throughs since the last lubrication process
5	A lubrication procedure is triggered in the next carriage return. The entire needle bed is lubricated.

"Central lubrication" window

Field	Explanation
6	The oil line is de-aerated with this switch. The oil pump is switched on for max. 30 seconds. Use this switch for ventilation only, not for lubrication (Caution - risk of soiling the fabric).

"Central lubrication" window

> **i** All lubrication processes and operating actions are logged. The inputs can be read. For this purpose, call up the "additional function keys" and the "Central lubrication log" key in the "Central lubrication" window.

Error messages

If an error occurs in the area of the central lubrication, it is displayed on the touch screen.

Error Message	Explanation
Central lubrication oil reservoir almost empty	If a certain level is undershot, this message appears. It is always displayed until the oil is filled up or the oil level reaches the "Min" mark. The machine then stops and the "Oil reservoir empty" error message appears.
Central lubrication oil reservoir empty	Fill oil reservoir with oil until the "Max" mark has been reached (SILVERTEX T46, ID 230 614). 
Central lubrication pressure switch	The oil pressure is monitored. If it is too low, this error message appears. Check oil line. If the oil line is OK, set the "Ventilation" switch to "On" and then to "Off" again. This switches the oil pump on again. If the error occurs again, the oil line must be deaerated.

Error messages for central lubrication

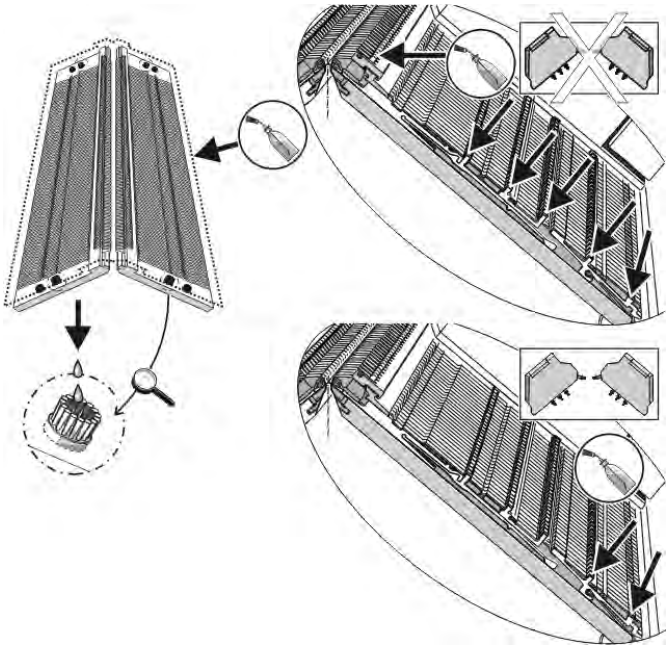
Further information:

- Setting lubricating interval for needle bed [-> 320]
- Oiling jack bed [-> 325]
- Oiling carriage guide rail [-> 326]
- Deaerating oil line [-> 368]
- Oil needle bed [-> 324]

6.3.4 Oil needle bed

When the lubricating interval for the needle bed expires, a pictograph appears stating that the needle bed must be oiled.

1. Apply oil with a brush or spray bottle.



Oiling needle bed (top: without central lubrication, bottom: with central lubrication)

2. Brushes are attached at the side of the needle bed. Put some oil in the upper brush so that the cams near the coupling parts are oiled.
3. Restarting lubricating interval.

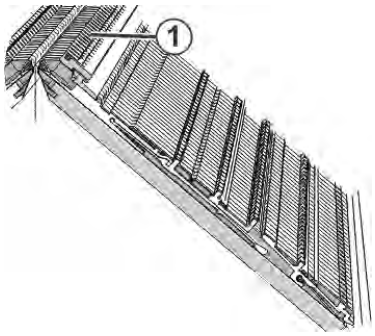
Further information:

- Restarting lubricating interval [-> 325]

6.3.5 Restarting lubricating interval

1. Tap display for "Lubricate needle bed" message.
   ▷ The "Current message" window appears.
2. Tap"624 Lubricate needle bed (OIL)" message.
   ▷ The message is marked with a frame. The function key for opening the "Sensors" window appears at the bottom of the touch screen.
3. Call up the "Sensors" window.
4. Input "Syst. run through until lubric.".
5. Confirm input.
6. Call up "Main menu".

6.3.6 Oiling jack bed

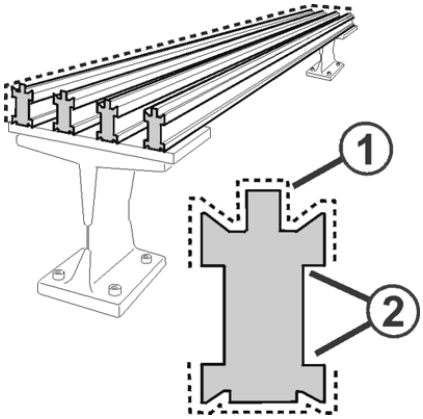


Oiling the jack bed

	WARNING
	If a spray gun is used for oiling, too much oil may be applied! The suction tube becomes clogged. ➜ Do not use a spray gun for oiling.

➜ Use a brush to apply oil to the jack bed (1).

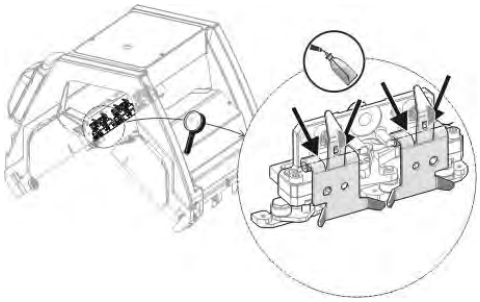
6.3.7 Oiling yarn carrier rods



Oiling the yarn carrier rods

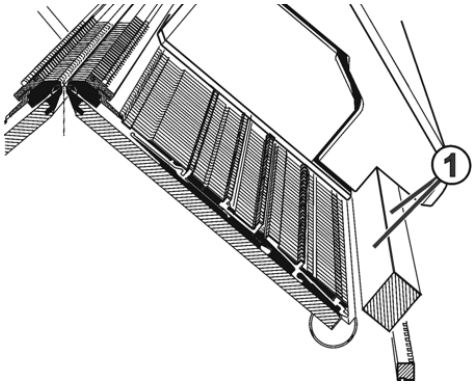
1. Use a brush or a spray bottle to apply oil to the yarn carrier rods (1).
2. If intarsia yarn carriers are used, wipe off the oil with a cloth until the notch on the yarn carrier rod (2) is only coated with a residual lubricating film.

6.3.8 Oiling the control of the holding-down jacks



➜ Apply oil on the control of the holding-down jacks with a brush.

6.3.9 Oiling carriage guide rail



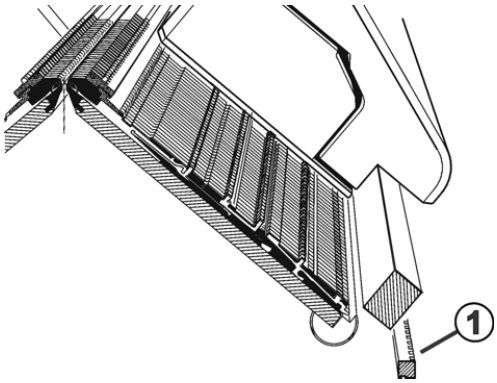
Oiling the carriage guide bar

➜ Use a cloth to apply oil to the carriage guide bar (1).

6.3.10 Greasing impulse sensor rails

Depending on the machine gauge, there is a front and a rear impulse sensor rail.

Machine gauge	Impulse sensor rail
E18 (E9.2) E16 (E8.2) E14 (E7.2) E12 (E6.2) E10 (E5.2)	at the front and at the rear
E8 E7 (E3,5.2) E5 (E2,5.2) E4 E3.5 E3	rear

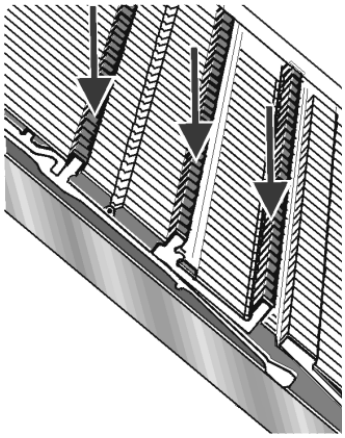


Greasing the impulse sensor rails

➜ Use a brush to apply grease to the impulse giver rails (1).

6.3.11 Greasing butts of the coupling parts and intermediate sliders

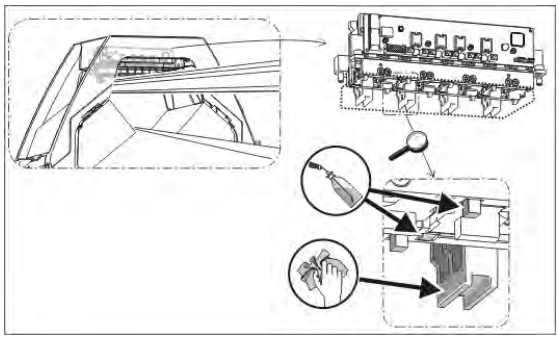
After every tenth "Oil needle bed" note appears a "Grease needle bed" pictograph.



Greasing the butts of the coupling part and intermediate sliders

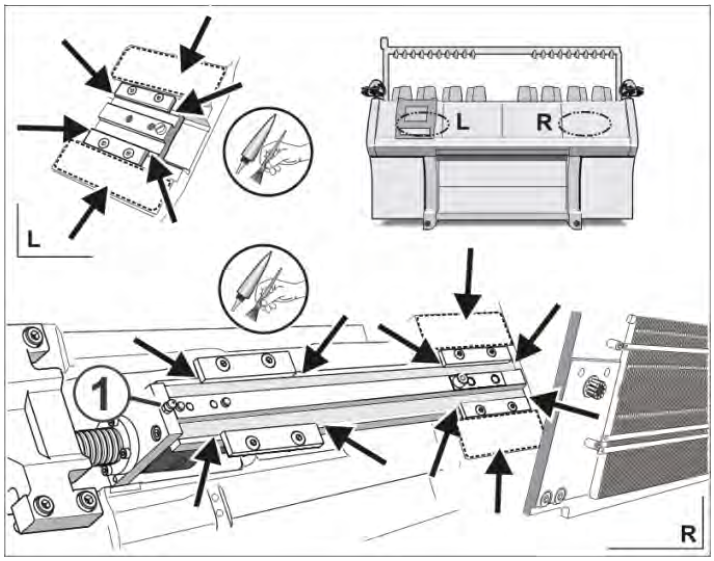
➜ Use a brush to apply grease to the butts of the coupling parts and intermediate sliders.

6.3.12 Oiling lifting slide (yarn carrier plunger)



1. Apply oil to the lifting slide with a brush.
2. Move the lifting slide several times with the finger so that the guide in the metal housing is oiled. There are two lifting slides per yarn carrier plunger

6.3.13 Greasing racking device



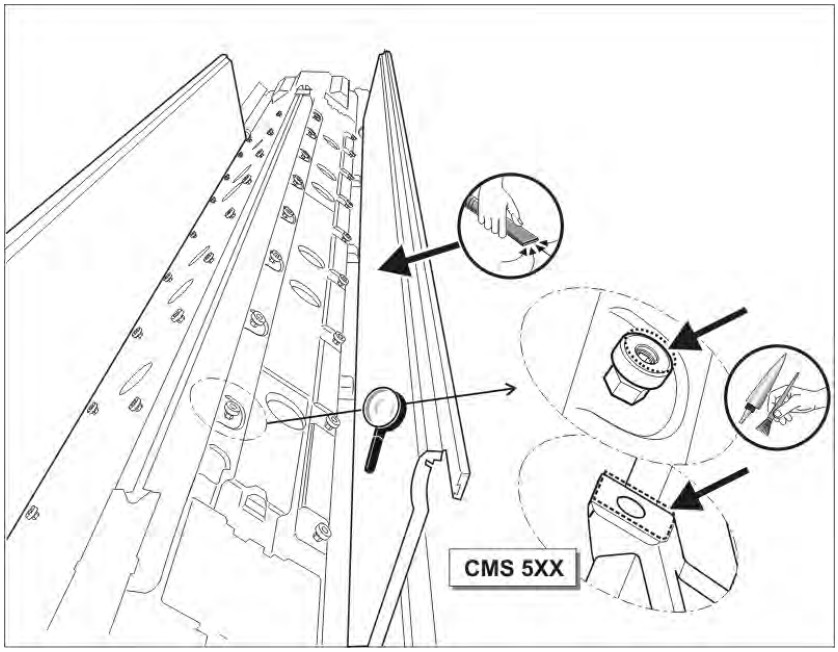
Greasing racking device

1. Position the rear needle bed at an angle.
2. Remove the cover over the racking spindle.
3. Apply grease to the racking strip and to the sliding guidance with a brush.
4. Grease the lubricating nipple (1) with a grease gun (Klueber Staburags NBU 12/300 KP, ID 231 191)

Further information:

- Remove needle bed or position it at an angle [-> 342]

6.3.14 Greasing adjustment pieces



Greasing the adjustment pieces

1. Position the needle beds at an angle.
2. Vacuum off fluff and dust.
3. Apply grease to adjustment pieces with a brush.

Further information:

- Remove needle bed or position it at an angle [-> 342]

7 Repairing the knitting machine

This chapter contains information on:

- Supplementary activities during maintenance [-> 331]
- Helpful knitting rows [-> 334]
- Replacing parts [-> 336]
- Eliminating faults in electronics system [-> 369]
- Needle selection shifting [-> 377]

7.1 Supplementary activities during maintenance

This chapter contains information on:

- Switching power supply 40 V off and on [-> 331]
- Central lubrication - mounting and working position [-> 333]

7.1.1 Switching power supply 40 V off and on

The power supply of the carriage (step motors, selection systems, yarn carrier plunger) can be switched off for assembling works. This eliminates the switching off and on of the main machine switch and thereby the waiting time until the computer of the knitting machine has shut down and rebooted.

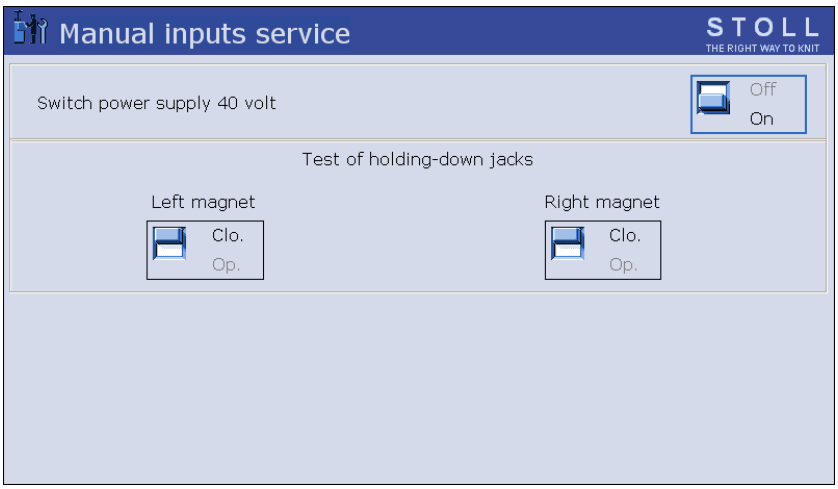
The machine cannot be started with the engaging rod when the power supply is switched off.

Key	Function
	Call up the "Service" menu
	Call up window "Manual interventions Service"
	Confirm message
	Call up "Main menu"

Keys for switching power supply 40 V off / on

Switch power supply off and on again:

1. Call up the "Service" menu from the "Main menu".
2. Call up from"Service" window "Manual interventions Service".



Window "Manual interventions Service"

3. Tap the "Off" switch if the power supply is to be switched off. Answer the message "Switch off?" with "Yes".

   - or -

➜ Tap the "On" switch if the power supply is to be switched on. Tap the "Confirm message" key. The machine is ready for operation.

4. Call up "Main menu".

7.1.2 Central lubrication - mounting and working position

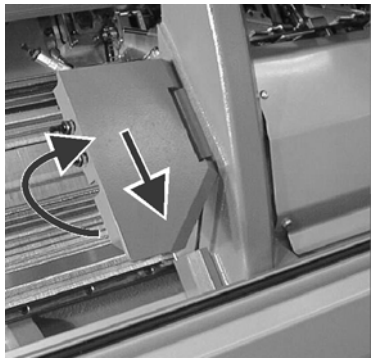
Only on machines with central lubrication

The central lubrication can be swiveled upward for mounting activities, e.g. to remove the carriage part.

Mounting position

Swivel central lubrication into mounting position:

1. Swivel central lubrication upward (approx. 100 degrees).



Mounting position of central lubrication

2. Move central lubrication downward somewhat until it stops.

Working position

Swivel central lubrication into working position:

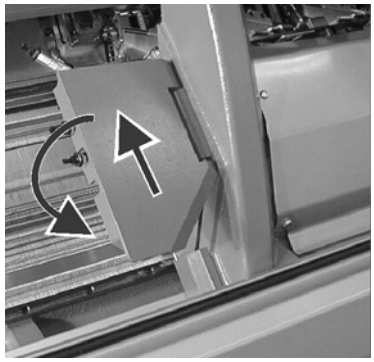
DANGER

Central lubrication in mounting position!

If the machine is started and the carriage moves outward, the side safety door could be thrown open.

➜ Swivel central lubrication into working position.

1. Move central lubrication upward somewhat until the lock is released.



Swiveling central lubrication into working position

2. Swivel central lubrication downward until it touches the carriage.

7.2 Helpful knitting rows

When carrying out cleaning, adjustments and repair work, it is helpful to set a certain knitting situation immediately. The following table lists the knitting specifications mentioned in the operating instructions.

	Knitting specifications
Empty row	< > S0 W0 Or: Tap in window "Machine start" on the key "SPF S0".
Empty row with transfer racking	< > VU S0 W0
Empty row with half racking	< > V# S0 W0
Transfer row to the rear (R = all needles)	< > S:U^SR; S1
Transfer row to the front	< > S:UVSR; S1

Knitting specifications

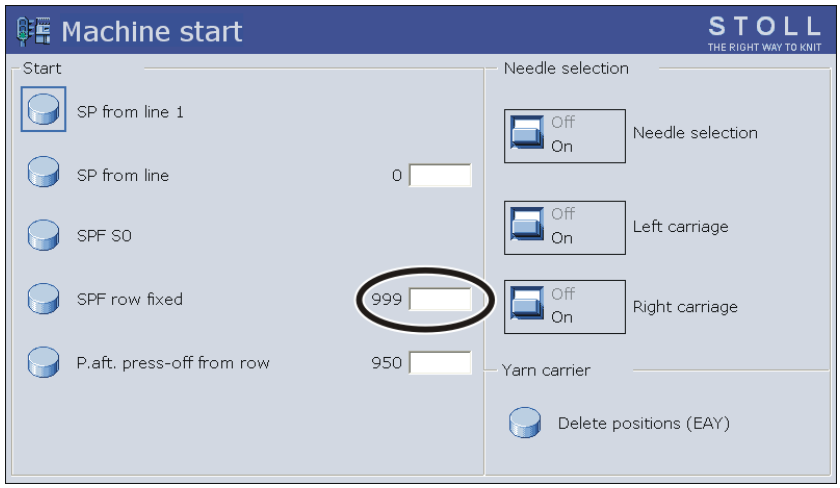
Key	Function
	Switch on Sintral editor
	Call up "Machine start" window
	Call up "Main menu"

Keys for entering a knitting row

Enter and fix a knitting row:

1. Stop the carriage shortly after the left reversing position.
2. Call up the Sintral Editor.
3. Position the cursor accordingly (e.g. on line 998) in the Sintral program.
4. Enter the knitting row using the virtual keyboard.
   For example, you may want to enter a transfer row to the rear on line 998.
   The specifications are as follows: 998 <> S:U^SR; S1
5. Confirm input and return to the "Main menu".
6. Call up the "Machine start" window.

7. In the "SPF line fixed" line, tap the "Line: 999" field and enter the line number "998".



"Machine start" window

8. Fix this line by tapping the "SPF line fixed" key and engaging the machine.

   ▷ The knitting specification is carried out after the next reverse.

9. Stop the carriage if it is in the left reverse again.
10. Carry out work on the knitting machine.
11. To resume production tap in the window "Machine start" on the key "SP from line 1" and engage the machine.

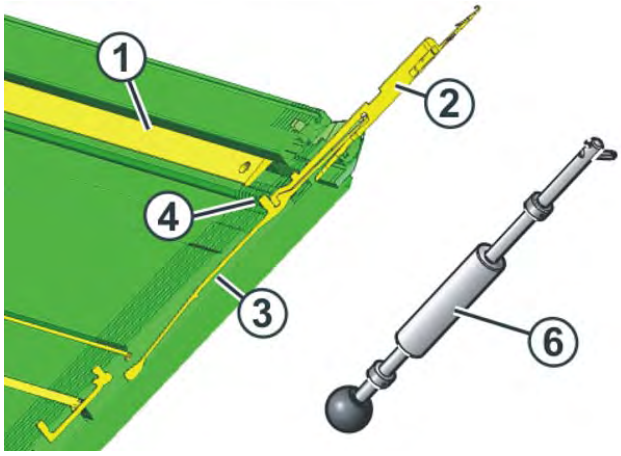
i	An empty row is entered on line 999 in a STOLL knitting program.

i	For the first 2 knitting rows after "SPF", the carriage moves over the entire needle bed.

7.3 Replacing parts

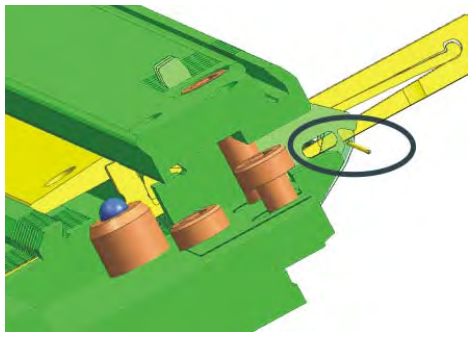
This chapter contains information on:

7.3.1 Replacing needle and coupling part



Replacing needle and coupling part

1. Pull-out the needle rail (1) with the extraction hook (6).
2. Pull needle (2) upwards, the coupling part (3) will, with it, also be pulled upwards.
3. When the butt of the coupling parts (4) bumps into the holding-down jack bed, press the coupling part downward. Pull out the needle and coupling part upward.
4. Assemble the new needle and coupling part.
5. To mount the new needle and coupling part, push the butt of the coupling part through into the needle bed under the jack bed. While doing so, make sure that the needle is guided in above the knock-over wire.



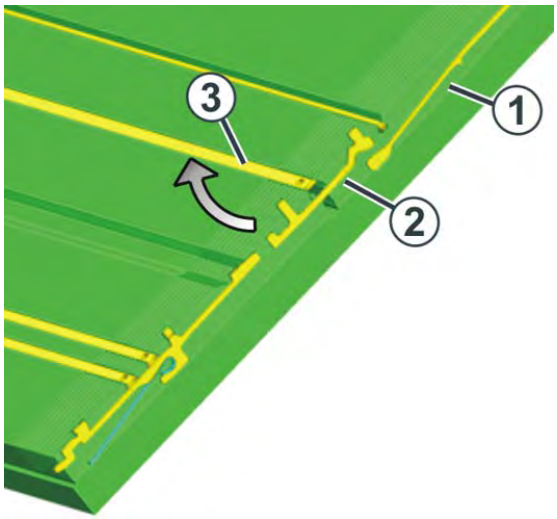
7.3.2 Replacing intermediate slider

There are different models depending on the gauge.

Type 1

Valid for:
E10 | E12 | E14 | E16 | E18 | E6.2 | E7.2 | E8.2

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



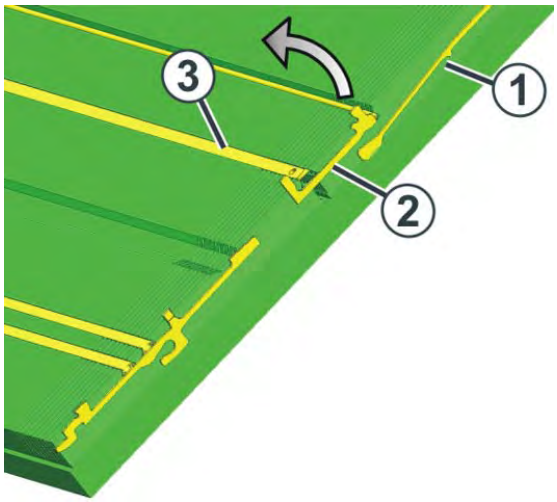
Replacing the intermediate slider

1. Push the needle and coupling part (1) upward.
2. Using the pliers, pull the lower butt of the intermediate slider (2) downwards out of the needle bed while pressing the upper butt into the needle bed and pressing it under the cover rail (3).
3. Install the new intermediate slider in the reverse order.
4. Slide the needle and coupling part into the home position.

Type 2

Valid for:
E5 | E7 | E8

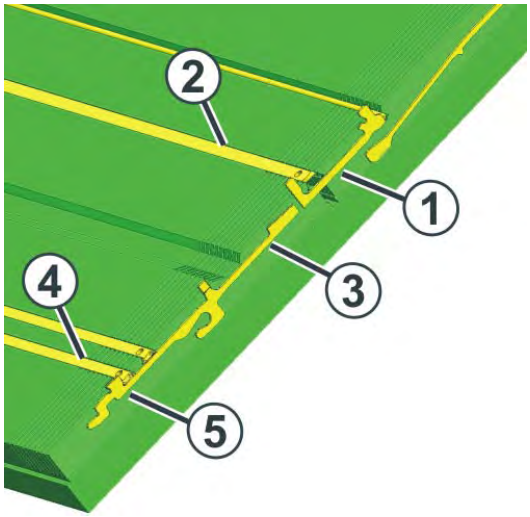
To replace the intermediate slider, you need a small pair of pliers.



Replacing the intermediate slider

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 part into the home position.

7.3.3 Replacing selection jack

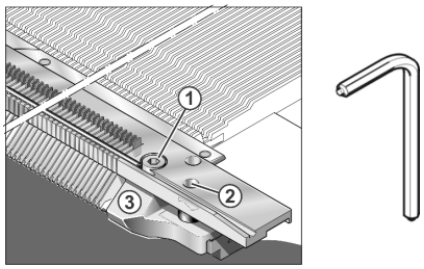


Replacing selection jack

1. Push the needle with the coupling part upward.
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 while at the same time sliding 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. Slide the needle and the coupling part into the home position.

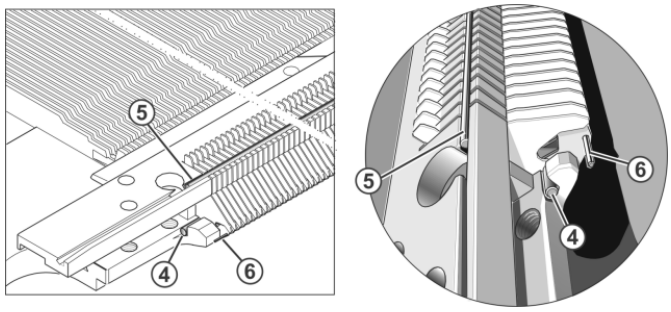
7.3.4 Replacing holding-down jack

1. Transfer all stitches of the needle bed in which the jack is replaced to the other needle bed.



Removing the limiter (3)

2. Remove screw (1) on left and right-hand sides of jack bed. Use the special hexagon screwdriver from the accessories for this purpose.
3. Loosen the screw (2) on the left and right-hand sides of the jack bed.
4. Remove the limiter (3) on both sides.



Replacing a jack

5. Pull out wire (4) and, with gauges E3,5.2, E5.2, E6.2, E7.2, E9.2 (with 72") wire (6) as well, up to the point of repair. When doing so, always guide in the replacement wire from the accessories after it from the other side of the machine so that the jacks do not fall out of the needle bed.
6. Pull out the wire (5).
7. Take out the holding-down jack from above and insert a new one.
8. Reassemble the needle bed in the reverse order.

Further information:

- Helpful knitting rows [-> 334]

7.3.5 Remove needle bed or position it at an angle

This chapter contains instructions on:

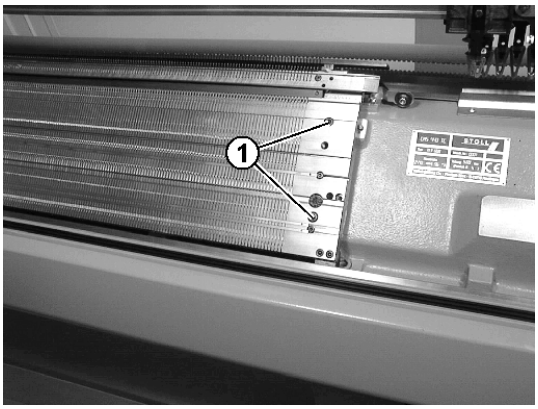
- Releasing needle bed
- Removing needle bed
- Positioning the needle bed at an angle
- Screwing on the needle bed tight

Key	Function
	Call up "Manual interventions" window

Key for calling up "Manual interventions" window

Releasing needle bed

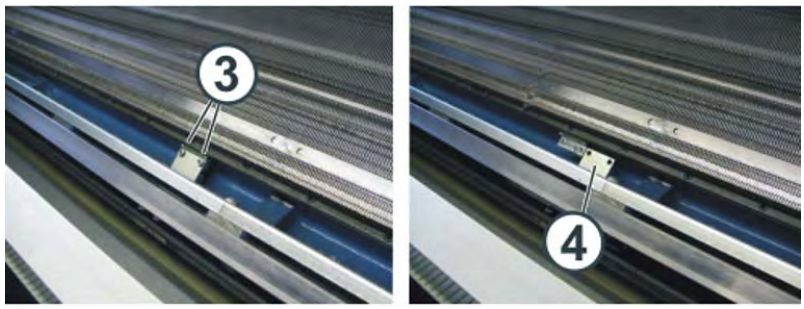
1. Transfer all stitches of the needle bed to be removed or positioned vertically to the other needle bed.
2. When the carriage assembly is in the left reversing position, stop the machine with the engaging rod. If a central lubrication is present, the carriage must be in the left reversing position.
3. Tap the "Rel. drive brake" key in the "Manual interventions" window and slide the carriage assembly to the left up to the stop.



Releasing needle bed

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

5. Releasing the rear needle bed for gauge E 10 - E 18: Remove the screws (3). Push the connection (4) to the side. While doing so, the impulse sensor rail is pushed to the side.

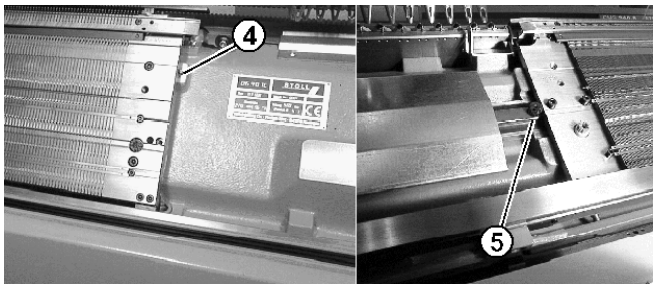


Link of the impulse sensor rail

Remove needle bed or position it at an angle

1. Front needle bed: Swivel towards the front carefully and lean it against the machine covering.
2. Rear needle bed: Remove the needle bed from the machine with two persons.

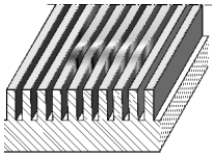
Screwing on needle bed tight



Installing front and rear needle beds

➜ Reassemble the needle bed in the reverse order. When doing so, make sure that the needle bed contacts the pin (4) and the roller (5).

7.3.6 Repairing needle bed and additional needle bed



Damaged needle bed

If the carriage is blocked, the needle bed may be damaged. This means that the movable parts (needles, coupling part, intermediate slider and selection jack) do not move smoothly or are blocked. This damage must be eliminated carefully and conscientiously before the machine is started up again. If it is not, a risk of the carriage blocking again immediately and damaging the needle bed again is present.

When performing repairs, the needle bed types must be determined. There are two different versions: milled and combined needle beds. The additional beds are always milled.

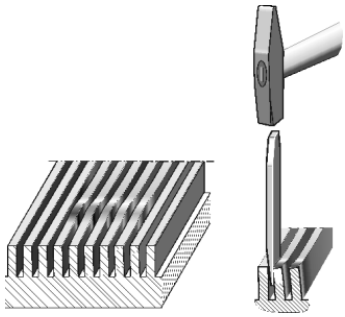
Needle Bed	Description
Milled	The grooves for the moving parts have been cut out of the needle bed.
Combined	The needle bed is composed of individual stays. They are inserted into a base plate and screwed down.

i Repairs must be carried out very carefully and without the use of force.

Milled needle bed

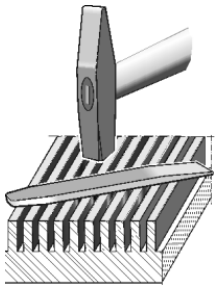
1. If the carriage blocks, then separate the connection of the carriage part to the carriage. Move carriage to the next reversal point. Lift carriage part from needle bed. Check cam parts for damage and remove broken working butts from the moving parts.
2. Find the channel chisel and channel file accessories.
3. Remove the movable parts (needle, coupling part etc.) at the point of damage.

4. Set damaged stays into a vertical position again using the channel chisel and straighten them. The chisel may only be struck with light hammer blows in the damaged groove. Do not strike the chisel in too deep, as the needle bed foundation will be damaged.



Positioning stays vertically

5. Take a needle or selector jack from this machine and place it into the repaired groove. Push the needle up and down in the groove. If it moves easily, check whether the moving parts of the neighboring grooves move easily as well.
6. If this is not the case, repeat Steps 4 and 5.
7. Do this for all damaged grooves. The grooves to the left and right of the point of damage must move easily as well.
8. If the damaged stays are bent upward, knock them even (smooth) again using the channel chisel.

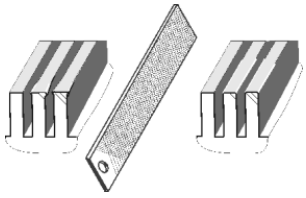


Smoothing surface

9. Check whether the needle bed elements move easily in the grooves. Repeat step 5.

	CAUTION
	The needle bed may be damaged if the channel file is used improperly! If too much of a stay is filed off, the needle bed is defective at this point and can only be repaired by a Stoll technician. ➜ Use the channel file for the removal of burrs only. ➜ The grooves must be cleaned carefully after the channel file is used.

10. Check whether the edges of the damaged stays have burrs. If this is the case, carefully remove these burrs with the channel file.



Removing burrs

11. Check whether the needle bed elements move easily in the grooves. Repeat step 5.
12. If everything is in order, carefully polish the needle bed with the channel file. Place the channel file flat on the needle bed and lightly move it back and forth perpendicular to the needle channel.
13. The metal debris must be removed from the needle channels. For this purpose, clean the area of repair with a brush.
14. If everything is in order, reinsert the moving parts into the needle bed.

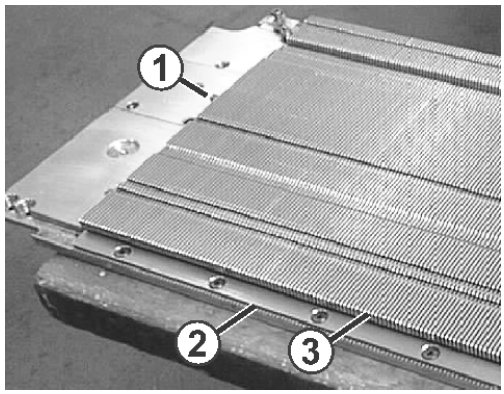
Further information:

- Removing and mounting carriage part [-> 348]
- Replacing needle and coupling part [-> 337]
- Replacing intermediate slider [-> 338]
- Replacing selection jack [-> 340]

Combined needle bed

If a stay of a combined needle bed is slightly damaged, it can be repaired as described above. It must be replaced if it is heavily damaged, though.

1. If the carriage blocks, then separate the connection of the carriage part to the carriage. Move carriage to the next reversal point. Lift carriage part from needle bed. Check cam parts for damage and remove broken working butts from the moving parts.
2. Remove needle bed. Place the needle bed on a level surface (e.g. workbench or table).
3. Remove the movable parts (needle, coupling part etc.) at the point of damage.
4. Remove the holding-down jacks at the point of damage.
5. Remove safety device and pull out wire (1).



Repairing a combined needle bed

6. Remove the bar (2) at the point of damage.
7. Lift the damaged stay at the rear end (3) and carefully pull it out toward the back.
8. Remove the debris near the removed stay.
9. Spare stays are found among the machine accessories. Use a new stay from the accessories.
10. Reassemble the needle bed in the reverse order. Tighten the screws used to secure the bar (2) to a torque of 2.6 Nm. Return the needle bed to the machine.

Further information:

- Removing and mounting carriage part [-> 348]
- Remove needle bed or position it at an angle [-> 342]
- Replacing needle and coupling part [-> 337]
- Replacing intermediate slider [-> 338]
- Replacing selection jack [-> 340]
- Replacing holding-down jack [-> 341]

7.3.7 Removing and mounting carriage part

Removing carriage part

The carriage part is removed when:

- the cams must be replaced (e.g. wide or narrow coupling of tandem machines)
- if a carriage part is blocked, it is separated (separating point) with the integrated device

The carriage assembly is stopped (support surface) outside the needle bed and the carriage part is lowered again.

On tandem machines both front or rear carriage parts are raised, even when only one is blocked.

This chapter contains information on:

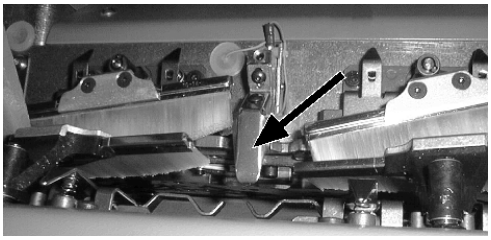
- Remove the carriage part to replace the cams [-> 348]
- Remove the carriage part when the carriage assembly is blocked in the needle bed [-> 350]
- Assembling carriage part and carriage assembly [-> 353]

Remove the carriage part to replace the cams

1. If a central lubrication is present, swivel it into mounting position.
2. Move the carriage assembly outward up to the support surface.
3. Switch off 40 V power supply.

Cover of carriage assembly

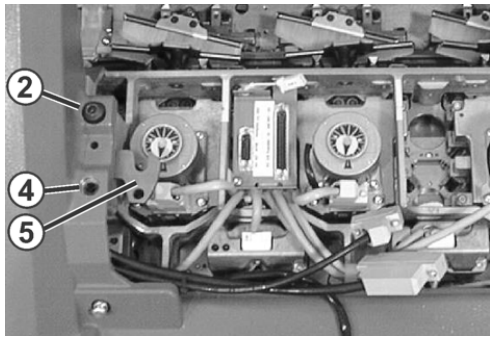
4. Remove the carriage assembly cover (1).
5. If the rear carriage part is removed, the needle detector is to be removed as well.



Needle detector

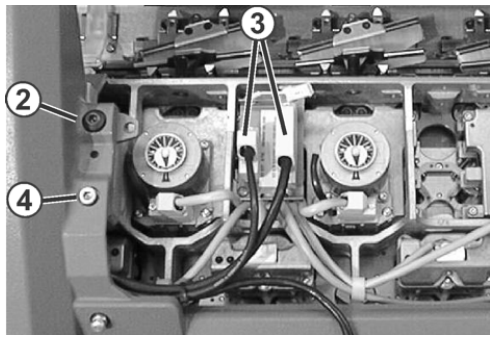
6. Mark the position of the needle detector so that it can be reassembled in the same position.

7. Remove the suction tube on the carriage assembly.
8. Unscrew the shoulder screws (2) and screws (4) on the left and right sides.



Swiveling plate

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



Opened carriage assembly

10. Loosen the screws on the plugs (3) and pull out the plugs.
11. Push away the carriage assembly.

	CAUTION
	If the carriage assembly is blocked: The drive brake has automatically closed. ➜ Release the drive brake again and continue pushing the carriage assembly in the original direction.

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.

Further information:

- Switching power supply 40 V off and on [-> 331]
- Central lubrication - mounting and working position [-> 333]
- Removing cam plate [-> 355]

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

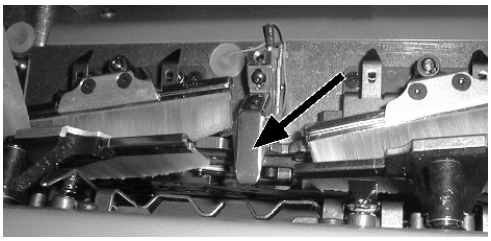
Key	Function
	Call up "Manual interventions" window

Key for calling up "Manual interventions" window

1. Call up "Manual interventions" window.
2. To switch off the needle selection, set the "Needle selection" switch to "Off".
3. To switch off all yarn carriers, tap the "YC bolt Up" key.
4. Push all yarn carriers outward.
5. If a central lubrication is present, swivel it into mounting position.
6. Switch off 40 V power supply.

Cover of carriage assembly

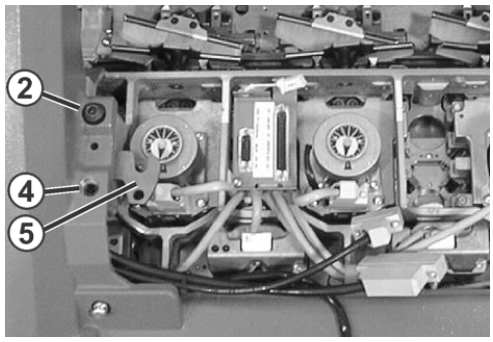
7. Remove the carriage assembly cover (1).
8. If the rear carriage part is removed, the needle detector is to be removed as well.



Needle detector

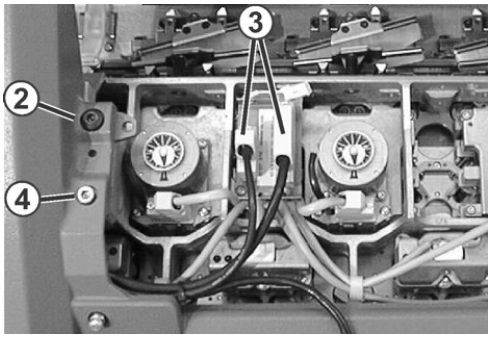
9. Mark the position of the needle detector so that it can be reassembled in the same position.
10. Remove the suction tube on the carriage assembly.

11. Loosen the shoulder screws (2) and screws (4) on the left and right sides.



Swiveling plate

12. Swivel left and right swiveling plates (5) inward.
13. Tighten shoulder screws (2) and screws (4) evenly; the carriage part is raised off the needle bed in the process.
14. To release the drive brake, tap the "Rel. drive brake" key.
15. Loosen the screws on the plugs (3) and pull out the plugs.



Opened carriage assembly

16. To lower the carriage part again, loosen the shoulder screws (2) and screws (4) on the left and right-hand sides.
17. Remove the shoulder screws (2) and screws (4).

	CAUTION
⚠	**Damage to needles and knitting system!** There are still needles in the knitting system. If the direction is changed when moving the carriage assembly, the needles and knitting system will be damaged. ➜ Never change the pushing direction of the carriage assembly.

18. Push away the carriage assembly.

	CAUTION
	If the carriage assembly is blocked: The drive brake has automatically closed. ➜ Release the drive brake again and continue pushing the carriage assembly in the original direction.

19. Lift carriage part from needle bed.

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

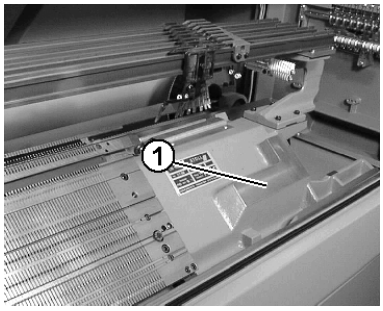
Further information:

- Central lubrication - mounting and working position [-> 333]
- Switching power supply 40 V off and on [-> 331]

Assembling carriage part and carriage assembly

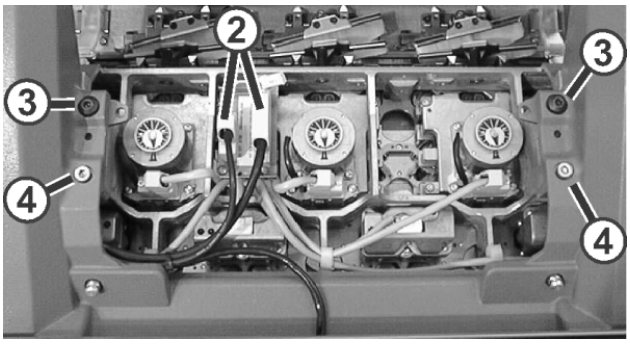
Key	Function
	Call up "Manual interventions" window
	Confirm the repair
	Call up "Machine start" window
	Call up "Main menu"

Keys for assembling carriage part and carriage assembly



Support surface of carriage part

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. Switch on 40 V power supply.
3. Call up "Manual interventions" window.
4. To release the drive brake, tap the "Rel. drive brake" key.
5. Push the carriage assembly directly over the carriage part.
6. Switch off 40 V power supply.



Fastening carriage assembly on carriage part

7. Screw in the shoulder screws (3) until the carriage assembly is raised somewhat.
8. Swivel the left and right swiveling plates outward below the carriage assembly.
9. Tighten both shoulder screws (3) for fastening the carriage assembly.
10. Tighten screws (4) evenly.
11. Plug in the plugs (2) while watching the plug coding.
12. Tighten the safety screws on the plugs.
13. Place the yarn carriers in their starting positions.
14. Mount the carriage assembly cover.
15. Mount the suction tube on the carriage assembly.
16. If a central lubrication is present, swivel it into working position.
17. Switch on 40 V power supply.
18. Call up "Main menu".
19. Call up "Machine start" window.
20. Tap the "SPF line fixed" key.
21. Start the machine with the engaging rod.
22. Only if the carriage assembly was blocked: If the carriage stops after the left reversion, set the needle selection to "On" in the "Machine start" window.
23. Tap in "Machine start" window on key "SP from line 1" to start production.

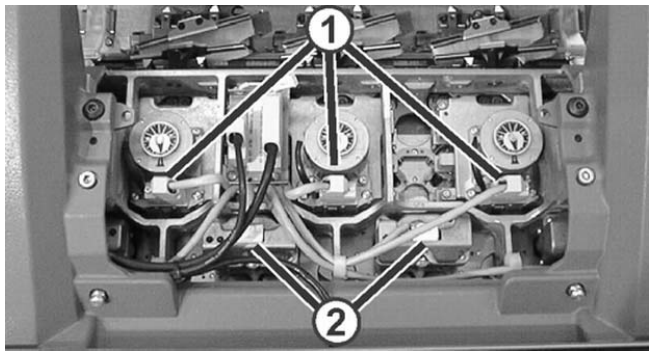
Further information:

- Switching power supply 40 V off and on [-> 331]
- Central lubrication - mounting and working position [-> 333]

7.3.8 Removing cam plate

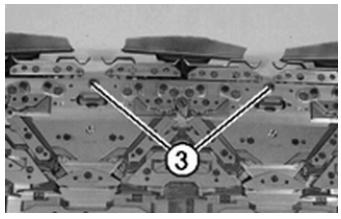
The cam plate is removed for cleaning, checking or replacing cams or step motors.

1. Switch off 40 V power supply.
2. Remove the carriage part.



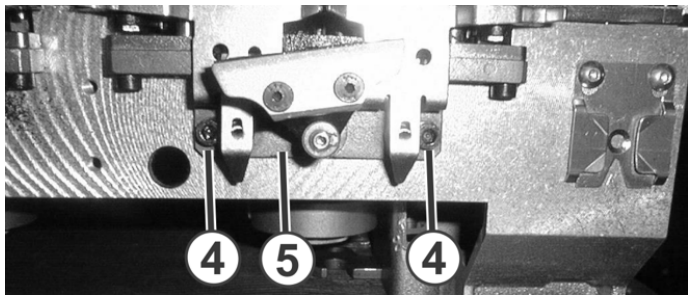
Plugs of the selection systems

3. Disconnect the plugs of the step motors (1) and selection systems (2).
4. Remove the screws (3).



Screws for cast body on cam plate

5. Loosen screws (4). Pull control (5) of holding-down jacks a little bit to the front. Thus, the cam plate is not blocked by control (5) anymore.



Control of holding-down jacks

6. Turn over the carriage part so that the cam plate is located at the bottom, making sure that the cam plate and the carriage part (cast body) do not separate.
7. Remove the carriage part.
8. Carry out work on cams or step motors.

9. Reassemble the cam plate and carriage part in the reverse order.

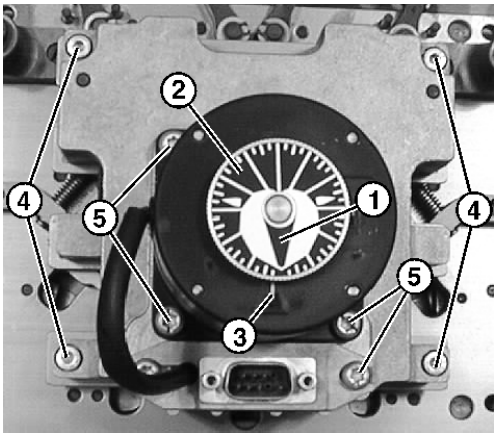
Further information:

- Switching power supply 40 V off and on [-> 331]
- Removing and mounting carriage part [-> 348]

7.3.9 Removing and mounting step motor

Each knitting system contains a step motor which controls the stitch cam position.

1. Remove the carriage part.
2. Remove the cam plate.



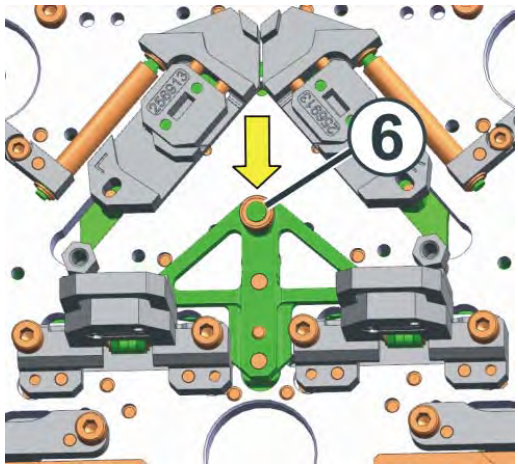
Removing step motor

3. Move defective step motor to home position: Turn the scale (2) until the pointer (1) is positioned exactly on the zero point (3).

	CAUTION
	Adjusting screws! If adjusting screws are released, the step motor must be readjusted at STOLL. ➜ Do not loosen any adjusting screws (5).

4. Remove the screws (4).
5. Take off the defective step motor.

6. Move new step motor to home position: Turn the scale (2) until the pointer (1) is positioned exactly on the zero point (3).
7. Press the mechanics (pressure part tuck) downward to be able to insert the roller (6) in the gear rack of the step motor.



8. Mount the step motor. If this is not possible, repeat step 8.
9. Screw on the screws (4) tight.
10. Reassemble the cam plate and carriage part in the reverse order.

Further information:

- Removing cam plate [-> 355]
- Removing and mounting carriage part [-> 348]

7.3.10 Replacing gear racks in the step motor

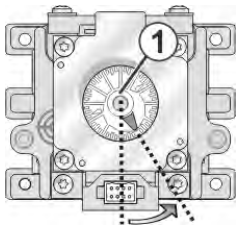
There are different models depending on the machine type and the gauge.

Type 1

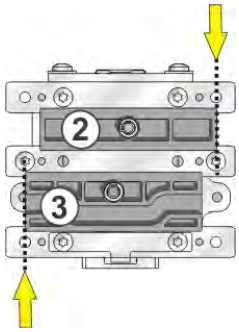
Valid for:
CMS 530, CMS 520, CMS 822, CMS 933 E10 | E12 | E14 | E16 | E18 | E6.2 | E7.2 | E8.2 | E9.2

Replacing gear racks:

1. Take off the step motor.
2. Rotate positioning disk (1) to the mounting position (5 o'clock).

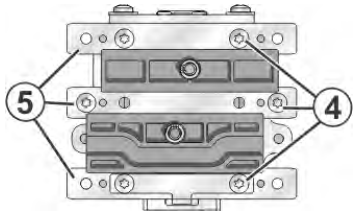


3. Turn over the step motor and check the mounting position.
   The adjustment is correct if
   The upper gear rack (2) and the boring are aligned.
   The lower gear rack (3) and the boring are aligned.



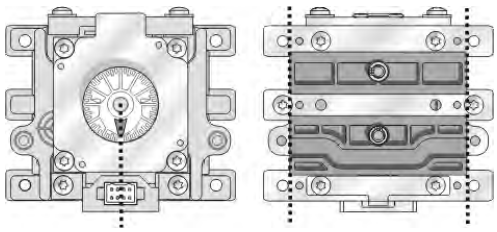
2	upper gear rack	Control of the stitch tension
3	lower gear rack	Control of the pressure parts for tuck and stitch take over

4. Remove the screws (4) for the defective gear rack.



5. Remove carefully the guide strip (5) and the gear rack.
6. Replace defective gear rack.
7. Mount the new gear rack and the guide bars.
8. Check whether the gear racks are positioned correctly. For this purpose, turn the positioning disk (1) to the home position (6 o'clock).

   ▷ The gear racks must be aligned.



9. If this is not the case, repeat steps 2 till 8.

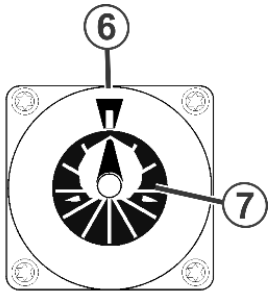
▶ The gear rack is replaced.

Type 2

Valid for:
CMS 530, CMS 520, CMS 822, CMS 933 E5 | E7 | E8 | E2,5.2 | E3,5.2 | E5.2
CMS 740, CMS 730 T, CMS 530 T, CMS 502, CMS 830 C, CMS 520 C all gauges

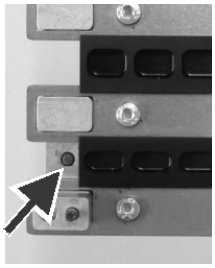
Replacing gear racks:

1. Take off the step motor.
2. Rotate positioning disk (7) to the home position (6).



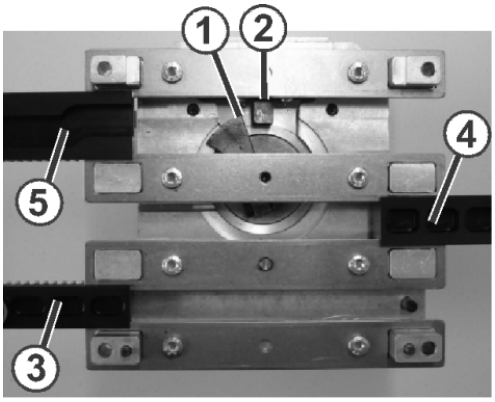
Step motor home position

3. Set at the rear the left pin of the lower gear rack guide.



Pin of gear rack guide

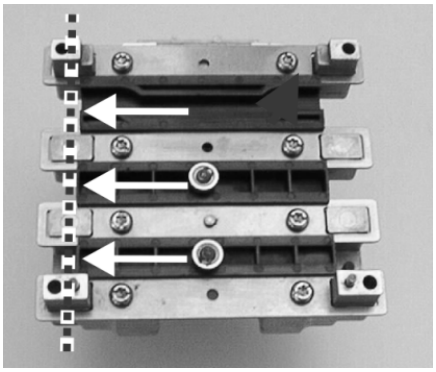
4. Push lower gear rack manually to the left until all gear racks can be removed.
5. Replace defective gear rack.
6. Set the installation position. For this purpose, turn the serrated lock washer (1) in such a way that the right edge is positioned somewhat in front of the light barrier (2). (visually expressed: if this setting were on a clock, the time would be: 11:58)



Built-in position

7. In this installation position, push in the gear rack (3) from the left until light resistance can be felt.
   ▷ The gear rack contacts the pinion.
8. Push in gear rack (5) as well.
9. Push in gear rack (4) from the right until light resistance can be felt.
   ▷ The gear rack contacts the pinion.
10. Push gear racks (3) and (4) inward evenly.
    ▷ Gear rack (5) is automatically pulled inward when gear rack (4) is pushed.
11. Check whether the gear racks are positioned correctly. For this purpose, turn the positioning disk (7) to the home position (6).

12. The gear racks must be aligned.



Monitoring of built-in position

13. If this is not the case, repeat step 3 through 11.
14. Move pin of the lower gear rack guide at the rear to the home position.

▶ Replacement of the gear racks is complete.

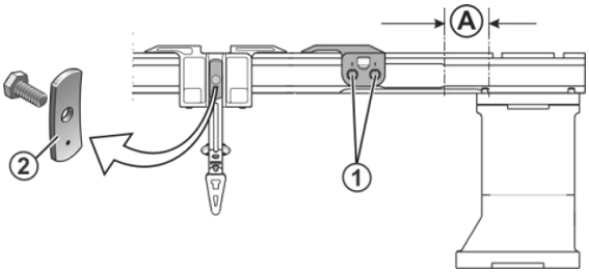
Further information:

- Removing and mounting step motor [-> 356]

7.3.11 Replacing yarn carrier

When replacing the yarn carrier bow, ensure that the punch mark is located on the inside when mounting shim (2).

1. Stop the carriage assembly into the left reversing position.



Screws of the yarn carrier limiter

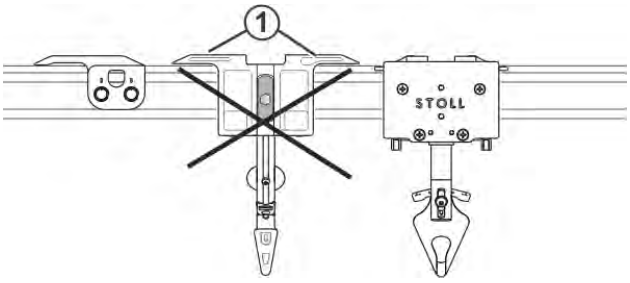
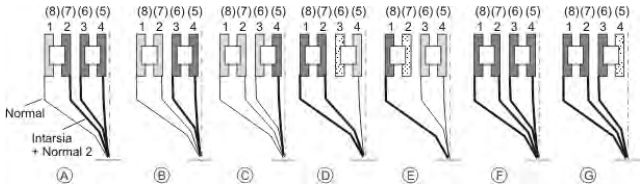
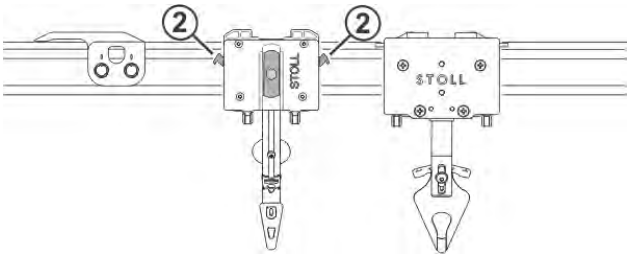
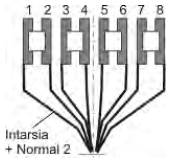
2. Loosen the screws (1) of the yarn carrier limiter.
3. To remove the yarn carrier limiters, turn the screws (1). The yarn carrier limiters can be removed and mounted in any position.
4. Shift yarn carrier to the right or left to the replacement point (A) and remove it.
5. Place new yarn carriers on the rails.
6. Place the yarn carrier limiters of yarn carriers on the rails, position them in a staggered way and screw them on tight.
7. Check the adjustment the yarn carrier.

Further information:

- Adjusting yarn carriers [-> 189]

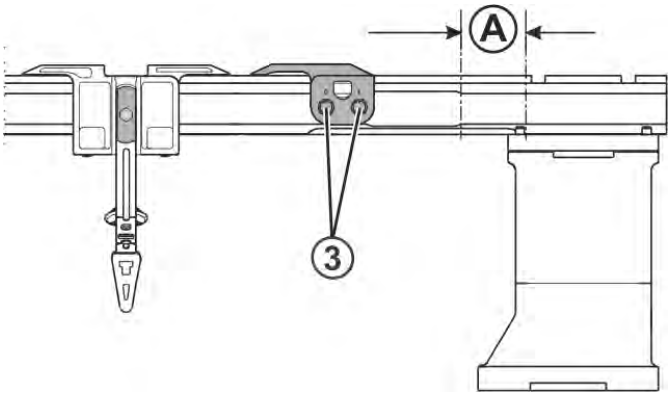
7.3.12 Mount intarsia yarn carrier *

Combination possibilities for normal and Intarsia yarn carriers:

Normal yarn carrier type 1	Normal and intarsia yarn carriers can be used side by side but **not** on the same track.  Basis: The disengaging arms (1) of the normal yarn carrier collide with the intarsia yarn carrier or the yarn carrier limiter.
	The combination possibilities:  Each combination can be used with itself or with another combination. **i**: Equip the yarn carrier tracks from inward to outward. With the allocation from inward to outward no track must be kept empty when using intarsia and normal yarn carriers.
Normal yarn carrier type 2	Normal yarn carriers type2 and intarsia yarn carriers can be used together on the same track. 
	The combination possibilities:  You can equip the yarn carrier rails as desired. You can equip all the tracks.

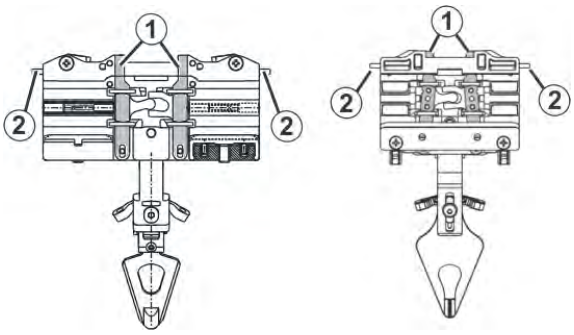
Mount intarsia yarn carrier:

1. Stop the carriage assembly into the left reversing position.



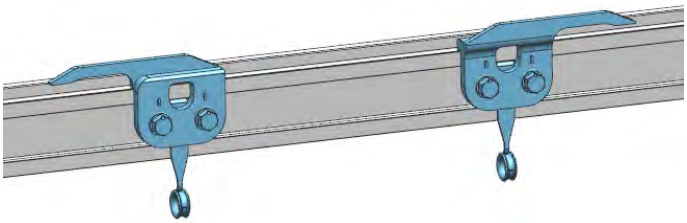
Yarn carrier limiter

2. Loosen the screws (3) of the yarn carrier limiter.
3. To remove the yarn carrier limiters, turn the screws (3). The yarn carrier limiters can be removed and mounted in any position.
4. Shift normal yarn carrier to the right to replacement point (A) and remove it.
5. Mount the intarsia yarn carriers and push them into their starting positions. To do this, press the clamp (1) outward or the lifter (2) inward.



Intarsia yarn carrier

6. Place the yarn carrier limiter on the rails so that the ramp faces outward.



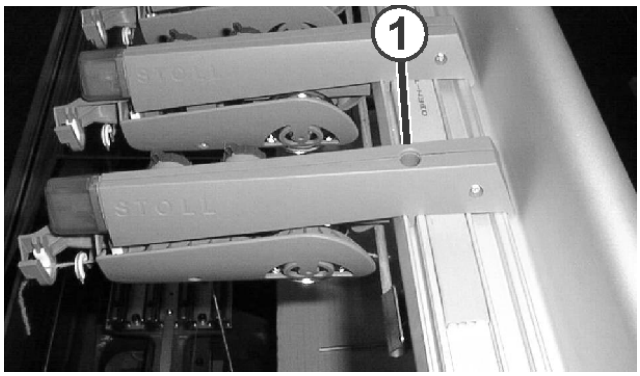
7. Position the yarn carrier limiters of yarn carriers in a staggered way and screw them on tight.

8. Check the adjustment the yarn carrier.

Further information:

- Symbols in this document [-> 12]
- Intarsia yarn carrier * [-> 25]
- Adjusting intarsia yarn carrier (type 1) * [-> 192]
- Adjusting intarsia yarn carriers (type 2) * [-> 193]

7.3.13 Replacing yarn control unit



Dismantling a yarn control unit

1. Mark the position of the old yarn control unit.
2. Remove the screw (1).
3. Lift the yarn control unit in the front until the contact pins are free. Push the yarn control unit to the rear and remove it.
4. Mount the new yarn control device exactly at the position (marking) of the old yarn control device.

   - or -

➜ Mount an additional yarn control unit at a distance of 90 mm (minimum 75 mm) from the next yarn control unit.

5. Hook in the new yarn control unit in the rear guide rail. Pull the yarn control unit to the front and press it downwards simultaneously.
6. Pull the yarn control unit to the front and screw it tightly with the screw (1).

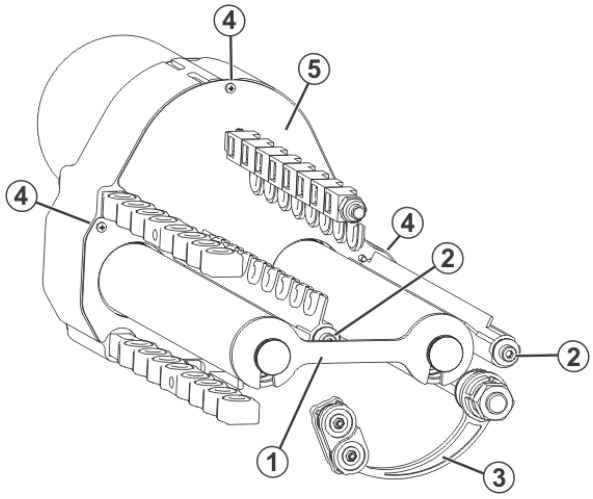
7.3.14 Replacing drive belts and friction roller of friction feed wheel

The drive belts and the friction roller of the friction feed wheel are replaced with the following steps:

- Preparations
- Replace the drive belt
- Change position of friction roller
- Replacing the friction roller

Preparations

1. Remove the lug (1) by loosening the knurled screws somewhat.

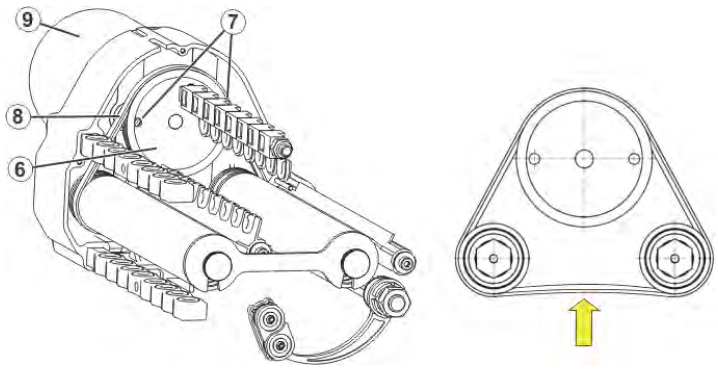


Friction feed wheel

2. Remove screws (2) and take off the stop motion rails.
3. Release the couplings of the arms (3) so that they can swing downward.
4. Remove the screws (4) and take off the housing cover (5).

Replace the drive belt

1. Turn the V-ribbed belt pulley (6) by hand until both Allen screws can be released through the holes (7).



Drive belt

2. Remove the belt (8).

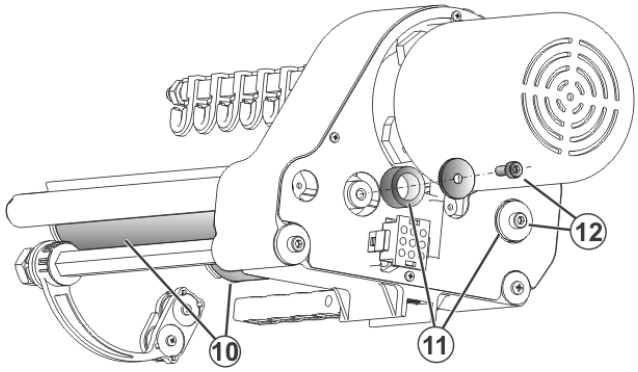
3. Mount the new belt in such a way that it runs in the grooves of the drive pulley.
4. Press the motor (9) upward and tighten the screws of holes (7)
5. Check the belt tension.

▶ The belt can be pushed through by approx. 2 to 4 mm when light pressure is applied.

Change position of friction roller

The surface of the friction roller is worn over the course of time by the yarn. Then the friction roller does not need to be replaced immediately, but its position can be shifted by 11 mm. This doubles its service life.

1. Remove the screws (12).



Screws for friction rollers

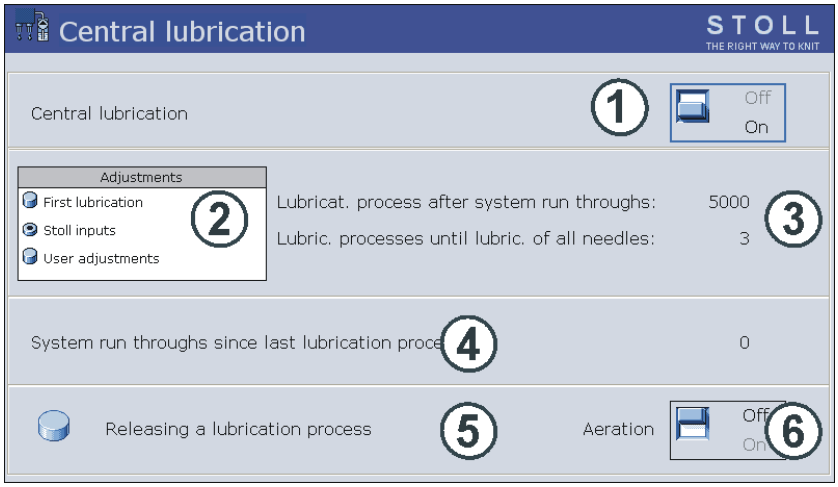
2. Remove the spacer (11).
3. Take off both friction rollers (10).
4. To assemble: Push the spacer (11) onto the axis of the friction roller (10)
5. Reinstate the friction rollers (10).
6. Retighten the screws (12) without the spacers.

Replacing the friction roller

1. Remove the screws (12).
2. Take off the friction rollers (10).
3. Lay down the new friction roller.
4. Tighten the screws (12).

7.3.15 Deaerating oil line

Only on machines with central lubrication



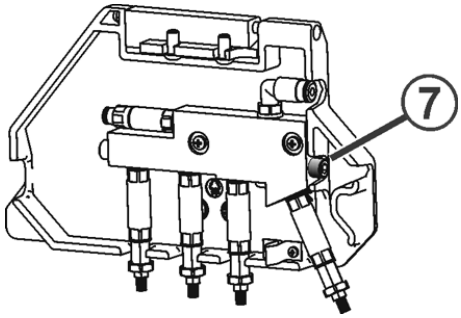
"Central lubrication" window

Key	Function
	Call up the "Machine settings" window.
	Call up "Additional function keys"
	Call up the "Central lubrication" window
	Call up "Main menu"

Keys for deaerating the central lubrication

Deaerate oil line:

1. Stop carriage outside needle bed.
2. Loosen vent screw (7) somewhat.



Deaerating central lubrication

3. Swivel central lubrication into mounting position. Recommendation: Place a cleaning cloth under the central lubrication, as oil will be fed.

4. Call up the "Machine settings" window from the "Main menu".
5. Call up "Additional function keys".
6. Call up the "Central lubrication" window.
7. Set "Ventilation" switch to "On".
   ▷ The pump feeds oil into the oil line.
8. If oil comes out of the hole of the vent screw, set "Ventilation" (6) switch to "Off".
9. Tighten vent screw again (9.5 Nm).
10. Repeat the ventilation process at all lubrication units.
11. Call up "Main menu".

7.4 Eliminating faults in electronics system

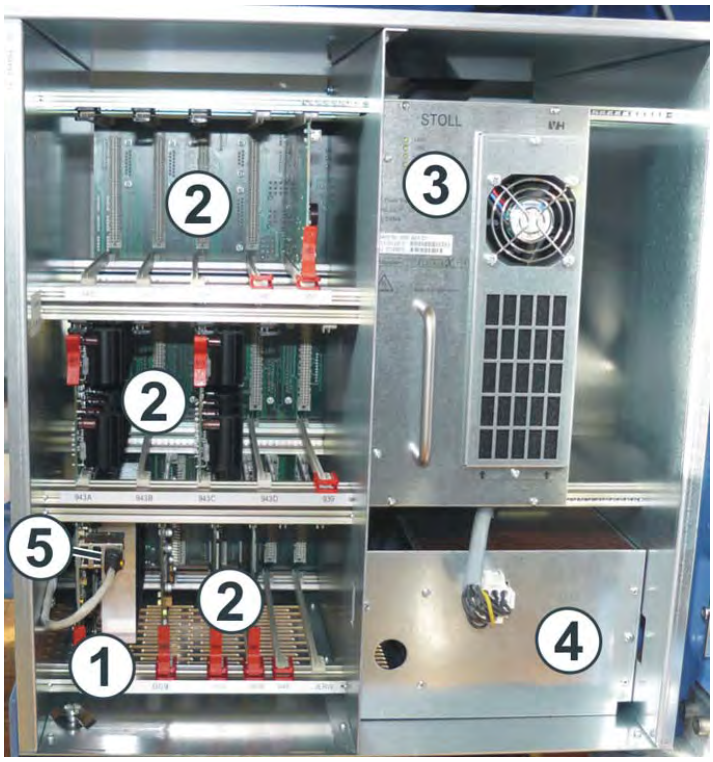
This chapter contains information on:

- Overview of the electronic control (control cabinet left and right) [-> 369]
- Power supply unit [-> 372]
- Control of yarn carrier magnets [-> 372]
- Replacing electronic card [-> 373]

7.4.1 Overview of the electronic control (control cabinet left and right)

The machine control is located in the left and right control cabinet under the covers. The card for controlling the yarn carrier magnets is located in the carriage.

Left control cabinet *



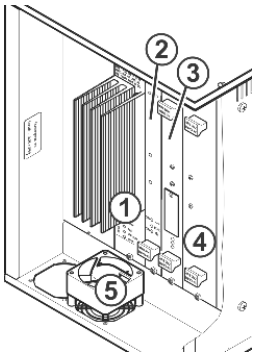
Left control cabinet

1 Industrial PC and hard disk
2 Electronic cards
3 Power supply unit with LEDs
4 Battery plug-in unit
5 Ethernet cable, if the machine is networked.

Card	Function
010 (ID 301 010)	Controlling the input unit and the touch screen. Controlling hard disk. The hard disk is integrated on the board.
009 (ID 301 009)	Main computer; collecting all messages from the other cards. Output of instructions to the other cards. Control of the knitting sequence. Controlling the carriage (main drive) and the racking position of the rear needle bed.
965 (ID 300 965)	Monitoring of the carriage assembly positions. Actuation of the selection systems and the step motors. Forwarding of the information to the board 943.
951 (ID 300 951)	Checking the charging state of the batteries. Activating charging. Controlling horn, lighting, piezo elements, and central lubrication.
943 (ID 300 943)	Motor driver of the step motors of the stitch cams. Cooperation with the card 965.

Electronic cards

Right control cabinet *



Right control cabinet

1 Drive and racking control unit
2 Relay board, fuse for (1)
3 Fabric take-down card
4 Capacitor card
5 Fan

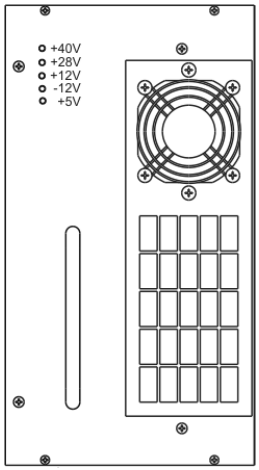
Card	Function
954 (ID 300 954)	Controlling the drive and racking motor. Passing on the error messages from the motors to card 009.
953 (ID 300 953)	The relay card ensures that the machine cannot be started as long as an error is present. Switching off main switch: ◆ if the automatic switching off of the machine is activated ◆ in case of extreme overvoltage ◆ if the servos are not ready for operation Controlling the feed wheel, fluff absorption and fault lamp. Ballast fuse for servo drive and racking.
929 (ID 300 929)	Controlling the fabric take-down motors (main take-down, auxiliary take-down, comb, contact motor). Passing on the error messages from the fabric take-down motors to board 009.
936 (ID 300 936)	Motor capacitors for fabric take-down motors (for needle bed widths 72", 84", and 96")
948 (ID 300 948)	Motor capacitors for fabric take-down motors (for needle bed width 50")

Electronic cards

Further information:

- Configuring automatic machine switching off [-> 62]
- Symbols in this document [-> 12]

7.4.2 Power supply unit

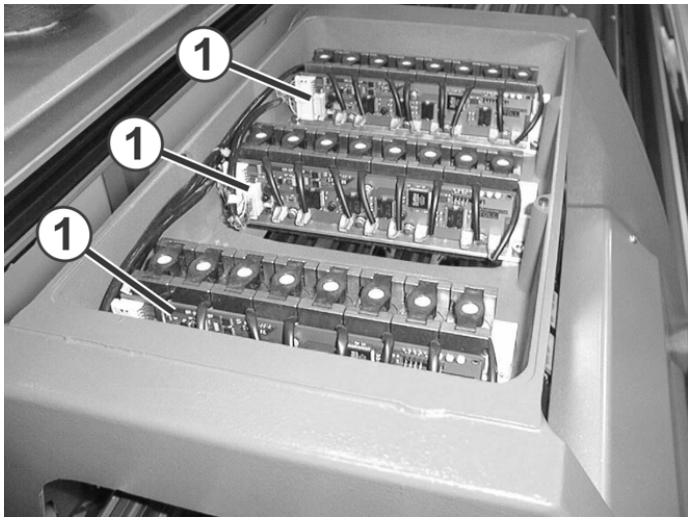


Power supply unit

The LEDs on the power supply unit indicate which voltages are generated and at which voltage an error occurs. While switching on the main switch, the lower three LEDs light up immediately, and the +28 V approx. 1 second later, followed by the +40 V. The order in which the LEDs light up when switching on may provide information on fault causes.

7.4.3 Control of yarn carrier magnets

Each knitting system has got an electronic board (1) for controlling yarn carrier magnets.



Electronic cards for controlling yarn carrier magnets

Card	Function
960 (ID 300 960)	Activating of the yarn carrier magnets after the time for switching the yarn carrier magnets has been announced by the board 966.

Electronic cards

7.4.4 Replacing electronic card

1. Set main switch to "0" and wait until the LEDs on the power supply unit go out (approx. 60 seconds).
2. Open the cover of the left control cabinet.

CAUTION

An electronic card can be destroyed by electrostatic charge!

If you touch a board while you are electrostatically charged, the board will be destroyed.

➜ First discharge yourself by touching "ground", e.g. a water pipe or the machine frame, then touch a card.

➜ Only touch cards on the edge or the front side.

CAUTION

The electronic boards can be damaged by damage to the pins on the rear of the board!

If the pins of the cards are bent or broken off at the rear, new cards must be used.

➜ When replacing the cards, make sure that the pins are not damaged.

3. Remove the card.
4. Plug in the new card.
5. Close the cover of the left control cabinet.
6. Set the main switch to "1" and acknowledge the error remedy.

7.5 Check fuses

7.5.1 Checking fuse (right and left control cabinet)

Valid for:
CMS 530 T
CMS 730 S
CMS 730 T
CMS 740
CMS 822
CMS 830 C
CMS 830 S
CMS 933

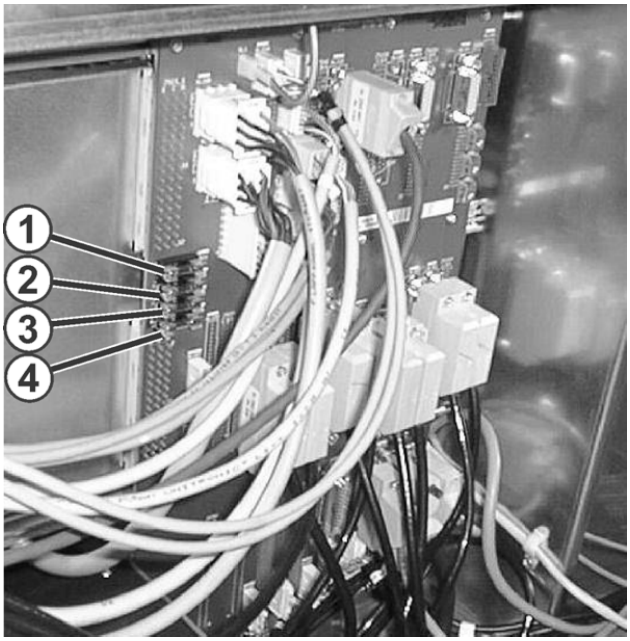
DANGER

Life-threatening high voltage!

Electrical shock may cause death or serious injuries.

➜ Set the main switch to "0" and wait until the touch screen is dark and an alarm signal sounds.

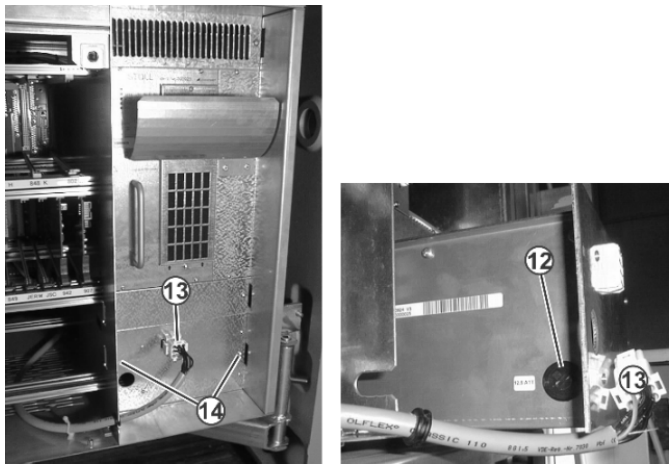
1. Set machine main switch to "0".
2. Wait until the touch screen is dark and an alarm signal sounds.
3. Check fuses (1) to (4) at the rear of the left control unit.



Fuses at rear of left control unit

1 28 V (stop motions) (1A, slow-blowing)
2 STIXX (1A, slow-blowing)
3 Yarn control device (1A, slow-blowing)
4 Battery charging (1A, slow blowing)

4. Check fuse (12) on the left control unit. For this purpose, pull out plug (13), remove both screws (14) and pull out battery insert.



Battery fuse (12) below the power supply unit

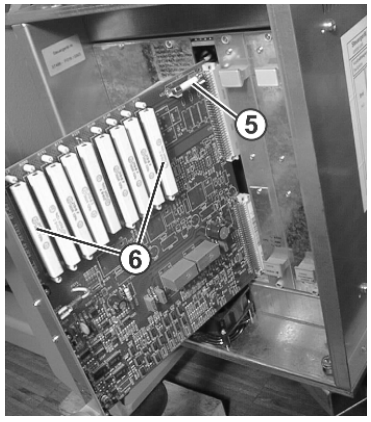
DANGER

Burning risk!

Injuries by hot parts.

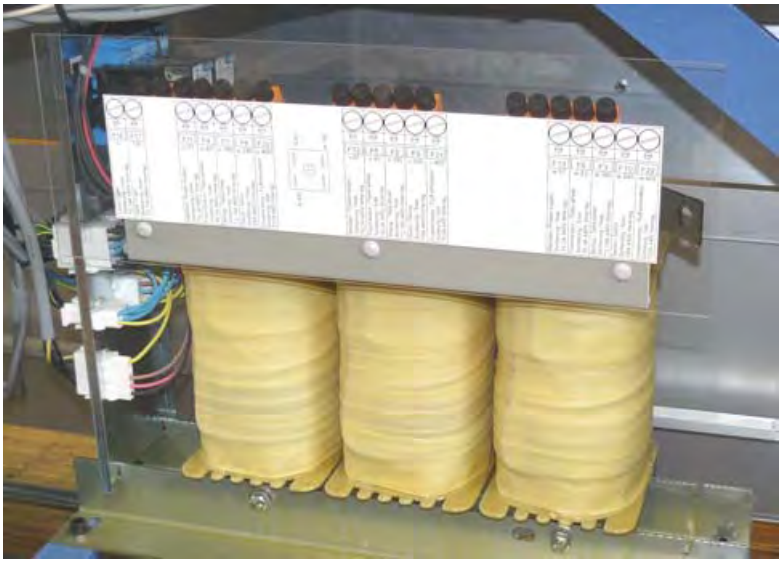
➜ Watch out not to touch the resistors (6) when pulling out the board. The resistors can get very hot.

5. Check fuse (5) on the right control unit. For this purpose, remove the screws at the top and bottom and pull out the board.



Ballast fuse (5) for servo drive and racking on the control unit

6. Check fuses on the transformer at the rear of the machine.



Fuses on transformer at the rear of the machine

F1-F3	Fabric take-down	F20-F22	Fluff absorption
F4-F6	Friction feed wheel	F20	Central lubrication
F8-F10	Servos		
F11-F13	Power supply unit		

7. Eliminate the cause.
8. Insert new fuse.

> **i** Use a replacement fuse from the accessories. Use only a fuse with the same specifications.
> Specifications of the fuse: see sticker (impression) or circuit diagram. The circuit diagram is located in the spare parts catalogue which has been delivered with this machine.

7.6 Needle selection shifting

Condition:

- Operating system of the knitting machine: Operating system OKC V 2.5 (or higher).

With this test the interaction of the impulse sensor, the control unit and the different selection systems is synchronized. This takes place with the help of a test row. With different reaction times it is checked whether the needles are driven out to the "stitch" position for knitting or not. You have to check this in both carriage directions. You enter these test results in a table. From these test results the optimum reaction time is calculated.

Time required

Manually:
If you carry out the test row manually, you will need between 2 and 4 hours depending on the machine gauge.

Automatically:
The measuring system "JNA" (Setup-Needle-Selection) is available at your agency or at Stoll. With this measuring system the test row is carried out automatically. Time required: 30 - 60 minutes.

"JNA" measuring system

With the "JNA" measuring system you will get instructions on how to carry out a needle selection shifting.
You do not need to carry out the section "Determine manually the needle selection shifting" of this instructions.

The needle selection shifting is carried out with the following steps:

- Setting the impulse sensor type [-> 378]
- Preparations [-> 381]
- Reset reference values of impulse sensor, carry out carriage reference run [-> 382]
- Determining the needle selection shifting manually [-> 383]

7.6.1 Setting the impulse sensor type

This is only necessary with older OKC machines:

- OKC 2.0 machines (2005 until February 2009)
- OKC 3.0 (March 2009 until June 2010)

On newer machines (OKC 3.0, from July 2010 on), this is not necessary as only the new impulse sensor type can be built-in. You may skip this section. It continues on Page [🗎 381].

		Type	Component type
OKC 3.0 (March 2009 until June 2010)	CMS933	771 773	000
	CMS830 S	633	000
	CMS830 C	631	000
	CMS822	623 632	000 000
	CMS740	630	000
	CMS730 T	588	000
	CMS730S	625	000
	CMS530 T	587	000
	CMS530	621 627	000 - 001 000
	CMS520 C	629	000
	CMS520	620 628	000 000
	CMS502	626	000
OKC 2.0 (2005 until February 2009)	CMS933	769	000 - 004
	CMS922	770	000 - 004
	CMS830 C	573	000 - 004
	CMS822	574	000 - 005
	CMS740	572	000 - 004
	CMS730 T	586	000 - 004
	CMS730 S	554	000 - 004
	CMS530 T	585	000 - 004
	CMS530	566	000 - 004
	CMS520 C	570	000 - 004
	CMS520	567	000 - 004
	CMS420 E	579	000 - 004

Machines for which the impulse sensor type has to be set.

If you are not sure about the machine type, check the machine type plate.

The first column of numbers in the "Type" field indicates the machine type and the second column of numbers indicates the component type. In the above example, the machine in question is the "621" type, and the "000" component type.

Setting the impulse sensor type

You need to inform the control unit about the impulse sensor type you installed in the machine. It is possible to install two different impulse sensor types in older OKC machines. You will find the ID in the spare parts delivery.

Impulse sensor type	ID	
1	240 562	Impulse sensor of OKC machines until June 2010
2	260 396	Replacement for the previous impulse sensor (ID 240 562)

Key	Function
	Continue on to the next window
	Call up "Additional function keys"
	Call up "Machine parameters 2" window
	Confirm input
	return to the "Machine parameters"

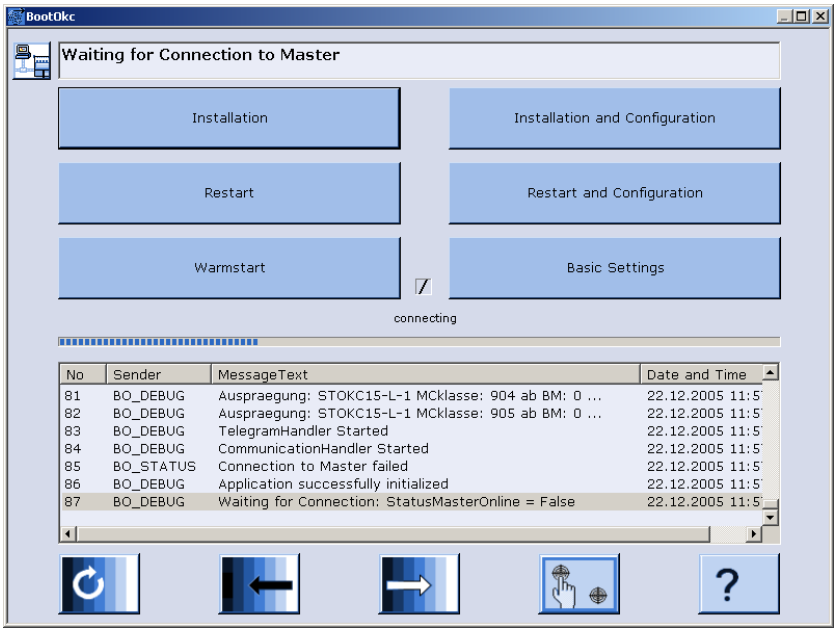
Keys for setting the machine parameters

Carry out restart with machine configuration:

✔ The machine is switched off.

1. To switch on the machine, set the main switch to **1**.

   ▷ The "BootOkc" window is displayed on the touch screen.



"BootOkc" window

2. Touch the "Restart and Machine Configuration" key.
3. Tap repeatedly on the "Continue on to the next window" key until the "Machine parameters" window is displayed. ("Language" -> "Machine configuration" -> "Machine configuration 2" -> "Machine options" -> "Machine parameters")
4. In the "Machine parameters" window tap on the "Additional function keys" key.
5. Call up the "Machine parameters 2" window.

6. Select the impulse sensor type "2 - ID 260 396".
   Select this setting also with mixed operation (old and new impulse sensor type).
7. Confirm input.
8. Return to the "Machine parameters" window.
9. Advance till the Main menu appears.

7.6.2 Preparations

- Stop the carriage after the left reversing position.
- With tandem machine: Couple carriage narrow.
- Cast-off the stitches on both needle beds.
- Remove the needle brushes on the front and rear carriage part.
- The test series is required for all the impulse sensors of the machine - with a tandem machine there are four impulse sensors.
- For the check you need a small knitting program.
  Example for a 3-system machine.

```
10  START
15  MSEC=0.15
20  SEN=1-#138
30  <> S:R-0;  Y:0;  S1 S2 S3
40  <> S:0-R;  Y:0;  S1 S2 S3
50  END
```

  Line 30: Check of the front impulse sensor
  Line 40: Check of the rear impulse sensor
  If you have a 2-system machine simply leave out the indication "S3" for the third knitting system in the lines 30 and 40.

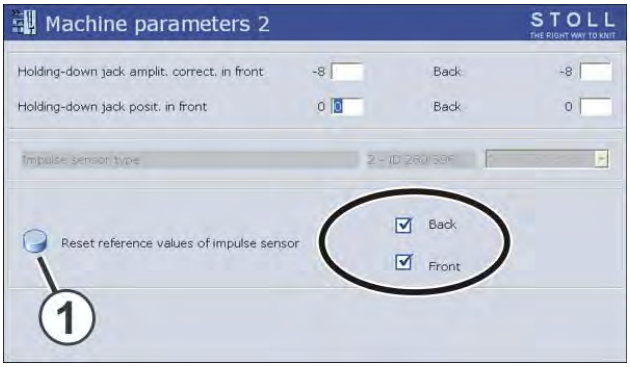
7.6.3 Reset reference values of impulse sensor, carry out carriage reference run

Before determining the new values you have to delete the "old" values of the impulse sensors.

Key	Function
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up "Machine parameters" window
	Call up "Additional function keys"
	Call up "Machine parameters 2" window

Keys for deleting the reference values

1. Call up the "Service" menu from the "Main menu".
2. Call up "Basic Settings" menu.
3. Call up the "Machine parameters" window.
4. Call up "Additional function keys".
5. Call up the "Machine parameters 2" window.



6. Select all impulse sensors (activate control box). On a tandem machine there are four impulse sensors.
7. Confirm input tapping on the (1) key.
8. You will be asked whether the values are to be deleted. Confirm this message with "OK".

   ▷ The values are deleted.
9. Carry out carriage reference run.

7.6.4 Determining the needle selection shifting manually

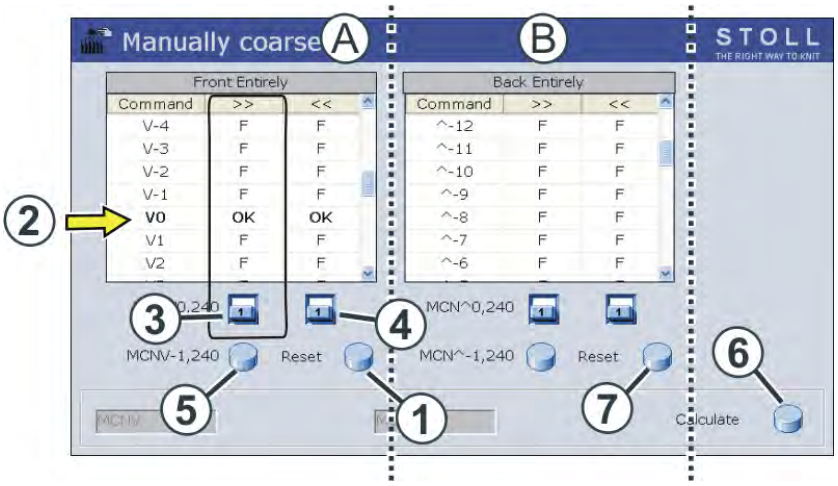
Key	Function
	Call up the "Service" menu
	Call up the "Basic settings" menu
	Call up the "Adjustment of needle selection" menu
	Call up the "Automatic" menu
	Call up the "Manually coarse" menu

Keys for determining the needle selection shifting

Determine the needle selection shifting:

1. Fix knitting row.
   For checking the front impulse sensor enter "SPF30".
2. Engage the machine, stop the carriage in the right reversing point.
3. Call up the "Service" menu from the "Main menu".
4. Call up "Basic Settings" menu.
5. Call up the "Adjustment of needle selection" menu.
6. Call up the "Manually coarse" menu.

7. Carry out the test series.



A Test for the front needle bed

B Test for the rear needle bed

1 Reset
Delete the test results for the front needle bed.

2 Current line of the test series

3 Enter the test result (carriage direction: >>)
Switch setting "1" – OK
Switch setting "0" – F (Error)

4 Enter the test result (carriage direction: <<)

5 Proceed to the next line

6 Calculating the optimal reaction time

7 Reset
Delete the test results for the rear needle bed.

8. Tap the "Reset" (1) key.
The active line (2) of the test series is highlighted.
9. Engage the machine.
   ▷ The carriage moves very slowly from right to left (MSEC=0.15).
10. While the carriage is running you perform a visual inspection. Check whether all the needles are driven out for knitting or not.
11. Stop the carriage in the left reversing point.
12. Enter the test result in the table.
If all the needles are driven out, you do not need to enter anything, as "OK" is entered by default in the active line.

- or -

➜ If one or more needles are not driven out, set the (4) switch to "0". An "F" is entered in the table.

13. Engage the machine and check the needle selection in the other carriage direction.
14. Stop the carriage in the reversing position and enter the test result with the help of the switch (3).

> **i** If you are not sure that no error occurred, repeat the check for both carriage directions.

15. Resume the test series. Press the (5) key for this.
    ▷ The next line of the test series is selected automatically. Internally, the reaction time is increased by "1".
16. Resume the test series until one error occurs in both carriage directions (steps 9 to 15).
    ▷ Now you have reached the limit for the "positive" reaction time.
17. The second part of the test follows. Press the (5) key for this.
    The test will be carried out automatically with "negative" reaction times.
18. Repeat the steps 9 to 15 until one incorrect selection occurs in both carriage directions.
    ▷ The switches automatically get inactive (grey).
19. The test series for this impulse sensor is finished.
20. Calculating the reaction time.
    Tap the (6) key for this. The optimum reaction time is calculated. This takes about 10 seconds. When the calculation is finished a message appears on the touch screen.
21. Repeat the test series for the rear impulse sensor.
    For this fix the knitting row 40 - enter "SPF40".
    Attention: With step 8 tap on the "Reset" (7) key. (If you tap on the (1) key, the recently determined values are deleted.)
    Repeat the steps 8 to 20.
22. With a tandem machine: switch the option in the "Right/left carriage" to the other carriage. Repeat the steps 8 to 21.

▶ The determination of the needle selection shifting is finished.

> **i** If you accidentally tap the (5) key twice, one line of the test series is skipped. The test series is not valid. You have to execute again the entire test series (step 8).

Concluding activities

■ The data of the needle selection shifting is part of the machine settings. It is automatically saved in the dongle data. You can save this data additionally on a USB memory stick if necessary.

8 Software - Installation and basic settings

In this chapter the description of how can one install and set the Stoll operating system is given.
It is important thereby that one gets to know the boot process (the booting of software and the activation of control) on the knitting machine.

One has to engage in this boot process during installation and setting of the Stoll operating system.
Thereby call up various windows e.g. the "Basic Settings Menu" window. For the setting of the Stoll operating system more windows are open in which the changes can be made.

If your knitting machines are interconnected or are connected with a pattern unit, you can configure the on-line connection.

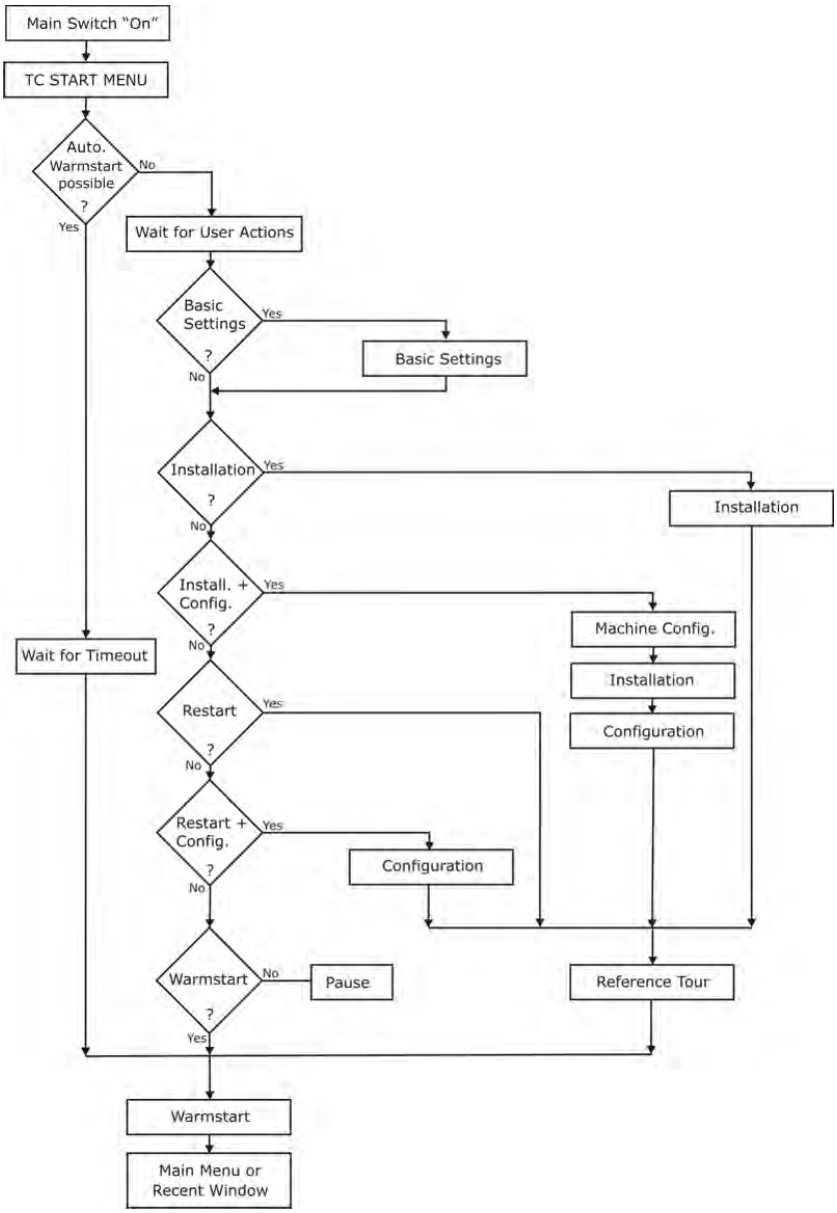
Save the machine data against any data losses before every installation of Stoll operating system or before any changes in the configuration.

This chapter contains information on:

- Boot process [-> 388]
- Saving all machine data on the USB-Memory-Stick [-> 403]
- Saving pattern after a big fault [-> 404]
- Installing the Stoll operating system [-> 406]
- Diagnose Control [-> 429]

8.1 Boot process

The following figure shows a schematic representation of the boot process of the knitting machine (with control OKC).



Schematic representation of the boot process

Description of the boot process

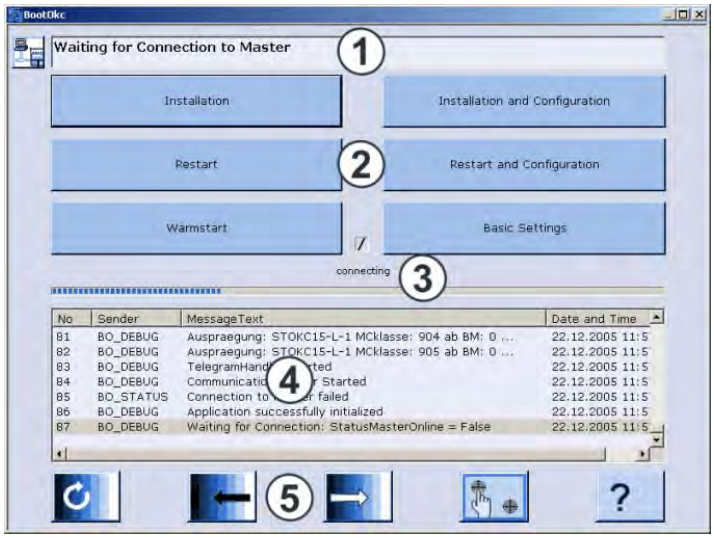
After switching on knitting machine (main switch **1**) windows XP gets started. The opening screen is displayed on the touch screen.

Thereafter the individual control components start their boot programs i. e. the different drivers and the applications of the System Control Unit (SCU) are loaded.

During this time, the following window is displayed on the touch screen:

Start the System Control Unit (SCU)

If this process is closed, then the "BootOkc" window is displayed.



"BootOkc" window

1 Symbol and status bar show the connection status.

2 Keys for carrying out definite actions.

3 Activity and progress display show the present progress of the boot process.

4 Lists that number the status and error messages and show the date and time. Further debug information can be connected to, if needed. This information is also saved in a log file and can be copied with **Copy Logfiles**, if needed.

5 Keys for setting the touch screen.

First of all, only the keys "Installation", "Installation and Configuration" and "Basic Settings" are released. As soon as the connection to control is made, more keys are released based on the control information.

If a warm start is possible, then this is automatically carried out after a waiting time that can be set (basic setting: 30 seconds).

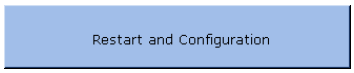
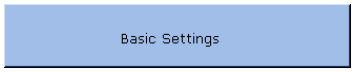
Thereafter, the main menu and the last opened window are displayed.

Main menu

The knitting machine is now ready to knit.

Interrupt warm start

The warm start of the knitting machine can be interrupted. This happens by tapping the keys in the "BootOkc" window.

Key	Meaning
	Start the installation process of a Stoll operating system. The storage location of the Stoll operating system can be selected in the "Basic Settings" window.
	Starts the installation process of a Stoll operating system including configuration of the machine. The storage location of the Stoll operating system can be selected in the "Basic Settings" window.
	Starts the software anew (Reboot).
	Starts the software anew (Reboot) with configuration of the machine inclusive.
	Carries out a manual warm start.
	Calls up the "Basic Settings Menu" window.
	Set the screen brightness infinite.
	Set screen brightness one step darker.
	Set the screen one step brighter.
	Calibrate touch screen.

Possibilities for interrupting a warm start

Further information:

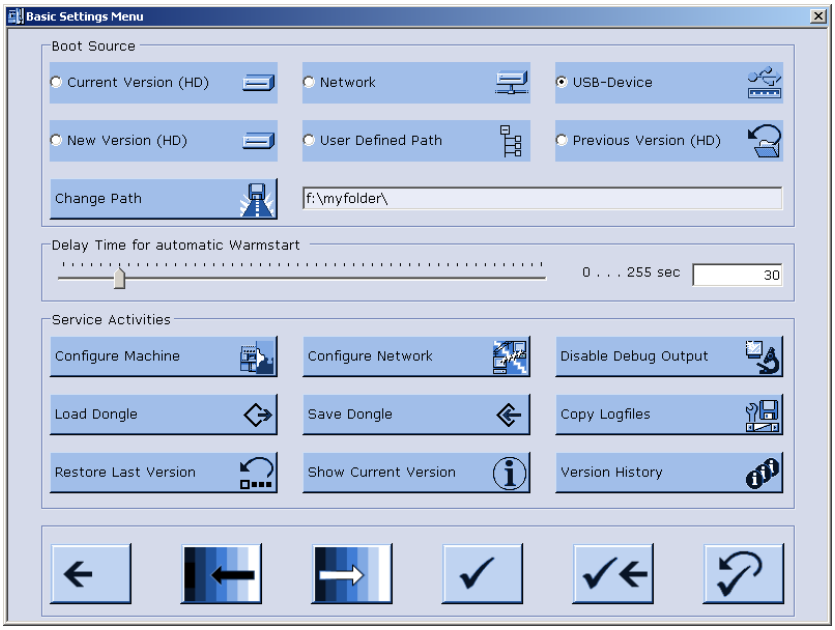
- Setting touch screen [-> 63]

8.1.1 Basic Settings

Call up "Basic Settings Menu" window:

✔ The knitting machine is switched off.

1. Set the main switch to "1".
   ▷ The "BootOkc" window is displayed.
2. Type in within the waiting time for the warm start on the "Basic Settings" key.
   ▷ The "Basic Settings Menu" window is displayed.



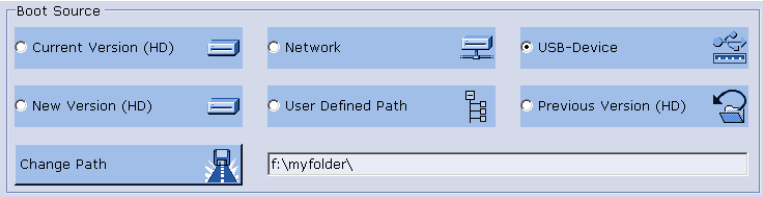
"Basic Settings Menu" window

Area	Explanation
Boot Source	Keys for selecting a source for the installation data.
Delay Time for automatic Warmstart	Enter the waiting time till the automatic warm start.
Service Activities	Keys for service purposes.

Areas of the "Basic Settings Menu" window

Selecting the source of the installation data (Boot Source)

In the "Boot Source" area of the "Basic Settings Menu" window ascertain the source from where the installation of the Stoll operating system is done.



Selection of the source in "Basic Settings Menu" window

Key	Explanation
Current Version (HD)	Renewed installation of the existing version.
New Version (HD)	Installation of a new version.
Previous Version (HD)	Installation of the previous version.
Network	Installation of a version from a network drive.
USB Device	Installation of a version from a device which is connected to the USB socket.
User Defined Path	Installation of a version from a user-defined storage location.
Change Path	Key for selection of a storage location.

Keys in the "Boot Source" area of the "Basic Settings Menu" window

Setting waiting time until warm start

In this area of the "Basic Settings Menu" window, the waiting time that is spent in between the display of the "BootOkc" window, and the automatic warm start (display of the main menu) is entered.

Waiting time for warm start in the " Basic Settings Menu" window

The waiting time can be interrupted at anytime by pressing any key in the "Basic Settings" window.

Set waiting time:

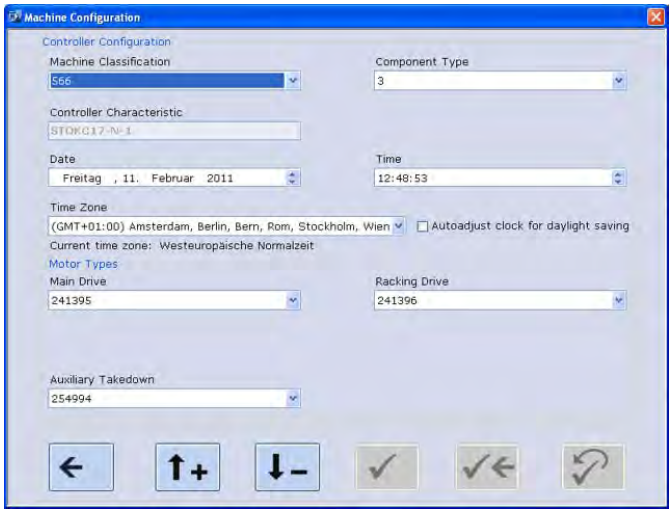
1. Pull the slide to the desired position.
   ▷ The waiting time is displayed in the input field.
2. Confirm input.

Configure machine

Defined by the concept of control OKC some basic information about the machine should be known right from the start. Enter this information in the "Machine Configuration" window.

➜ Tap on the "Machine configuration" key.

▶ The "Machine Configuration" window is displayed.



"Machine Configuration" window

Label	Description
Machine Classification	Enter the machine classification.
Component Type	Enter the component type.
Controller Characteristic	Name of the control unit (only display)
Date	Entry of the date
Time	Entry of the time
Time Zone	Entry of the time zone
Autoadjust clock for daylight saving	Automatically switch the clock to summer- or wintertime.
Motor Types	Select which motor (different motors with different ID) is installed in the machine. (Might be necessary after replacing a motor)

Components of the "Machine Configuration" window

Entering the machine classification and the component type:

1. In the "Machine Classification" list field, select the machine classification.
2. In the "Component Type" list field, select the component type.
   ▷ In the "Controller Characteristic" field, the controller type is displayed.
3. Confirm input.

Enter the date, time and time zone:

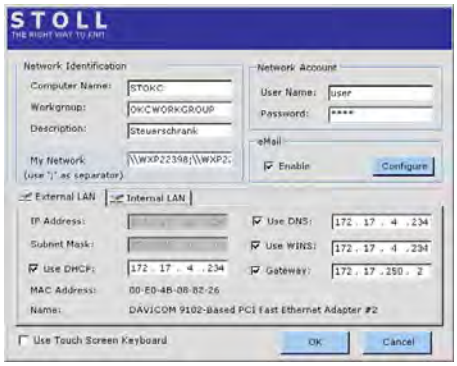
1. In the "Date" list field, enter current date.
2. In the "Time" list field, enter current time.
3. In the "Time Zone" list field, select the time zone.
4. Confirm input.

Configuring network

If you wish to connect the knitting machine with another knitting machine or a pattern unit, you must set up and switch on the network on the knitting machine. The "Network Configuration" window is used for it.

➜ Tap on the "Configure Network" key.

▶ The "Network Configuration" window is displayed.



"Network Configuration" window

In this window all the necessary network parameters are entered. The values are entered with the internal keyboard (virtual keyboard) or with an external keyboard.

Label	Description
Computer Name	The input of a (machine) name is necessary in order to enable the other network users an access to this machine. This machine is identified with this name in the network. Enter descriptions of this machine in the "Description" field.
Workgroup	All knitting machines should be located in the same "Workgroup" so that the machines can communicate with each other. This input field must be filled up. Ask for your corresponding Work group name from your Network administrator in case of a network spanning your firm/LAN.
Description	The input of a description is optional, but it helps in identifying a machine better in larger networks, e. g. Machine type, gauge and other specifications of this machine . This input appears as a comment in the Windows Explorer.
My Network	Here are listed the computers that have been defined in "My Network" field, see KnitLAN connection [🗎 255]. If you wish to supplement the lists manually, take note of the spelling when multiple computers are used: \\computer name;\\computer name;\\computer name As a separator between the individual computers the semicolon (";") must be used.

Components of the "Network Configuration" window

Label	Description
User Name	This user must be familiar with his password in the network so that the shared drives and folders can be used. Your Network administrator will create a user name and a password for you so that you can access the network resources.
Password	
E-Mail	Input an e-mail address (Configure). The messages of the control unit are sent to this address, when the "Enable" check box is activated.
IP Address	Each machine (computer) should have a unique IP address within a network. The network protocol TCP/IP communicates with the individual machines by this IP address. The division of the network is done in the so-called network classes. An individual Network-address is assigned to each machine automatically by the program and it is displayed here.
Subnet Mask	This field is automatically filled up by the program with a value for the shared network **Class B**.
Use DHCP	The DHCP (Dynamic Host Configuration Protocol) enables with the help of a corresponding server the dynamic allocation of an IP address and the further configuration parameters to the computers (machines) in a network.
MAC Address	Media Access Control Address.
Name	Name of the network board.
Use DNS	Domain Name Services via a DNS Server. Enter the name of the IP address of the server, if necessary.
Use WINS	Windows Internet Name Services. Enter the name of the IP address of the server, if necessary.
Gateway	A Gateway enables the connection between the shared networks. Enter the IP-Address of the active component, if necessary.

Components of the "Network Configuration" window

Settings in the "Network Configuration" window, especially the settings for **External LAN**, are to be done by a Network Administrator. The settings for **Internal LAN** serve developers purposes only and may not be altered.
The Ethernet IP addresses **192.168.0.0** to **192.168.0.255** are reserved for Stoll knitting machines and may not be used in the company network.
The reason for this: The cards 963 (IPC) and 966 (Power CPU) in the knitting machine use these IP addresses to communicate with each other. But if both these addresses are used in the company network, the cards cannot work correctly with each other anymore and the machine does not function any longer.

Display/hide screen keyboard

➜ In order to keep the virtual keyboard constantly open, activate the check box before "Use Touch Screen Keyboard". By clicking on an input field the virtual keyboard opens.

- or -

➜ In order to close the virtual keyboard deactivate the check box before "Use Touch Screen Keyboard".

Enter the machine name (Computer-Name)

1. Touch the "Computer Name" entry field.
   ▷ The virtual keyboard is displayed.
2. Tap into the "Computer Name" by any desired name (5-15 characters) for the respective knitting machine.

- or -

➜ Maintain the standard setting.

Enter the user name and the password

i	Your Network administrator must create a user name and a password before you can access the network resources.

1. In the "User Name" input field, tap the user name (5-15 characters).
2. In the "Password" input field, tap the corresponding password (5-15 characters).

▶ A ***** (asterisk) appears for each character you enter.

Enter Workgroup

➜ In the "Workgroup" input field, tap the name of the work group and the machine group for this machine (5-15 characters).

- or -

➜ Maintain the standard setting.

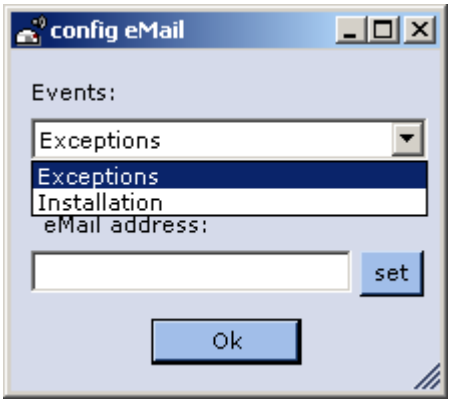
Enter the description of the machine (Description)

➜ Enter a meaningful description of this machine (maximum 50 characters) in the "Description" input field.

Enter E-Mail-Address

1. Activate the "Enable" check box.
2. Tap on the "Configure" key.

   ▷ The "E-Mail Configuration" window is displayed.



3. Select the cases in the Events field by the appearance of which the email should be sent.
4. Enter the e-mail address in the "E-Mail address" field
5. Confirm input.

Further information:

■ KnitLAN connection [-> 255]

Debug output on/off

With this key an extended output of debug messages can be switched on or off in the "Logging" window.

1. To give out extended debug messages in the "Logging" window, tap on the key "Enable Debug Output".

   ▷ The marking of the key in "Disable Debug Output" is altered.

2. Confirm input.

- or -

1. To give no extended debug messages, tap on the "Disable Debug Output" key.

   ▷ The marking of the key in "Enable Debug Output" is altered.

2. Confirm input.

Load the machine settings in the machine computer

The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report, the network settings, and other internal control information. This data is referred as **Dongle**. Dongle-Data are saved in a file with the **mcnumber.dgl** (mcnumber = machine number) name.

✔ A file with dongle data is available.

1. Tap the "Load Dongle" key.
   ▷ A selection window for opening a file is displayed.
2. Select Dongle-file (mcnumber.dgl).

> **i** The current machine settings will be overwritten!
> When you copy the machine settings to the hard disk, the current machine settings are overwritten.
> Only carry out the following steps if you want to replace the current machine settings with the settings saved on the file.

3. Confirm input.
4. When the network settings are available, the question appears whether these should be read also. If you answer this question with "Yes" the network settings are loaded and a Reboot is automatically run.

▶ The machine settings are copied to the machine. After the copying is complete, a message appears.

Saving dongle data

The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report, the network settings, and other internal control information. This data is referred as **Dongle**. Dongle-Data are saved in a file with the **mcnumber.dgl** (mcnumber = machine number) name. It is important to back up the data, e.g. when the hard disk is replaced.

1. Tap on the key "Save Dongle".
   ▷ A selection window for saving a file is displayed.
2. Select the saving location.
3. Confirm input.

▶ The machine settings are copied on the target medium (file name: mcnumber.dgl).

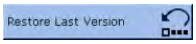
Error diagnostics with Copy Logfiles

If the machine computer has serious problems, e.g. it does not react to any inputs or the program crashes any longer, the cause is very important for Stoll. The computer saves the data up to the fault internally in so-called **Logfiles**. For an exact error diagnosis, we want to ask you to save these files and to send them to the Stoll-Helpline.

1. Tap on the key "Copy Logfiles".
   ▷ A selection window for saving a file is displayed.
2. Select the saving location.
3. Confirm input.

▶ The log files are zipped, and saved on the target medium (file name:Log_date_time_mcnr.zip).

Restore the last version of the Stoll operating system



1. Tap on the key "Restore Last Version".
   ▷ A dialog window for confirming the restoration appears.

> **i** The current operating system version will be overwritten! When you restore the saved operating system version, the current operating system version is overwritten.
> Only carry out the following steps if you want to replace the current operating system by the previous version.

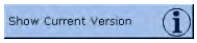
2. Confirm message.
   ▷ The "BootOkc" window is displayed. The source (Boot Source) "Previous Version (HD)" is automatically set.
3. When the Stoll operating system is to be installed without the final configuration tap on the key "Installation".

- or -

➜ When the Stoll operating system is to be installed with the final configuration, tap on the key "Installation and Configuration".

▶ The Stoll operating system gets installed.

Displaying current software version



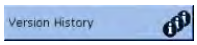
For diagnostics purposes it is important to know which software is installed on the computer. In the "Info" window, the version numbers of the currently installed Stoll operating system are displayed. In the case of error messages, these version numbers should also be provided to Stoll-Helpline, if possible.

➜ Tap on the key "Show Current Version".

▶ The "Info" window is displayed. Here the current version numbers of the Stoll operating system are displayed.

> **i** With **Copy Logfiles** this data is automatically saved with the file **Log_date_time_mcnr.zip**.

Displaying the history of the software versions



For diagnostics purposes it is important to know which software is installed on the computer. In the "Version Info" window, the current versions and all previously installed software programs are logged. In the case of error messages, these version numbers should also be provided to Stoll-Helpline, if possible.

➜ Tap on the key "Show Version History".

▶ The "Version Info" window is displayed. Here the current version numbers and all the software installations of Stoll operating system executed so far are displayed.

> **i** With **Copy Logfiles** this data is automatically saved with the file **Log_date_time_mcnr.zip**.

8.2 Saving all machine data on the USB-Memory-Stick

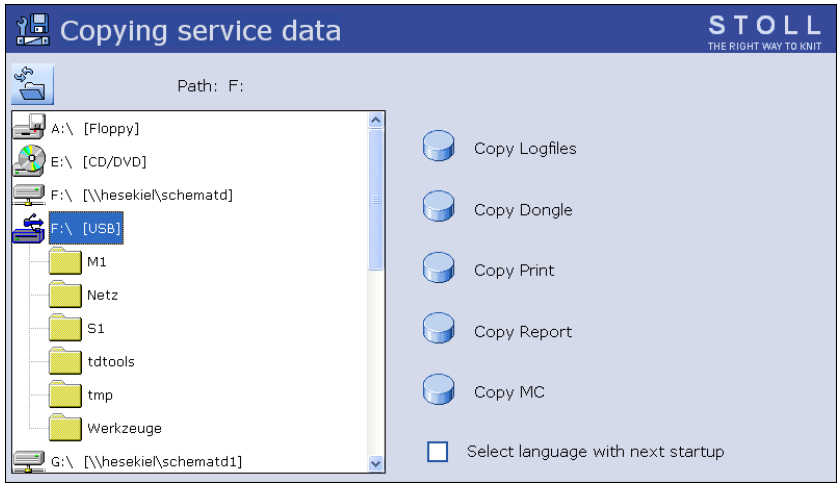
The machine settings do not only contain the machine data, but also the machine options, the machine configuration, the report, the network settings, and other internal control information. This data is referred as **Dongle**. Dongle-Data are saved in a file with the **mcnumber.dgl** (mcnumber = machine number) name.

The Machine data can be copied on a USB-Memory-Stick. After installing a new operating system version or following data loss or the change of the hard disk the machine data can be copied back from the USB Memory-Stick to the machine computer.

Key	Function
	Call up the "Service" menu
	Call up "Copy service data" window
	Call up "Main menu"

Keys for saving the machine data on a USB-Memory-Stick

1. Insert the USB memory stick into the USB socket.
2. Call up the "Service" menu from the "Main menu".
3. Call up the "Copy service data" window.



"Copy service data" window

4. Select the desired data carrier e.g. . USB memory stick (Drive F:).

5. Tap on the "Copy Dongle" key.
   ▷ The entire machine data are saved under the **mcnumber.dgl** on the USB-Memory-Stick (**mcnumber** = machine number) file name.
6. Call up "Main menu".
7. Take out the USB-Memory-Stick.

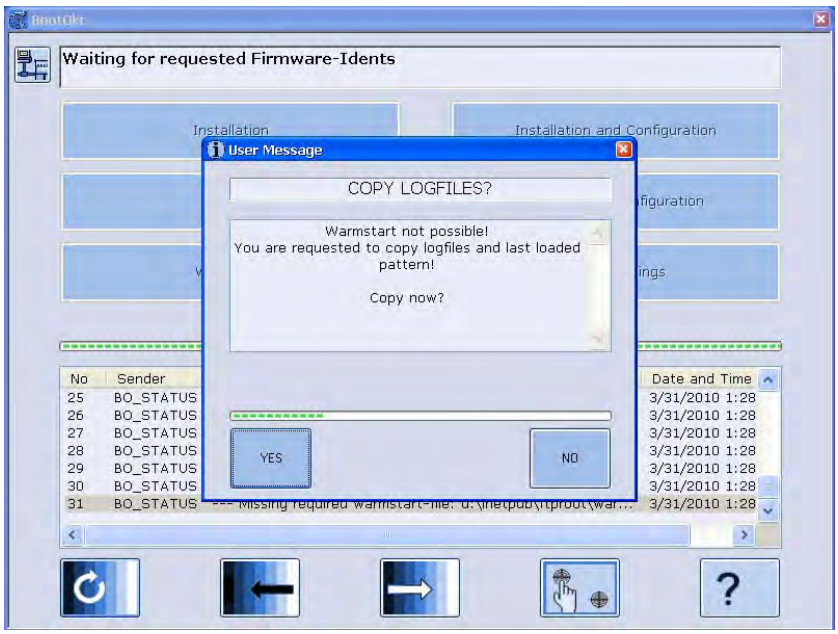
> **i** Loading of the machine settings with the "Load Dongle" key in the "Basic Settings" window.

Further information:

- Copying service data [-> 171]
- Load the machine settings in the machine computer [-> 400]

8.3 Saving pattern after a big fault

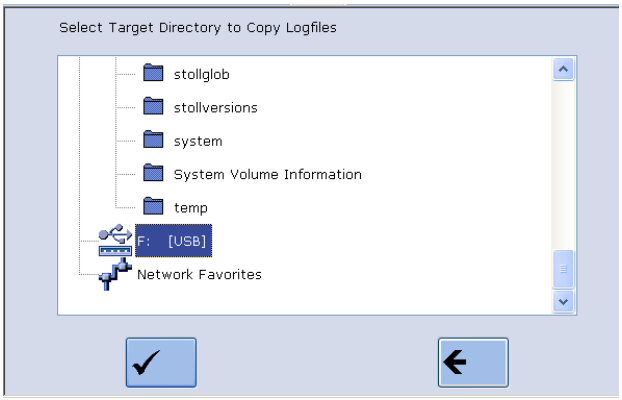
No "Warm start" can be made after a big fault of the control (e.g. system crash). You have to carry out a "Restart". You will be asked whether the logfiles and the pattern which has been loaded recently are to be saved.



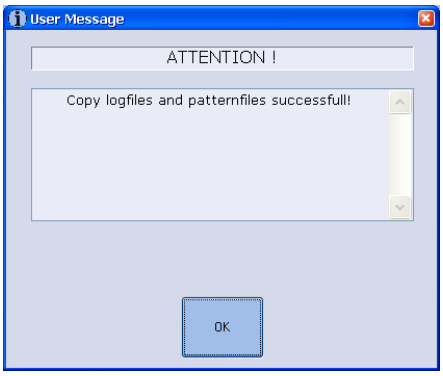
If you do not want to save the logfiles and the pattern, then tap on the "NO" key. The "Restart " is carried out. Load the new knitting program.

Save pattern:

1. If you want to save the logfiles and the pattern, then tap on the "YES" key.
2. You will be asked where the logfiles and the pattern which has been loaded recently are to be saved. We recommend to save the pattern on a USB-Memory-Stick or network drive.



3. Confirm the path specification.
4. The selected files will be saved under a new name.
   Saved_pattern.sin (.jac, .set, .setx, .seq)
   with a sequence: Saved_pattern1.sin, Saved_pattern2.sin, etc.
5. Once the data are saved, a message is displayed. Confirm this message with "OK"



6. Carry out the "Restart".
7. Rename files. You cannot carry out this on the knitting machine. For this purpose go to the M1plus or a PC.
8. In order to be able to load the pattern into the machine, you have to add the machine type to the pattern name. For example for a CMS 530:
   CMS530.Saved_pattern.sin
9. Rename all the .sin and .set files, do not rename the .jac file.
10. For Setup2: Compress the files (zip), the name of the zip file has to be identical to the name of the .sin file.
11. Loading the files into the knitting machine.

8.4 Installing the Stoll operating system

The Stoll operating system can be installed in two ways:

- Direct Installation:
  After switching on the main switch, the "BootOkc" window gets displayed. Type in within the waiting time for the warm start on the "Basic Settings" key, and select the memory location of the new Stoll operating system in the "Basic Settings Menu" window. Go back to the "BootOkc" window, and type on the "Installation" key or "Installation and Configuration". The installation process is triggered.
  When you tap on the "Installation" key, the installation is run through till the "Reference run" window.
  When you tap on the "Installation and Configuration" key, the machine can be configured afresh for stopping the installation.
- Indirect Installation:
  During the production the new Stoll operating system is copied on the hard disk. You use the "Updating software" window for this purpose. When the machine is switched on again the software can determine that a new Stoll operating system is available for installation. You will be asked in one window whether you want to install the new Stoll operating system and whether you wish to configure the machine anew simultaneously. If you acknowledge this process with "Yes" the installation process gets started with or without configuration.

In the next sections the different types of installations will be discussed at length.

- Direct installation [-> 407]
- Indirect installation [-> 413]
- Updating software [-> 419]
- Carrying out a restart (Restart) [-> 423]
- Carrying out restart with machine configuration (Restart and Configuration) [-> 424]
- Setting online connection [-> 426]
- Overview of all system data [-> 428]
- Setting touch screen [-> 63]
- Setting machine parameters [-> 167]
- Basic Settings [-> 392]

8.4.1 Direct installation

For the **Direct Installation** the installation process is started directly in the "BootOkc" window.

Overview:

- Start the installation process by switching on the machine. In the "BootOkc" window, tap on the "Basic Settings" key to select memory location in which the installation data is available (**Boot Source**).
- In the "BootOkc" window, start the installation with the "Installation and Configuration" or "Installation" keys.
- Configure the machine after having selected the "Installation and Configuration" key or start a reference run after having selected the "Installation" key.

Select the "Installation and Configuration" key, if along with the installation of the new Stoll operating system the machine parameters are also to be altered.
Select the "Installation" key, if the machine parameters are not to be altered. This shortens the installation process.

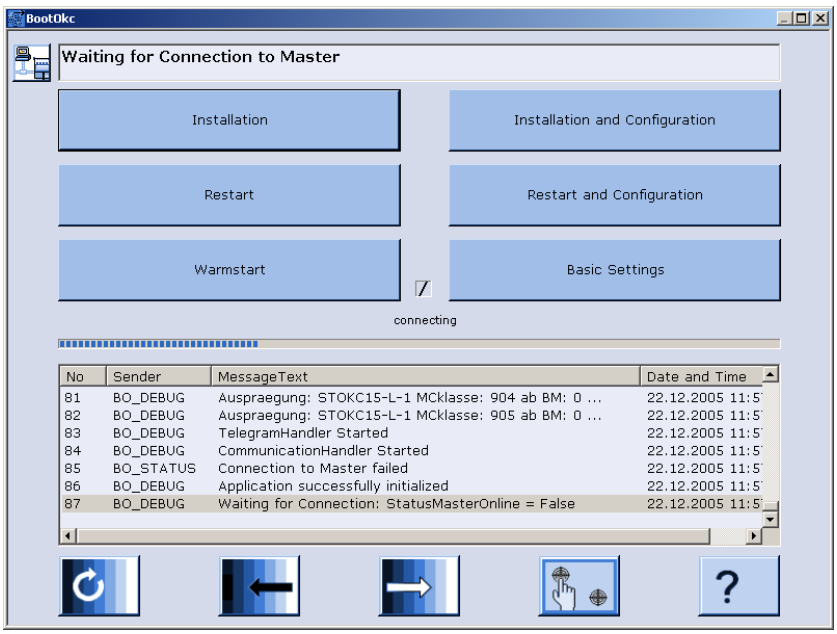
The current operating system version will be overwritten!
When you install a new Stoll operating system version the current one is overwritten.
Carry out the following steps only if you want to replace the current operating system by the previous version.
Save the machine data and the files specifically the ones you have created before the installation process.

Select Boot Source

✔ The machine is switched off.

1. Set the main switch to **1**.

   ▷ The "BootOkc" window is displayed on the touch screen.



"BootOkc" window

2. For the automatic warm start, tap on the "Basic Settings" key within the waiting time.

   ▷ The "Basic Settings Menu" window is displayed.

3. Select a source for the installation data in the "Boot Source" section.
4. Confirm input.

▶ The "BootOkc" window is displayed.

5. Continue with the next section.

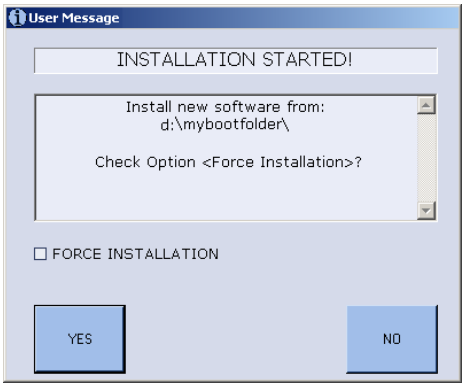
Start installation

1. When you want to execute the installation with the final configuration, tap in the "BootOkc" window on the "Installation and Configuration" key.

   - or -

➜ When you want to execute the installation without the final configuration, tap in the "BootOkc" window on the "Installation" key.

   ▷ In the "User Message" window (INSTALLATION STARTED!) the path to the installation data is displayed.



"User Message" window (INSTALLATION STARTED!)

2. If only the files that have got altered are to be installed anew during the installation deactivate the "FORCE INSTALLATION" check box (expedites the installation process).

---

i When you take up an installation in order to repair your operating system, activate the "FORCE INSTALLATION" check box so that the damaged files do not get overwritten subsequently.

---

3. To confirm the Installation press on the "YES" key.

   ▷ In the "User Message" window (CAUTION!), the version number of the Stoll operating system version selected earlier gets displayed.

"User Message" window (CAUTION!)

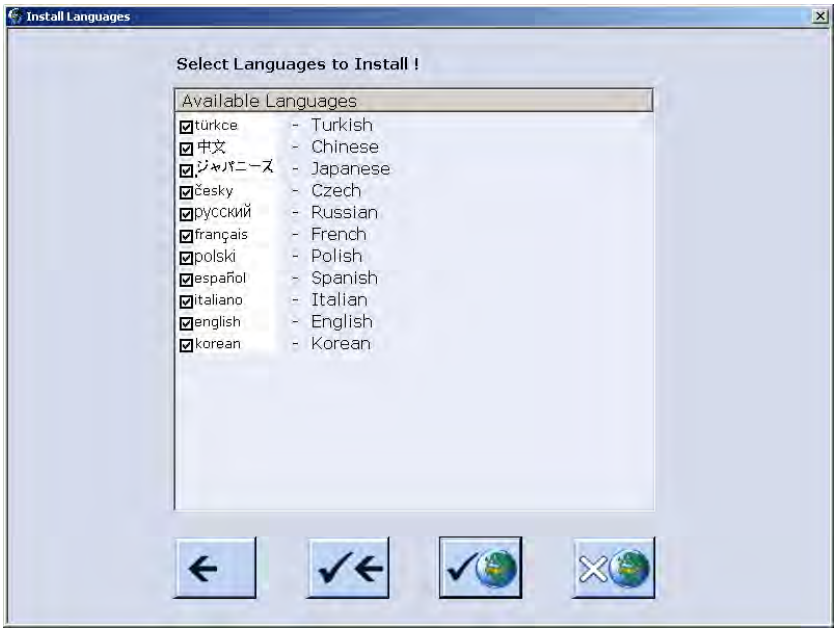
---

i The current operating system version will be overwritten! When you install a new Stoll operating system version the current one is overwritten.
Carry out the following step only if you want to replace the current operating system by the previous version.

---

4. To confirm the installation, tap on the "YES" key.

   ▷ When the installation file of the Stoll operating system has several languages, the "Install Languages" window is open.



"Install Languages" window

Key	Function
	End selection process without saving modifications
	Confirm selection
	Key "All languages"
	Key "No language"

Keys for language selection

5. Select the desired language(s).

If you want to have all languages available simultaneously, tap the "All languages" key.
If you only want to carry on working in **German**, end selection process.

6. Confirm selection.

▶ The installation process gets started.
The "Language" window is displayed after having selected the "Installation and Configuration" key.
- or -
The "Reference runs " window is displayed after having selected the "Installation" key.

7. If the "Language" window is displayed, continue with the **Machine configuration** section.

- or -

➜ If the "Reference runs" window is displayed, continue with the **Start Reference runs** section.

Configure machine

✔ The "Language" window is displayed.

1. Select the dialog language and confirm the selection.
2. Proceed to the next window.

▷ The "Machine configuration" window is displayed. The data have been set at the factory and will not be changed.

3. Proceed to the next window.

▷ The "Machine configuration 2" window is displayed. The data have been set at the factory and will not be changed.

4. Proceed to the next window.

▷ The "Machine Options" window is displayed. The data is set at the factory.

Machine fault!
The presence or lack of machine options must correctly be specified, as otherwise a fault may occur on the machine. Always specify the machine options correctly.

---

5. If necessary, change the data and confirm the changes.
6. Proceed to the next window.

▷ The "Machine Parameter" window is displayed. The data is set at the factory.

7. If necessary, change the data and confirm the changes.
8. Proceed to the next window.

▷ The "Needle bed parameters" window is displayed. The data is set at the factory.

9. If necessary, change the data and confirm the changes.
10. Proceed to the next window.

▷ The "NPK-Values" window is displayed. The data is set at the factory.

11. If other NPK values are to be used, change the values and confirm the changes.
12. Proceed to the next window.
    ▷ The "Knit Report Configuration" window is displayed.
13. If other settings are to be used, change the settings and confirm the changes. Use the "additional function keys" to activate/deactivate the running time control and/or running time measurement.
14. Proceed to the next window.

▶ The configuration is complete.
The "Reference runs" window is displayed.

15. Continue with the next section.

Start reference runs

✔ The "Reference runs" window is displayed.

1. If the racking device is not in the home position, press off the stitches of a needle bed.
2. Carry out reference run(s).
3. Proceed to the next window.

▶ The installation process is complete and the "Main menu" is displayed.

Further information:

- Selecting the source of the installation data (Boot Source) [-> 393]
- Setting waiting time until warm start [-> 393]
- Configure machine [-> 394]
- Configuring network [-> 396]
- Load the machine settings in the machine computer [-> 400]
- Saving dongle data [-> 400]

8.4.2 Indirect installation

In the case of **Indirect Installation** the new Stoll operating system is immediately transmitted on the hard disk of the knitting machine ("Software update" window).

Overview:

- Start the installation process by switching on the machine. A message prompt displays that a new Stoll operating system is available for installation.
  You have to make a decision here whether you wish to install the new Stoll operating system or wish to continue with the old one.
- Determine with the "Installation without configuration" check box whether the new Stoll operating system should be installed with simultaneous configuration of the machine parameter.
- Configure the machine if you have deactivated the "Installation without configuration" check box or carry out a reference run if you have activated the "Installation without configuration" check box.

Deactivate the "Installation without configuration" check box, if the machine parameters are also to be altered simultaneously with the installation of the new Stoll operating system.
Activate the "Installation without configuration" check box, if you do not want to alter any machine parameters. This shortens the installation process.

The current operating system version will be overwritten!
When you install a new Stoll operating system version the current one is overwritten.
Carry out the following steps only if you want to replace the current operating system by the previous version.
Save the machine data and the files specifically the ones you have created before the installation process.

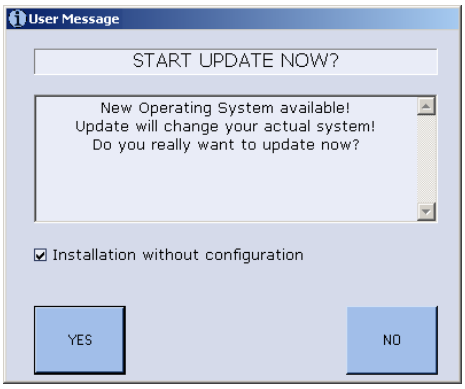
Start installation

✔ The Stoll operating system was updated.

✔ The machine is switched off.

1. Set the main switch to **1**.

   ▷ The "BootOkc" window is displayed with the following message on the touch screen:



"User Message" window (START UPDATE NOW?)

2. Deactivate the "Installation without configuration" check box, if the machine parameters are also to be altered simultaneously with the installation of the new Stoll operating system.

   - or -

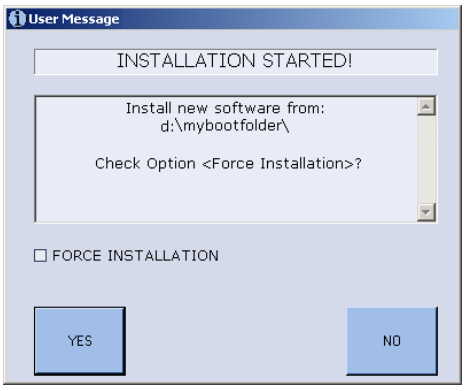
➜ Activate the "Installation without configuration" check box, if you do not want to alter any machine parameters.

3. To start installation process tap on "YES".

   ▷ In the "User Message" window (INSTALLATION STARTED!) the path to the installation data is displayed.

---

i To proceed with the old Stoll operating system, tap on "NO".



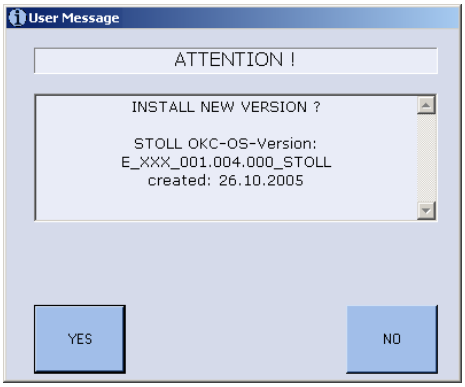
"User Message" window (INSTALLATION STARTED!)

4. If only the files that have got altered are to be installed anew during the installation deactivate the "FORCE INSTALLATION" check box (expedites the installation process).

When you take up an installation in order to repair your operating system, activate the "FORCE INSTALLATION" check box so that the damaged files do not get overwritten subsequently.

5. To confirm the Installation press on the "YES" key.

   ▷ In the "User Message" window (CAUTION!), the version number of the Stoll operating system version selected earlier gets displayed.

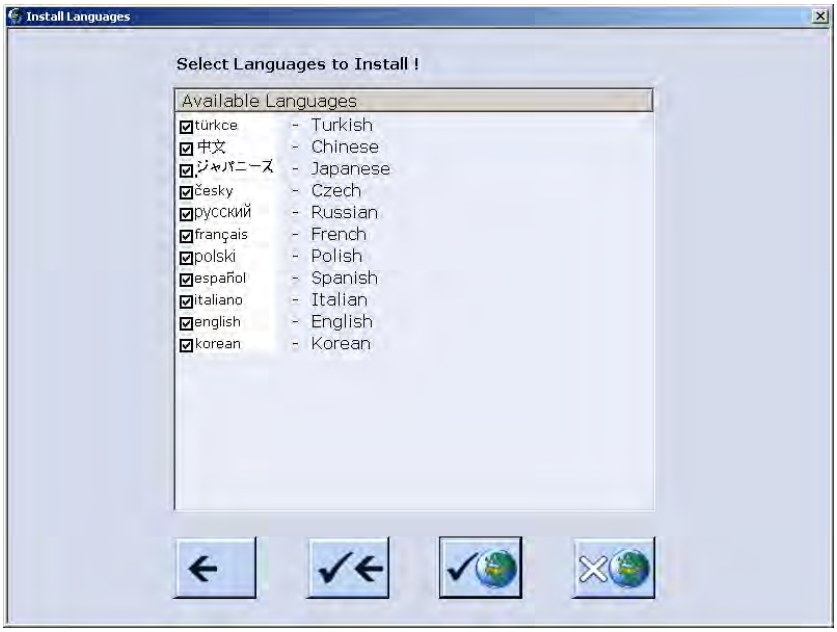


"User Message" window (CAUTION!)

The current operating system version will be overwritten! When you install a new Stoll operating system version the current one is overwritten.
Carry out the following step only if you want to replace the current operating system by the previous version.

6. To confirm the installation, tap on the "YES" key.

   ▷ When the installation file of the Stoll operating system has several languages, the "Install Languages" window is open.



"Install Languages" window

Key	Function
	End selection process without saving modifications
	Confirm selection
	Key "All languages"
	Key "No language"

Keys for language selection

7. Select the desired language(s).

If you want to have all languages available simultaneously, tap the "All languages" key.
If you only want to carry on working in **German**, end selection process.

8. Confirm selection.

▶ The installation process gets started.
The "Language" window is displayed after having selected the "Installation without configuration" check box.
- or -
The "Reference runs" window is displayed after having selected the "Installation without configuration" check box.

9. If the "Language" window is displayed, continue with the **Machine configuration** section.

- or -

➜ If the "Reference runs" window is displayed, continue with the **Start Reference runs** section.

Configure machine

✔ The "Language" window is displayed.

1. Select the dialog language and confirm the selection.
2. Proceed to the next window.

▷ The "Machine configuration" window is displayed. The data have been set at the factory and will not be changed.

3. Proceed to the next window.

▷ The "Machine configuration 2" window is displayed. The data have been set at the factory and will not be changed.

4. Proceed to the next window.

▷ The "Machine Options" window is displayed. The data is set at the factory.

Machine fault!
The presence or lack of machine options must correctly be specified, as otherwise a fault may occur on the machine. Always specify the machine options correctly.

---

5. If necessary, change the data and confirm the changes.
6. Proceed to the next window.

▷ The "Machine Parameter" window is displayed. The data is set at the factory.

7. If necessary, change the data and confirm the changes.
8. Proceed to the next window.

▷ The "Needle bed parameters" window is displayed. The data is set at the factory.

9. If necessary, change the data and confirm the changes.
10. Proceed to the next window.

▷ The "NPK-Values" window is displayed. The data is set at the factory.

11. If other NPK values are to be used, change the values and confirm the changes.
12. Proceed to the next window.
    ▷ The "Knit Report Configuration" window is displayed.
13. If other settings are to be used, change the settings and confirm the changes. Use the "additional function keys" to activate/deactivate the running time control and/or running time measurement.
14. Proceed to the next window.

▶ The configuration is complete.
The "Reference runs" window is displayed.

15. Continue with the next section.

Start reference runs

✔ The "Reference runs" window is displayed.

1. If the racking device is not in the home position, press off the stitches of a needle bed.
2. Carry out reference run(s).
3. Proceed to the next window.

▶ The installation process is complete and the "Main menu" is displayed.

Further information:

- Configure machine [-> 394]
- Configuring network [-> 396]
- Load the machine settings in the machine computer [-> 400]
- Saving dongle data [-> 400]
- Updating software [-> 419]

8.4.3 Updating software

A new Stoll operating system can also be copied on the hard disk while the machine is producing. No data is overwritten here; the operating system is loaded into a separate memory area.

This saves a few minutes time, as copying occurs during production. The updating is not carried out until later, i.e. when the machine is switched off and on again at the main switch. A prompt appears, asking you whether the new operating system shall be loaded.

- If the question is answered with **YES**, then the new Stoll operating system is installed.
- If it is answered with **NO**, then this question is asked again the next time you switch on whether the new Stoll operating system should be installed.

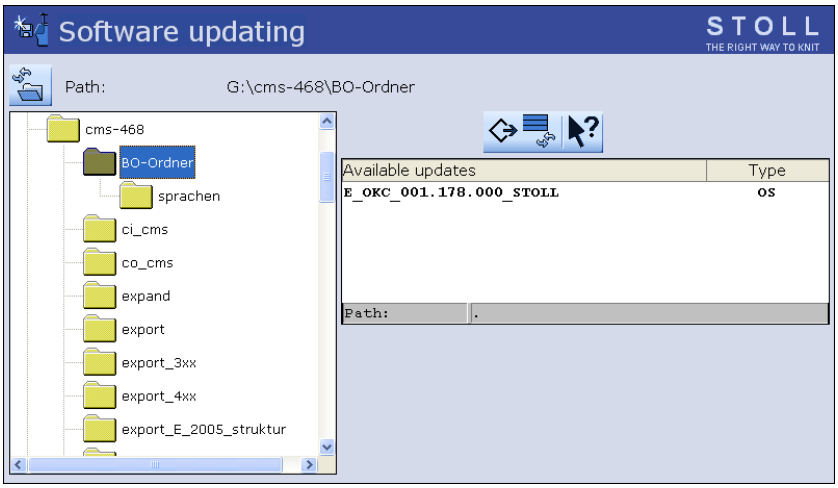
For the software update the source from where the new Stoll operating system should be copied can be selected.

Key	Function
	Call up the "Service" menu
	Call up the "Software updating" window
	Key "Select source folder"
	Key "Carry out update"
	Key "Update display"
	Save changes and end setting process
	End setting process without saving changes
	Call up "Main menu"

Keys for updating the software

Updating software

1. Call up the "Service" menu from the "Main menu".
2. Call up "Software updating" window.



"Software updating" window

3. Select source folder.

   ▷ If multiple Stoll operating systems are found on the data carrier, these are listed.

---

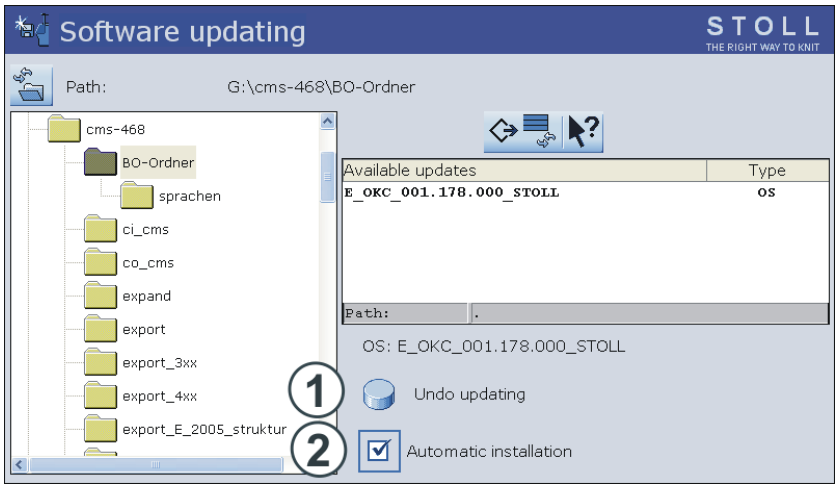
i When searching for the Stoll operating system the selected folder section and a section under this section (sub-folder section) is also searched.

---

4. If several Stoll operating systems are listed, the Stoll operating system (Type OS) that is to be copied should be marked.
5. Press the "Carry out update" key.

▶ The installation files are copied on the hard disk of the machine in a separate storage location.
The "Update successfully installed" appears.

When the Stoll operating system is copied, two more program points are displayed in the "Software update" window.



"Software updating" expanded window

Key	Function	
1	The data in the separate memory area are deleted.	
2	Selection of whether the installation should be executed automatically or manually when the machine is switched on next.	
	On	After a waiting time of 10 seconds the installation is automatically carried out till the "Reference runs" window (like in the case of "Installation"). Within the waiting time the installation can be cancelled by tapping on "Cancel". Select this setting if only the operating system should be updated.
	Off	Installation like in the case of "Installation and Configuration". Select this setting if machine data have been modified. For example after a gauge conversion or if a special equipment has been assembled.

Other functions in the "Software update" window

Reset update:

➜ Tap on the key "Reset update" (1).

▶ The data is deleted in a separate storage location on the hard disk of the machine.

Select type of installation:

1. If the new Stoll operating system is to be installed after a waiting time of 10 seconds automatically, set the switch "Automatic Installation" (2) to **On**.

   - or -

➜ If the new Stoll operating system is to be installed manually, set the switch "Automatic Installation" (2) to **Off**.

More data on a network drive or USB-Memory-Stick

In addition to the operating system, other data can be present on the network drive and the USB Memory Stick. Which data is available can be displayed by activating the key "Carry out updating".

Type	Meaning
OS	Operating system (OS)
IMG	Hard disk image
HDA	HD Analyst
UPT	Update of Windows XP Embedded (OPTION)
REP	Update of repair image

Selection of individual installation types

Further information:

- Indirect installation [-> 413]

8.4.4 Carrying out a restart (Restart)

A restart is carried out when the software no longer reacts to inputs following an error.

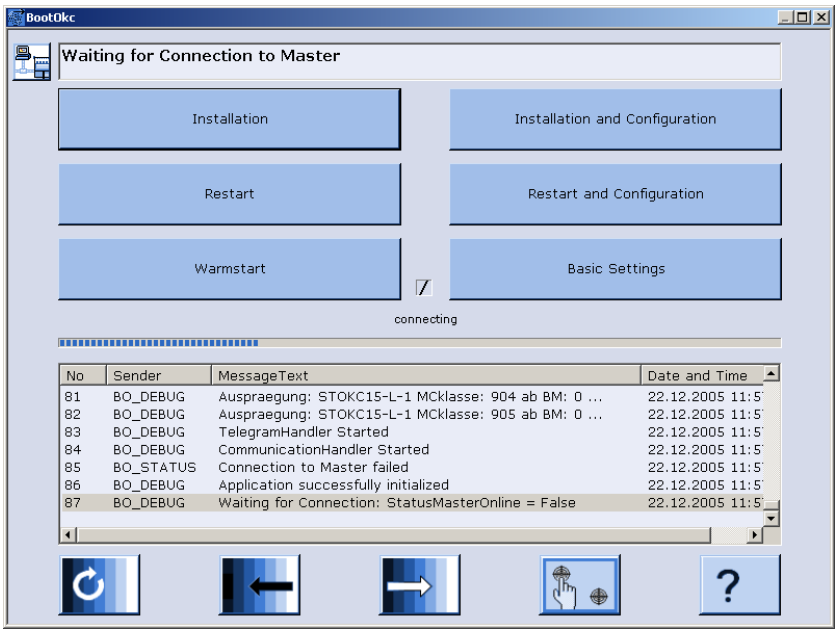
Carry out a restart:

1. Set machine main switch to **0**.

   ▷ The switch-off process takes approx. 60 seconds. When the process is complete, the touch screen becomes dark and a signal sounds.

2. Set the main switch to **1**.

   ▷ The "BootOkc" window is displayed on the touch screen.



"BootOkc" window

3. For the automatic warm start within the waiting time tap on the key "Restart".

   ▷ The machine is configured.
   Finally the window "Reference runs " is displayed.

4. Carry out reference run(s).
5. Proceed to the next window.

▶ The restart is complete and the "Main menu" is displayed.
The machine is ready to knit.

Further information:

- Setting touch screen [-> 63]
- Setting waiting time until warm start [-> 393]

8.4.5 Carrying out restart with machine configuration (Restart and Configuration)

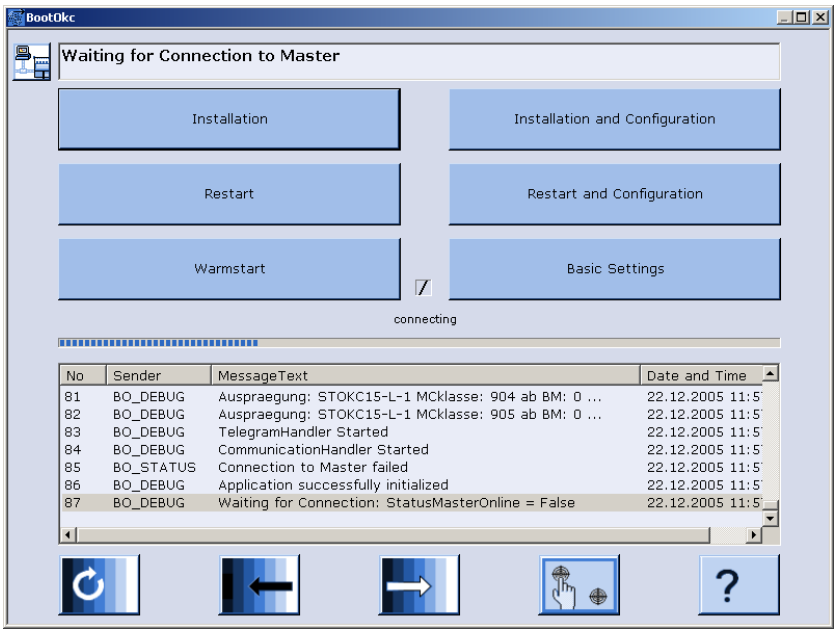
A restart with the machine configuration is carried out after a gauge conversion or after attaching special attachments.

Carry out restart with machine configuration:

✔ The machine is switched off.

1. To switch on the machine, set the main switch to **1**.

   ▷ The "BootOkc" window is displayed on the touch screen.



"BootOkc" window

2. For the automatic warm start within the waiting time tap on the "Restart and Configuration" key.

   ▷ The Restart Process gets started.
   After the process is shut, the "Language" window is displayed.

3. Select the dialog language and confirm the selection.
4. Proceed to the next window.

   ▷ The "Machine configuration" window is displayed. The data have been set at the factory and will not be changed.

5. Proceed to the next window.

   ▷ The "Machine configuration 2" window is displayed. The data have been set at the factory and will not be changed.

6. Proceed to the next window.

   ▷ The "Machine Options" window is displayed. The data is set at the factory.

i	Machine fault! The presence or lack of machine options must correctly be specified, as otherwise a fault may occur on the machine. Always specify the machine options correctly.

7. If necessary, change the data and confirm the changes.
8. Proceed to the next window.
   ▷ The "Machine Parameter" window is displayed. The data is set at the factory.
9. If necessary, change the data and confirm the changes.
10. Proceed to the next window.
    ▷ The "Needle bed parameters" window is displayed. The data is set at the factory.
11. If necessary, change the data and confirm the changes.
12. Proceed to the next window.
    ▷ The "NPK-Values" window is displayed. The data is set at the factory.
13. If other NPK values are to be used, change the values and confirm the changes.
14. Proceed to the next window.
    ▷ The "Knit Report Configuration" window is displayed.
15. If other settings are to be used, change the settings and confirm the changes. Use the "additional function keys" to activate/deactivate the running time control and/or running time measurement.
16. Proceed to the next window.
    ▷ The configuration is complete.
    The "Reference runs" window is displayed.
17. Carry out reference run(s).
18. Proceed to the next window.

▶ The restart is complete and the "Main menu" is displayed.
The machine is ready to knit.

Further information:

- Setting touch screen [-> 63]
- Setting machine parameters [-> 167]
- Setting waiting time until warm start [-> 393]
- Configure machine [-> 394]
- Configuring network [-> 396]

8.4.6 Setting online connection

The knitting machine (s) and the STOLL pattern preparation unit can be connected to an Ethernet connection.

Key	Function
	Switch on virtual keyboard
	Confirm input
	Continue on to the next window
	Confirm selection

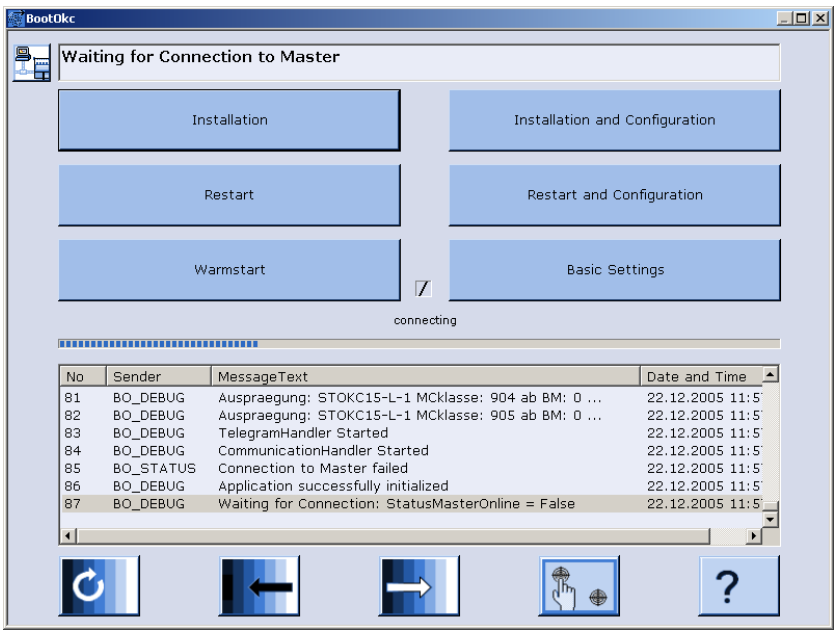
Keys for setting online connection

Setting online connection:

✔ The knitting machine is switched off.

1. To switch on the machine, set the main switch to **1**.

   ▷ The "BootOkc" window is displayed on the touch screen.



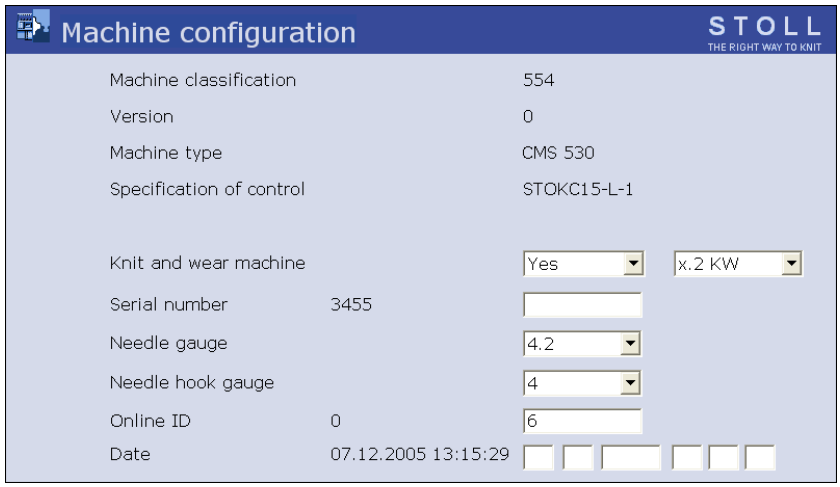
"BootOkc" window

2. For the automatic warm start within the waiting time tap on the "Restart and Configuration" key.

   ▷ The Restart Process gets started.
   After the process is shut, the "Language" window is displayed.

3. Proceed to the next window.

   ▷ The "Machine configuration" window is displayed.



"Machine configuration" window

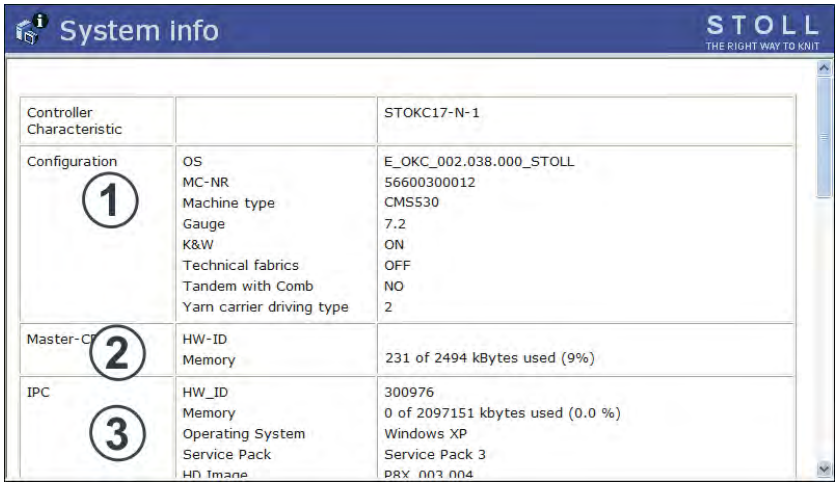
4. Tap in the "Online Id" field.
5. Enter the online ID of the knitting machine with the help of the virtual keyboard.
6. Confirm input.
7. Advance till the "Main menu" appears.

▶ The restart is finished.

If network problems occur and these are impairing the production, then the online ID can be set at **0** (switched off). In the "Service/Basic settings" menu call up the window "Machine-configuration" and alter the Online ID for this purpose.

8.4.7 Overview of all system data

All important hardware and software data of the control are displayed in the "System info" window.



"System info" window

Field	Data shown
1	Stoll operating system (OS) that is loaded, the machine number, machine type, gauge, yarn carrier type, etc.
2	"Memory" line: Display of the amount of memory this pattern occupies
3	Hardware and software data Network data

Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up the "System info" window
	Call up "Main menu"

Keys for calling up the "System info" window

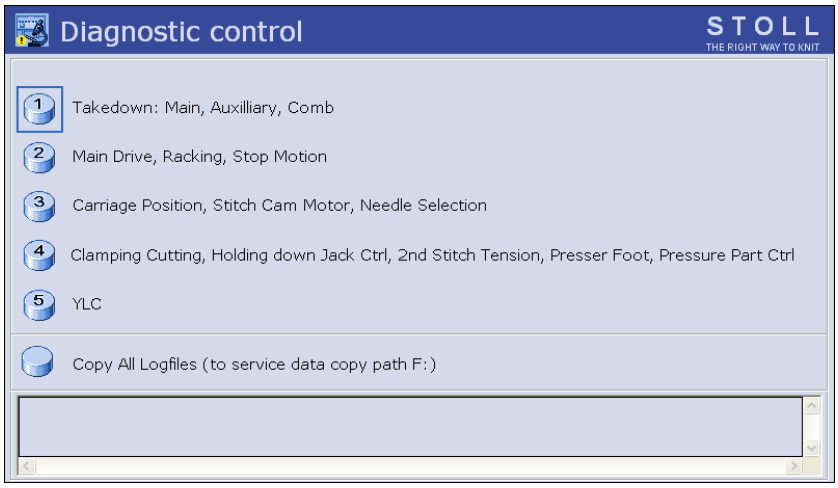
Displaying System data:

1. In the "Main menu", tap on the "Service" key.
   ▷ The "Service" window is displayed.
2. Tap on the "Diagnostics" key.
   ▷ The "Diagnostics" window is displayed.
3. Tap on the "System Info" key.

▶ The "System Info" window with all the important hardware and software data of the control is displayed.

8.5 Diagnose Control

You can activate different diagnoses for service purposes and for troubleshooting. The diagnoses protocol additional information in one log file which can be analysed by the service technician or the helpline.



"Diagnostic control" window

Field	Data shown
1	Take-down system: Main take-down, auxiliary take-down, comb take-down.
2	Main take-down, racking, stop motions
3	Carriage position, step motor, needle selection
4	Clamping and cutting, holding-down jacks, 2nd stitch tension, presser foot, pressure part
5	Yarn Length Control
Copy All Logfiles	Saving the data (logfiles)

Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up "Diagnostic control" window
	Call up "Main menu"

Buttons for calling up the "Diagnostic control" window

Carry out diagnoses:

1. In the "Main menu", tap on the "Service" key.
   ▷ The "Service" window is displayed.
2. Tap on the "Diagnostics" key.
   ▷ The "Diagnostics" window is displayed.
3. Tap on the "Diagnostic control" key.
   ▷ The "Diagnostic control" window is displayed.
4. Tap the desired button. The diagnose is starting, you can see the work progress in the message window.
5. If other diagnoses are needed, then tap the corresponding button.
6. When all diagnoses are generated, tap on the "Copy All Logfiles" key.

▶ The data (Logfiles) are saved on the selected data carrier. It will be saved on the data carrier that is set in the "Copy service data" window.

Further information:

■ Copying service data [-> 171]

9 Yarns and stitch tension

9.1 Stitch tension range

The tension ranges for knitting and splitting differ. The reason for this is the shape of the split-stitch piece. The information in the table show the minimum and maximum NP values.

Valid for:
CMS 933
CMS 822
CMS 530
CMS 520

	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
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

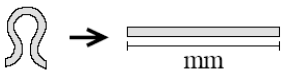
Valid for:
CMS 830 C
CMS 740
CMS 730 T
CMS 530 T
CMS 520 C
CMS 502

	min. NP	max. NP	min. NP (Split)	max. NP (Split)
E 3	7.0	16.7	8.2	15.6
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	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	7.4	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
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

9.2 Stitch lengths

The specified values serve as a guideline. Depending on the yarn, these values may differ, as the quality and the specific weight of the material influence the stitch length.



NP	E 3	E 3.5	E 4	E 5	E 7	E 8	E 10 (1)	E 10 (2)	E 12
6.5				6.26					
7.0	7.67	5.90	7.03	6.96			1.83		
7.5	9.25	7.40	8.48	7.52			2.15	2.20	
8.0	10.83	8.90	9.93	8.22			2.85	2.80	2.85
8.5	12.42	10.40	11.38	8.92	4.66		3.56	3.60	3.38
9.0	14.00	11.90	12.83	9.48	5.46	3.58	4.26	4.20	3.91
9.5	15.85	13.40	14.28	10.18	6.10	4.30	4.97	4.80	4.45
10.0	17.17	14.90	15.73	10.88	6.90	5.20	5.67	5.60	4.98
10.5	18.75	16.40	17.18	11.44	7.70	5.92	6.38	6.20	5.51
11.0	20.33	17.90	18.63	12.14	8.34	6.82	7.00	7.00	6.05
11.5	21.92	19.40	20.08	12.84	9.14	7.54	7.71	7.60	6.58
12.0	23.50	20.90	21.53	13.40	9.94	8.44	8.41	8.40	7.11
12.5	25.08	22.40	22.98	14.10	10.58	9.34	9.12	9.00	7.65
13.0	26.67	23.90	24.43	14.80	11.38	10.06	9.82	9.80	8.18
13.5	28.25	25.40	25.88	15.36	12.18	10.96	10.53	10.40	8.71
14.0	29.83	26.90	27.33	16.06	12.82	11.68	11.23	11.00	9.25
14.5	31.42	28.40	28.78	16.76	13.62	12.58	11.94	11.80	9.78
15.0	33.00	29.90	30.23	17.32	14.26	13.30	12.57	12.40	10.31

Stitch length - yarn consumption per stitch (mm) with R/L fabric (Table 1)

(1) CMS 933, CMS 822, CMS 530, CMS 520

(2) CMS 830 C, CMS 740, CMS 730 T, CMS 530 T, CMS 520 C, CMS 502

NP	E 14	E 16	E 18	E 2,5.2	E 2,5.2 m.4L	E 2,5.2 (3)	E 3 m.3L	E 3,5.2	E 3,5.2 m.4L
6.5				6.26	5.29		10.55		5.48
7.0				6.96	6.06	4.36	10.55		5.48
7.5				7.52	6.91	5.71	11.80		5.48
8.0		1.88		8.22	7.68	7.06	13.05	4.97	5.48
8.5	2.58	2.16	1.86	8.92	8.45	8.41	14.30	5.30	5.84
9.0	3.13	2.51	2.21	9.48	9.30	9.76	15.55	6.13	6.63
9.5	3.68	2.86	2.56	10.18	10.07	11.11	16.80	6.80	7.42
10.0	4.23	3.21	2.91	10.88	10.84	12.46	18.05	7.63	8.30
10.5	4.78	3.56	3.26	11.44	11.69	13.81	19.30	8.47	9.09
11.0	5.33	3.91	3.61	12.14	12.46	15.16	20.55	9.13	9.88
11.5	5.88	4.26	3.96	12.84	13.23	16.51	21.80	9.97	10.76
12.0	6.43	4.61	4.31	13.40	14.08	17.86	23.05	10.80	11.56
12.5	6.98	4.96	4.66	14.10	14.85	19.21	24.30	11.47	12.35
13.0	7.53	5.31	5.01	14.80	15.62	20.56	25.55	12.30	13.23
13.5	8.08	5.66	5.36	15.36	16.47	21.91	26.80	13.13	14.02
14.0	8.63	6.01	5.71	16.06	17.24	23.26	28.05	13.97	14.81
14.5	9.18	6.36	6.06	16.76	18.01	24.61	29.30	14.80	15.69
15.0	9.73	6.71	6.41	17.32	18.86	25.96	30.55	15.47	16.48

Stitch length - yarn consumption per stitch (mm) with R/L fabric (Table 2)

(3) CMS 830 C

NP	E 5.2	E 6.2	E 6.2 (knit and wear) (4)	E 7.2	E 7.2 (knit and wear) (4)	E 8.2	E 9.2
6.5							
7.0							
7.5	3.54	2.14	1.77				
8.0	3.86	2.47	2.07	2.14	1.58	1.57	1.61
8.5	4.66	3.02	2.57	2.58	1.99	1.91	1.91
9.0	5.46	3.57	3.08	3.13	2.49	2.33	2.30
9.5	6.26	4.12	3.58	3.68	3.00	2.75	2.68
10.0	7.06	4.67	4.08	4.23	3.50	3.18	3.06
10.5	7.86	5.22	4.58	4.78	4.01	3.60	3.45
11.0	8.66	5.77	5.08	5.33	4.51	4.02	3.83
11.5	9.46	6.32	5.58	5.88	5.02	4.45	4.21
12.0	10.26	6.87	6.09	6.43	5.52	4.87	4.60
12.5	11.06	7.42	6.59	6.98	6.03	5.29	4.98
13.0	11.86	7.97	7.09	7.53	6.53	5.72	5.36
13.5	12.66	8.52	7.59	8.08	7.04	6.14	5.75
14.0	13.46	9.07	8.09	8.63	7.54	6.56	6.13
14.5	14.26	9.62	8.59	9.18	8.05	6.99	6.51
15.0	15.06	10.17	9.10	9.73	8.55	7.41	6.90

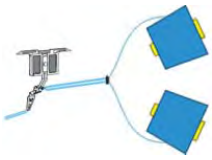
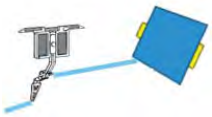
Stitch length - yarn consumption per stitch (mm) with R/L fabric (Table 3)

(4) Stitch length at:

- CMS 822
- CMS 740

9.3 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	assembled 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
2	6 x 16/2	1,2 - 1,4
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 6 x 34/2	1,4 - 3
5	4 x 24/2 4 x 34/2	3 - 4,5
7	2 x 22/2 2 x 28/2	4,5 - 7
8	2 x 24/2 2 x 34/2	6 - 8
10	2 x 36/2 1 x 24/2	8 - 12
12	1 x 24/2 2 x 44/2	10 - 18
14	1 x 28/2 2 x 40/1	14 - 20
16	1 x 48/2 1 x 54/2 1 x 60/2	20 - 30

Yarn table - Allocation of machine gauge and yarn thickness (Table 1)

Gauge	assembled processing [Nm]	Final count [Nm]
18	1 x 54/2 1 x 60/2 1 x 80/2	20 - 40
20	1 x 80/2	20 - 40
2,5.2 (all needles)	3 x 28/2 2 x 14/2	3 - 4,5
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: maximum 13 x 28/2 Nm	1,1
2,5.2 (CMS 830 C) (each 2nd needle)	3 x 14/2 6 x 14/2	1 - 2
2,5.2 (each 2nd needle)	3 x 14/2 4 x 14/2	1,3 - 2
3,5.2 (all needles)	2 x 28/2 3 x 28/2	4,5 - 7
3,5.2 (each 2nd needle)	3 x 14/2 7 x 28/2	1,5 - 2,5
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: maximum 9 x 28/2 Nm	1,5
5.2 (all needles)	1 x 20/2 2 x 28/2	8 - 12
5.2 (each 2nd needle)	3 x 28/2 4 x 28/2	3 - 4,5

Yarn table - Allocation of machine gauge and yarn thickness (Table 2)

Gauge	assembled processing [Nm]	Final count [Nm]
6.2 (all needles)	2 x 44/2 1 x 28/2	10 - 16
6.2 (each 2nd needle)	2 x 28/2 3 x 28/2	4,5 - 7
7.2 (all needles)	1 x 28/2 1 x 30/2	14 - 20
7.2 (each 2nd needle)	2 x 28/2 2 x 30/2	6 - 8
8.2 (all needles)	1 x 50/2 2 x 60/2	15 - 25
8.2 (each 2nd needle)	2 x 50/2 3 x 60/2	10 - 12
9.2 (all needles)	1 x 40/2 1 x 60/2	20 - 30
9.2 (each 2nd needle)	2 x 40/2 2 x 44/2 2 x 60/2 3 x 60/2	10 - 16

Yarn table - Allocation of machine gauge and yarn thickness (Table 3)

Knitting technique information

Gauge	Explanation
2,5.2 and 3,5.2 (knit 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.
9.2	For tight knitting, special cams must be used (ID No. 213 303, 213 304 and 210 285). They are included in the machine accessories.

Knitting technique information

9.4 Conversion table

The following table is used for the conversion of one yarn gauge to another. The named yarn gauges mean:

TEX (Tt)
Grams per kilometer

COTTON (NeC)
Number of strands at 840 yds. per lb.

WORSTED (NeW)
Number of strands at 560 yds. per lb.

METRIC (Nm)
Meters per gram

DENIER (den)
Grams per 9000 meters

DECITEX (dtex)
Grams per 10000 meters

Due to the great variety of natural and synthetic fibers, it must be noted that yarns with a low specific weight are often more voluminous than yarns with a high specific weight. Therefore, the relationship dtex / den / Nm does not necessarily correspond to the conversion result.

10 Machine Management Tools

In our world the fast exchange of information has achieved a high level of significance. In order that the knitting machines lives up to the growing requirements, a series of auxiliary tools in the software have been taken up with the control OKC that can prove to be more efficient while working with the knitting machine and they are referred under the "Machine Management Tools" term comprehensively.

This chapter contains information on:

- Machine Management Tools window [-> 441]
- Display the virtual keyboard [-> 443]
- Remote control with the software VNC [-> 444]
- Send email directly from the machine [-> 452]

10.1 Machine Management Tools window

"Machine Management Tools" window

1 Opens the "VNC Properties (Service-Mode)" window for configuration of the remote control VNC.

2 Opens the "Send email" window to send the emails directly from the machine.

3 A virtual keyboard opens.

Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up "Machine Management Tools" window

Keys for calling up the machine management tools

Call up machine management tools:

1. In the "Main menu", tap on the "Service" key.
2. In "Service" window, tap on "Diagnostics" key.
3. In "Diagnostics" window, tap on the "Machine Management Tools" key.
   ▷ The "Machine Management Tools" window opens.
4. Call up the desired machine management tools.

In the following sections is described how to set up the different tools and how to use them.

Further information:

- Display the virtual keyboard [-> 443]
- Remote control with the software VNC [-> 444]
- Send email directly from the machine [-> 452]

10.2 Display the virtual keyboard

For inputs that are not integrated in the user interface, an external keyboard or a virtual keyboard is required.

Display the virtual keyboard

Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up "Machine Management Tools" window
	Call up "Main menu"

Keys for calling up "Send email" window

1. Call up the "Service" window.
2. Call up "Diagnosis" window.
3. Call up "Machine Management Tools" window.
4. Tap on the "Virtual keyboard" switch.

   ▷ The virtual keyboard is open.

Virtual keyboard

With the virtual keyboard you can make inputs as if an external keyboard has been connected.

You can find information for usage of the virtual keyboard in the"Help" menu.

Tips for working with the virtual keyboard:

- A **locked** key (e. g. alt) must be activated finally again to achieve a double key function.
- Various key layouts can be selected ("Keyboard" menu).

10.3 Remote control with the software VNC

You can use the remote control VNC to control a networked machine (VNC Server) by a remote computer (VNC client) as if you were standing in front of the machine and entering data via the touch screen.

Requirements:

- Network
- Networked and correctly configured ready-to-use machine
- Computer that serves as a client, is also networked (e.g. a note-book)
- Software VNC Viewer for the client
- Software for the client:
  VNC Viewer or the Java Runtime Engine from Sun Microsystems Inc.

The VNC Viewer software for the client can for e.g. be obtained from the following manufacturer websites:

- www.realvnc.com
- www.tightvnc.com
- www.ultravnc.sourceforge.net

The Java Runtime Engine for the client can be obtained from the manufacturer website www.java.com.

In the following sections is described how to activate and use the remote control VNC:

- Activating the remote control VNC on the machine [-> 445]
- Configuring the remote control VNC on the machine [-> 446]
- Determine the IP address of the machine [-> 447]
- Installing software VNC Viewer on the computer (e.g. a note-book) [-> 447]
- Remote control with the VNC Viewer [-> 448]
- Remote control via a web browser [-> 450]

10.3.1 Activating the remote control VNC on the machine

The remote control VNC is deactivated on the knitting machine by default.

Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up "Machine Management Tools" window
	Call up "Additional function keys"
 	Activate/deactivate "Remote control VNC"
	Call up "Main menu"

Keys to activate the remote control VNC on the machine

1. Call up the "Service" window.
2. Call up "Diagnosis" window.
3. Call up "Machine Management Tools" window.
4. Call up "Additional function keys".
5. Tap on "Remote control VNC" key.

▶ The activation of the remote control VNC gets is acknowledged by a message.

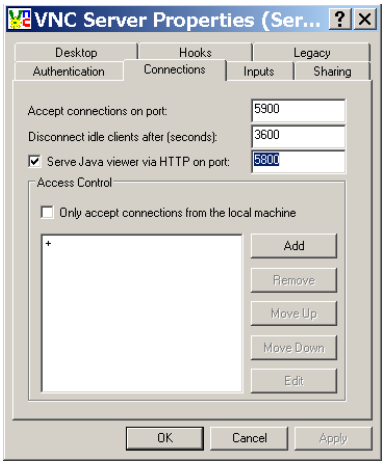
10.3.2 Configuring the remote control VNC on the machine

✔ The remote control VNC is activated on the machine.

✔ The "Machine Management Tools" window is displayed.

1. Tap on the "Remote operation - settings" switch.

   ▷ The "VNC Server Properties (service mode)" window opens with different tabs.



"VNC Server Properties (service mode)" window with the "Connections" tab

2. Activate "Connections" tab.
   Here all the fields are set to their default values.
3. Should another port be activated as the standard port**5900** the number of the port is to be entered in the "Accept connections on port:" field.
4. If the machine has to be controlled remote also via a web browser, activate the check box "Serve Java viewer via HTTP on port:" and enter **5800** as port.

Any other adjustments on the various tabs are not necessary.

The value in the "Disconnect idle clients after (seconds):" field causes the automatic disconnection of a VNC connection when the value entered here is exceeded and within the mentioned time no operation is carried out. Thereafter, the connection can be established again without any problem. By default one hour = 3600 seconds is adjusted.

10.3.3 Determine the IP address of the machine

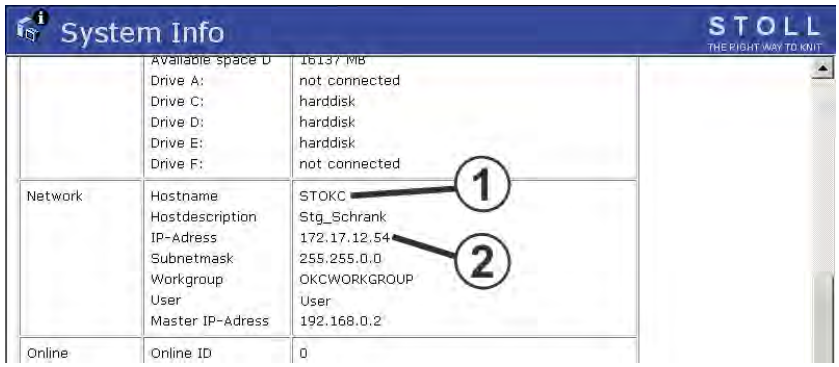
Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up the "System info" window
	Call up "Main menu"

Keys for determining the IP address of the machine

✔ The main menu is displayed.

1. In the "Main menu", tap on the "Service" key.
2. In "Service" window, tap on "Diagnostics" key.
3. In "Diagnostics" window, tap on the "System Info" key.

   ▷ The "System Info" window opens.



"System info" window

4. Note IP address (2) and host name (1).

10.3.4 Installing software VNC Viewer on the computer (e.g. a note-book)

✔ The software VNC Viewer was obtained from the internet.

1. Start installation program.
2. Follow instructions of the installation program.

▶ Thereafter the software VNC Viewer is installed on the computer.

10.3.5 Remote control with the VNC Viewer

1. Start the software VNC Viewer on the computer.

   ▷ The "VNC Viewer: Connecting Details" window opens.

"VNC Viewer: Connection Details" window

2. Enter the noted IP address of the machine in the "Server" field.

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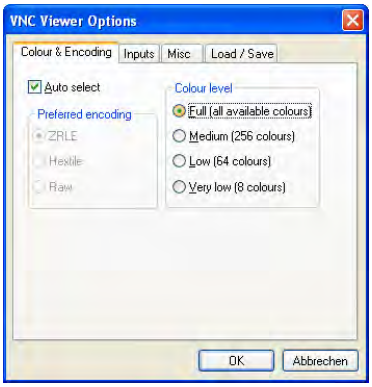
i When your network makes the **Naming Service** available, instead of the IP address the host name can also be entered. If another port as **5900** was entered during configuration of the remote control VNC on the machine, the port must be entered along with e. g. 172.17.12.54:5903.

---

3. In order to configure the software VNC Viewer when needed, click on the "Options" button.

   ▷ The "VNC Viewer Options" window opens.



"VNC Viewer Options" window, "Colour & Encoding" tab

4. In order that all colors are displayed, activate the "Full (all available colours)" option on the "Colour & encoding" tab under "Colour level".
5. In order to make a small square visible as the mouse pointer alternative, deactivate the "Render cursor locally" check box on the "Misc" tab.
6. To save the option adjustments, click on the "Save" button on the "Load / Save" tab under "Defaults".

You can find continuative instructions for configuration of VNC in the documentation of VNC.

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7. Click on the "OK" button.

   ▷ The "VNC Viewer: Connection Details" window opens.

8. Click on the "OK" button.

▶ Now the user interface of the selected machine gets displayed.

Display of the user interface of the machine

9. Operate the machine now from this window.

The machine can be operated simultaneously through the user interface of the machine or through the computer (VNC Client).

Further information:

■ Configuring the remote control VNC on the machine [-> 446]

10.3.6 Remote control via a web browser

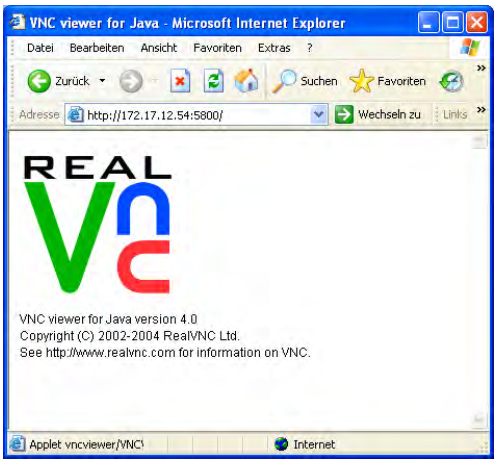
When the Java Runtime Engine from Sun Microsystems Inc. is installed on the controlling computer (client), the access to a machine can be also be done through the web browser without the software VNC Viewer being installed.

By default the port **5800** is adjusted for this access on the VNC server on the machine and is activated in the server adjustment under **Serve Java Viewer**.

Start remote control:

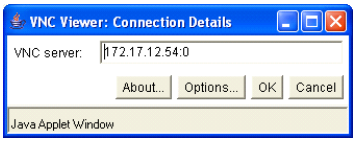
1. Start web browser e.g. the Internet Explorer.
2. Enter the following address as URL: http://<IP address of the machine>:5800

   ▷ A Java applet is run which is obtained as a alternative for the software VNC Viewer from VNC Server (machine).
   Then the web browser appears as follows:



Web browser with the Java applet from VNC

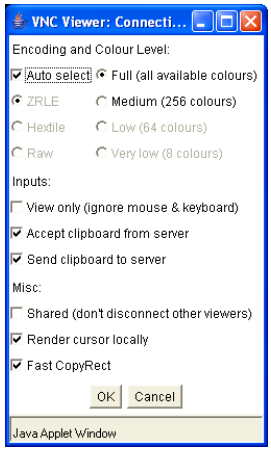
3. Above opens the window "VNC Viewer: Connection Details".
   The IP address is entered automatically.



"VNC Viewer: Connection Details" window

4. Click on "Options".

▷ The "VNC Viewer: Connection Details" window opens.



"VNC Viewer: Connection Details" window

5. In order that all colors are displayed, activate the "Full (all available colours)" option on the "Encoding and Colour Level:".
6. In order to activate the mouse pointer alternative, deactivate the "View only (ignore mouse & keyboard)" check box under "Inputs".
7. Click "OK".

▶ The user interface of the machine is opened in the web browser and can now be operated from here.

Display of user interface of the machine in the "Java applet" window

The machine can be operated through the user interface of the machine or in the "Java applet" window simultaneously.

10.4 Send email directly from the machine

In the "Send email" window emails can be written and sent directly from the machine.

For this purpose the machine must be connected to the internet or to a network with a mail server. Call up your network administrator in order to install this function.

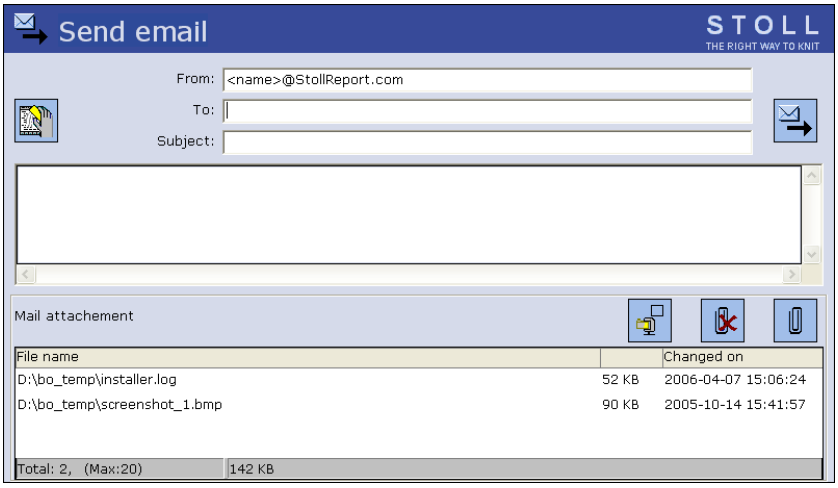
Call up Send email window

Key	Function
	Call up the "Service" window
	Call up "Diagnostics" window
	Call up "Machine Management Tools" window
	Call up "Send email" window
	Call up "Main menu"

Keys for calling up "Send email" window

1. Call up the "Service" window.
2. Call up "Diagnosis" window.
3. Call up "Machine Management Tools" window.
4. The "Send email" window opens.

▷ The "Send email" window opens.



"Send email" window on the machine

Inputs	Explanation
	"Delete all entries" key (except the entry in the "from" field).
	"Send email" key.
From	Sender of message. The machine name is entered here as a sender as standard. If you are expecting an answer to the email, enter a valid email address here as the machine cannot receive any emails.
To	addressee of message. Several addressee names are to be separated by a semicolon (;).
Subject	Subject of the message.
	Field for entering message text.
Mail appendix	
 	"Unzipped" key: In the "File name" field, displayed files are attached unzipped to the message. "Zipped" key: The files which are displayed in the "File name" field are zipped before they are attached to the message.

Entries in the "Send email" window

Inputs	Explanation
	"Delete marked entry" key (in the "File name " field).
	"Mail attachment" key: Opens the "Mail attachment" window for selection of files (for example bitmaps, log files, zip files) that can be attached to the message. The file names are displayed in the "File name" field subsequently.
File name	Display of file (s) which are attached to the message.

Entries in the "Send email" window

Write email

 Use the virtual keyboard for input.

1. Enter a sender address in the "from" field.

 If you are expecting an answer to the email, enter a valid email address here as the machine cannot receive any emails.

2. In the "To" field, enter the email address of the receiver.
   Several addressee names are to be separated by a semicolon (;).
3. In the "Subject" field, enter the subject of the message.
4. In the field below the "Subject" field, enter the content of the message.

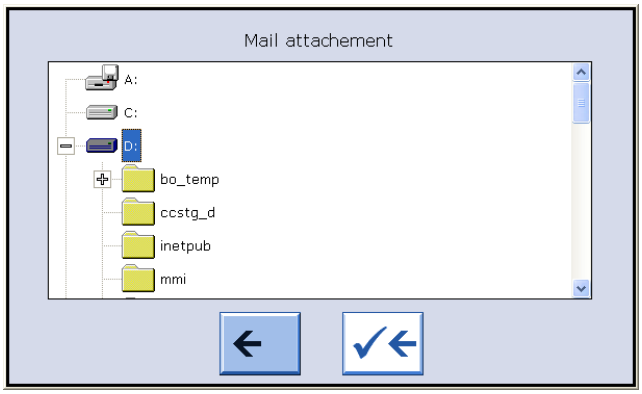
 With the "Delete all inputs" key, you can delete the inputs in all the fields of the "Send email" window (except the entry in the "from" field).

Attach files to the email

You can attach any files to an email which are sent with the message. In order to reduce the size of the file, the files to be attached can be zipped (compressed).

1. Tap on "Mail attachment" key.

   ▷ The "Mail attachment" window opens.



"Mail attachment" window

2. In "Mail attachment" window, select the file that has to be attached.
3. Confirm selection.

   ▷ The file is displayed in the "File name" field.

4. If additional files are to be attached, repeat the steps 1 to 3.
5. If the files in the "File name" field are to be attached zipped to the email, tap on "Zipped" key.

   - or -

➜ If the files in the "File name" field are to be attached unzipped to the email, tap on "Unzipped" key.

In order to remove a file from the "File name" field, mark this file and then tap on the "Delete marked entry" key.

Send email

✔ Sender and receiver addresses have been entered correctly.

✔ The message is entered.

✔ The email attachments are selected.

➜ Tap on "Send email" key.

▶ The email is sent with the attachments.

11 Key word directory

D

E

F

H

I

K

L

M

N

O

P

R

S

T

U

V

W

Y