

STOLL

THE RIGHT WAY TO KNIT

Instruction manual for a safe operation of the knitting machine

	Type	Computer type	Component type
CMS 933	769	OKC	000 - 004
CMS 922	770	OKC	000 - 004
CMS 830 C k&w	573	OKC	000 - 004
CMS 822	574	OKC	000 - 005
CMS 740	572	OKC	000 - 004
CMS 730 T k&w	586	OKC	000 - 004
CMS 730 S k&w	554	OKC	000 - 004
CMS 530 T	585	OKC	000 - 004
CMS 530	566	OKC	000 - 004
CMS 520 C	570	OKC	000 - 004
CMS 520	567	OKC	000 - 004
CMS 420 E	579	OKC	000 - 002
CMS 420 E multi gauge	577	OKC	000 - 001
CMS 420 E	575	OKC	000 - 001



Date: 2008-06-24

Version number: 1.7

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Our products are being developed further continuously. They are therefore subject to technical modifications.

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1 Safety instructions

Foreword to the Instructions

These operating instructions are designed to familiarize the user with the machine and its designated use.

The instruction manual contains important information on how to operate the machine safely, properly and most efficiently. Observing these instructions helps to avoid danger, to reduce repair costs and downtimes and to increase the reliability and life of the machine.

The textual and graphic representations need not always correspond to the scope of delivery of the machine.

The translations are carried out very carefully. Should you have any doubts about the accuracy of the translation, please compare this with the accompanying original document .

Additional information is provided by:

- 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](http://www.stoll.com)
- Training courses at the Stoll training centers



Preserve this Instruction manual for future use. In case of a subsequent resale of the machine , the Operating instructions are to be sent alongwith.

1.1 Proper use

The machine is an industrial knitting machine of the A class according to EN 55011. Observe the country-specific laws and regulations.

The sole purpose of this machine is the production of stitched items. Only standard yarns are to be processed with the machine that are suitable for usage in industrial knitting machines.

The yarn guide elements are not designed for the safe conductance of high strength yarns or materials like for e.g. Metals.

In case you have some specific requirements from the machine, kindly get in touch with any of the Stoll outlets.

1.2 Organizational measures

- The instruction manual is to be made accessible to all personnel who are responsible for working on the knitting machine.
- The operator must ensure that the contents of the instruction leaflet are clearly understood and can be applied by the personnel who are responsible for working on the machine.
- Apart from this the operator must ensure that the national/domestic regulations are observed and followed. They are for. e.g.. Regulations.
 - for prevention of accidents
 - for protection of health,
 - for environmental protection,
 - for technical rules and
 - for a safe and proper working.
- The knitting machine is to be used only in a technically sound condition and as per the stipulated conditions, awareness about the safety and dangers should be there and the operating instructions must be followed.
- The warnings on the machine are to be maintained in a complete and legible condition.
Procurement of spare parts See spare parts catalogue
- No modifications, additions or conversions may be made on the machine that might endanger the safety.
- Use only the original Stoll spare parts during repairs and maintenance.
- No arbitrary changes are to be made in the program in the operating system of the computer, the machine software and the controlling system/controls.
- No foreign software is to be installed in the machine.

1.3 Personnel qualifications and selection

- Any work on and with the machine must be executed by reliable personnel only.
Observe the country-specific laws and regulations.

1.3.1 Personnel qualification

In order that the knitting machine can be operated correctly and safely, it must be set up and operated by reasonably qualified personnel.

- Electrician
- Mechanic
- Knitting expert
- Trained or semi-skilled Person

Electrician An electrician will be considered a person(expert in electrical area), who can assess and execute the electrical jobs assigned to him and can identify possible dangers.

The expert possessess the following characteristics:

- technical qualification
- theoretical knowledge
- practical experience
- Knowledge of the relevant (country specific) regulations
- Knowledge of the operating instructions

Mechanic A mechanic will be considered a person(expert in mechanical area), who can assess and execute the mechanical jobs assigned to him and can identify possible dangers

The expert possessess the following characteristics:

- technical qualification
- theoretical knowledge
- practical experience
- Knowledge of the relevant (country specific) regulations
- Knowledge of the operating instructions

1.3 Personnel qualifications and selection

Knitting expert A knitting expert will be considered a person who can assess and execute the jobs assigned to him and can identify possible dangers.

The expert possesses the following characteristics:

- technical qualification on the knitting machine and the pattern design system
- theoretical knowledge
- practical experience
- Knowledge of the relevant (country specific) regulations
- Knowledge of the operating instructions

Trained or semi-skilled Person A trained or semi-skilled person is considered as someone who, based on the following characteristics can carry out definite, accurate tasks on the knitting machine.

- detailed theoretical and practical orientation on the knitting machine
- practical experience
- Knowledge of possible dangers

1.3.2 Selection of personnel

- The operator must ensure that only personnel authorized for the same can work on the machine.
- The responsibilities of the personnel are to be laid out very clearly for the following activities.

The table shows the minimum requirements for each personnel.

Activity	Personnel
Assembly	Mechanic
Electrical connection	Electrician
Start-up	Knitting expert
Programming	Knitting expert
Designing	Knitting expert, trained or semi-skilled Person
Setting up	Knitting expert, trained or semi-skilled Person
Operation	Knitting expert, trained or semi-skilled Person
Production	Trained or semi-skilled Person
Maintenance, care, Cleaning	Knitting expert, trained or semi-skilled Person
Maintenance	Mechanic, electrician or knitting expert
repair	Mechanic or Electrician
Dismantling work	Mechanic or Electrician

1.4 Warning

In this chapter you will find explanations to the warnings on the machine and in the documentation.

1.4.1 Warnings used

Warnings on the machines correspond to the standard ANSI Z 535.4.

Scope of validity: USA and Canada

A warning instruction as per ANSI Z 535.4 comprises of the following elements:

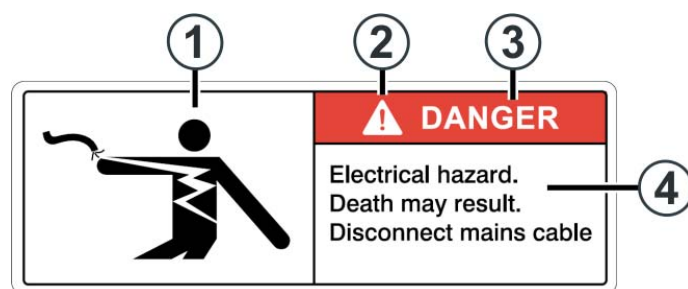


Fig. 1-1 Elements of a warning

No.	Explanation
1	one warning indication
2	one safety indication (displays the danger of injury)
3	Display of the warning step (Danger: red, Warning: orange, Caution: yellow)
4	Text comprises of : Type and source of danger Possible outcomes Measures for protection against danger and prohibitions

Site of labelling of the warning on the machine

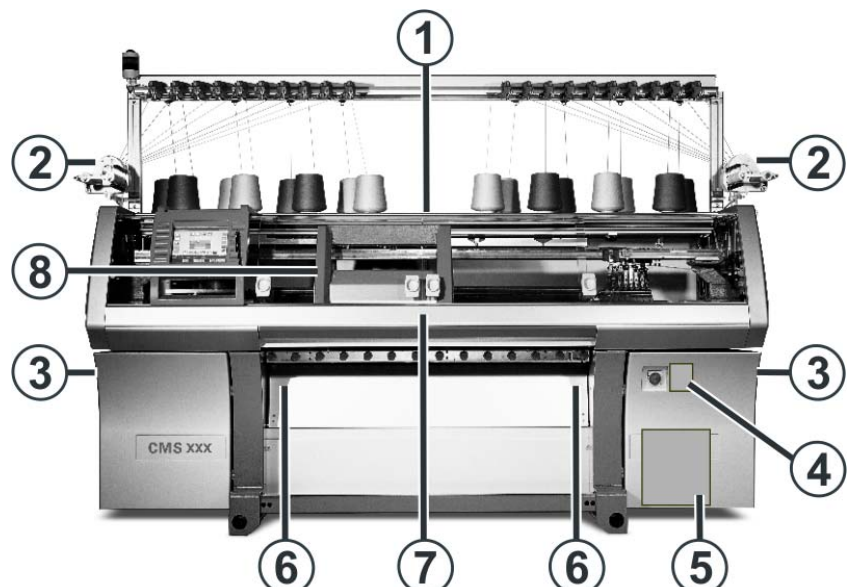


Fig. 1-2 Site for labelling the warning on the machine

List of warnings on the machine



Warnings have to be maintained in a complete and legible condition at all times

The order numbers of the labels are found in the spare parts catalogue.



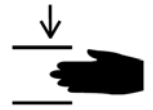

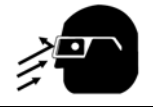

No.	Warning	Explanation
1		Warning on the rear panel
2		Warning on the friction feed wheel
3		Warning on the shrouding cover control cabinet right and left
4		Warning Front cover main switch
5		Warning on the base plate control cabinet right and rear panel control cabinet right
6		Warning on the fabric take-down
7		Warning under the cover hoods
8		Warning on the central lubrication of front and rear needle beds. For tandem machines, on right-hand side of right carriage as well.

Tab. 1-1 List of warnings

1.4.2 Explanation to the Pictograph (ANSI)

Pictograms on the machine

Following Pictographs are used on the machine:





Pictograph	Explanation
	General Warning indication
	Dangerous electrical voltage
	Danger of crushing and cutting
	
	Danger from flying-off mechanical parts or lubricating materials
	Danger of suction

Tab. 1-2 Pictographs used on the knitting machine

Warning steps for warning instructions as per ANSI

A warning step comprises of the following parts:

- Safety indications
The safety indications warns about the danger of injury and death. In order to avoid death and injuries, all measures that are indicated alongwith the safety indications are to be followed.
- Signal word
DANGER, WARNING, CAUTION
- Signal color
depending upon the Signal word: red, orange, yellow

Warning step	Explanation
	Imminent danger of death or serious injuries (irreversible).
	Death or serious injury (irreversible) possible.
	Slight injury (reversible) possible.
	Damage to property possible (without Safety indication).

Tab. 1-3 Warning steps for warning instructions as per ANSI

1.4.3 Warnings in the documentation

The warnings in the documentation have the following structure:

- Safety indications (display the danger of injury)
- Signal word (Danger, Warning, Caution)
- Text comprises of :
 - Type and source of danger
 - Possible outcomes
 - Measures for protection against danger and prohibitions

Example:



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Set the main switch to "0".

➔ Secure the machine against being switched on again.

Signal word	Explanation
Danger	Imminent danger of death or serious injuries (irreversible).
Warning	Death or serious injury (irreversible) possible.
Caution	Slight injury (reversible) possible.
Caution (without safety indications)	Damage to property possible.

Tab. 1-4 Explanation to the Signal words

1.5 General safety instructions

1.5.1 Danger by mechanical parts

Reason	Protective measures
Danger of injury by rotating or moving parts	Do not reach into the running machine. Always stop the machine during an intervention Switch off the machine during mounting activities and secure it against being switched on again. Wear safety glasses.
Injuries may be caused by pieces broken off from needles when the carriage and needles collide at damaged points.	Wear safety glasses.
Danger of burns by motors; the needle bed and parts of electric controls that can become hot.	Wear protective gloves.
Danger of injury in the case of mounting activities by pressure and tension springs (for. e.g. in the main take-down and in the engaging rod), which could have stored potential energy.	Relieve the springs before removing. Carry protective equipment.

1.5.2 Danger by electrical energy.

Reason	Protective measures
Danger to life by electrical shock during work on the electrical assemblies of the machine.	Work is to be done only by an electrician. Switch off machine Remove building fuses. Secure the machine against being switched on again.
Danger to life by electric shock in case of electric faults like loose or defective connectors/plugs or braised or damaged cables.	Deactivate the machine immediately. Remove building fuses. Secure the machine against being switched on again. Eliminate all faults that can be caused by an electrician.

1.5.3 Danger by operating materials.

Reason	Protective measures
Danger of chemical burns during contact with oil, grease and other chemical substances.	Wear protective gear (for. e.g. safety glasses, gloves). Observe the country-specific laws and regulations. Pay attention to the Manufacturers' instructions.
Injuries by oil pressure in case of damaged lines of the central lubrication that are under a high oil pressure (30 bar).	Deactivate the machine immediately. Secure the machine against being switched on again. Get the damaged lines replaced by a mechanic. Remove the outcoming oil immediately.
Injuries by compressed air in case of damaged lines of the fluff absorption that are under a high air pressure.	Deactivate the machine immediately. Secure the machine against being switched on again. Get the damaged lines replaced by a mechanic.
Danger of skidding if the oil, grease or other substances are blocked or if a leakage appears.	Immediately mop these substances. Observe the country-specific laws and regulations.
Environment pollution is caused if the disposal of replaced parts and of consumables is not done professionally.	Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact! Observe the country-specific laws and regulations. Pay attention to the Manufacturers' instructions.

1.5.4 Other dangers

Reason	Protective measures
Increased fire and explosion hazard by lint, dust and other impurities. Increased danger of short circuit during knitting of metallic or conductive materials by building up of metallic fluff and dust.	Lint, dust and other impurities to be removed regularly from the entire machine depending upon the degree of dirt at least once in every shift. Take care of any additional exhaustion. Wear Inhalation protection gear.
Danger of damage by usage of unsuitable cleaning materials.	Only cleaning materials that have been mentioned in the Operating Instructions for e.g. Alcohol are to be used. Do not use cleaning material that can cause health hazards or is acidic/corrosive in nature.

1.6 Safety instructions for the individual Operation Phases

- Avoid any operational mode that might be prejudicial to safety!
- Take the necessary precautions to ensure that the machine is used only when in a safe and reliable state!
- Operate the machine only when all the Protective and security equipment is available and functional.
- In particular, malfunctions which could limit the safety of the machine are to be remedied (or repair is to be commissioned) immediately!
- Observe the warnings on the machine and in the Instruction leaflet by all means. By doing so you will protect yourself and the others from dangers and will help to avoid damages to the machine and other tangible assets.
- No one may remain inside the machine. Risk of death!
- Observe the start-up and shut-down procedures and the indicators.
- Before starting up or setting the machine in motion, make sure that nobody is at risk!

1.6.1 Safety instructions for the transport

Type of risks	Measures
Danger of injury by heavy loads	Country-specific regulations for the prevention of industrial accidents for the transport of heavy loads are to be observed. The relevant Country-specific laws and regulations to be observed during transport with ground conveyors.

1.6.2 Safety instructions for lubrication

Type of risks	Measures
Danger of injury by heavy loads	Observe all technical data of the machine. Country-specific regulations for the prevention of industrial accidents for the transport of heavy loads are to be observed.
Danger of damage to the machine.	Remove all transport locks. Connect side protective shrouding (on left and right-hand sides of machine)
Environment Pollution	Dipose off protective films in an environmentally responsible manner. Observe the country-specific laws and regulations.

1.6.3 Safety instructions for the electrical connection

Type of risks	Measures
Danger to life during work on the electrical assemblies of the machine.	Get the machine connected by an electrician. Note technical data.

1.6.4 Safety instructions for the exchange of data

Type of risks	Measures
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 dangers associated with computer viruses have been increasing for years. Look into the subject and ensure that the network computer connected with the knitting machine and the data carrier used on the knitting machine are free from computer viruses! We advise you with emphasis to the fact that the company Fa. H. Stoll GmbH & Co. KG will take no guarantee or responsibility for damages in this conjunction. For further enquiries please contact Stoll-Helpline.

1.6.5 Safety precautions for production

Type of risks	Measures
Danger of injury	Close the cover hoods. Close the rear panels of the machine. Close the cover hoods. Keep eyes away from the lateral slack tensioner. Objects such as tools, yarn bobbins etc. to be removed from the inside of the machine. If the machine is in operation, under no circumstances should you reach into it. Stop the machine if an intervention is necessary.
Danger of winding and suction and danger of crushing.	Do not reach into the fabric take-down rollers. Do not touch the friction feed wheel while the machine is in operation and keep away loose garments and hair strands. Wait for the feed wheel to stop moving after stopping the machine.

Type of risks	Measures
Health hazard by fibers, dust and fumes.	<p>Special caution is to be observed while knitting of yarns that cause health hazards or a damage to the machine.</p> <p>Yarns with heavy fibres</p> <p>Dyestuffs causing health hazards</p> <p>Yarns made of glass fibres, metallic-annealed fibres, asbestos, carbon, PU or similar materials</p> <p>Employ suitable measures to avoid the damage caused by fibre, dust and fumes.</p> <p>Observe the country-specific laws and regulations.</p> <p>Pay attention to the Manufacturers' instructions.</p> <p>For any further queries please contact STOLL.</p>
Risk of damage (Short circuit) during the knitting of metallic or electric yarns by fibres and dust.	<p>Remove lint, dust and other impurities regularly from the entire machine depending upon the degree of dirt; however atleast once per shift.</p> <p>Take care of the additional extraction.</p>

1.6.6 Additional Safety Instructions for the operation with open cover hoods

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

Type of risks	Measures
Danger of crushing and cutting by the carriages, racking, the needle beds, the clamping and cutting devices.	<p>Do not reach into the running machine.</p> <p>Move carriage step by step or very slowly (see Operating Manual).</p>
Danger of injury by broken pieces off cam and needle.	<p>Wear safety glasses.</p>
Danger of crushing and suction by the fabric take-down, the auxiliary take down, the take-down comb and the additional beds.	<p>Do not reach in the gap between the needle beds.</p> <p>Keep hands, face, loose clothing and other loose objects away: danger of crushing.</p> <p>Do not reach into the area between the fabric take-down roller and the take-down comb.</p>

1.6.7 Safety Instructions for the lubrication, cleaning and maintenance

Type of risks	Measures
Danger of crushing and cutting by the carriages, racking, the needle beds, the clamping and cutting devices.	Switch off machine at main switch. Secure the machine against being switched on again. After working on the rear of the machine, re-fix the rear panels again.
Health hazard	When working with oil and grease, pay attention to the safety regulations (safety data sheets) applicable to the respective product! Pay attention to the Manufacturers' instructions.
Environment Pollution	Ensure that oil and grease is correctly disposed of in an environmentally responsible manner! Observe the country-specific laws and regulations. Pay attention to the Manufacturers' instructions.

1.6.8 Safety instructions for dismantling work

Dismantling for a longer storage or for evacuation:

Type of risks	Measures
Danger to life because of electrical shock during work on the electrical assemblies of the machine.	Get the machine disconnected from the mains supply by an electrician.
Danger of damage to the machine during transport.	Observe all technical data of the machine. Country-specific regulations for the prevention of industrial accidents for the transport of heavy loads are to be observed.

Dismantling and scrapping:

Type of risks	Measures
during work on the electrical assemblies of the machine.	Get the machine disconnected from the mains supply by an electrician.
Environment pollution during disposal	Observe the country-specific laws and regulations.

2 Electrical data of the machine

2.1 Dimensions and weights

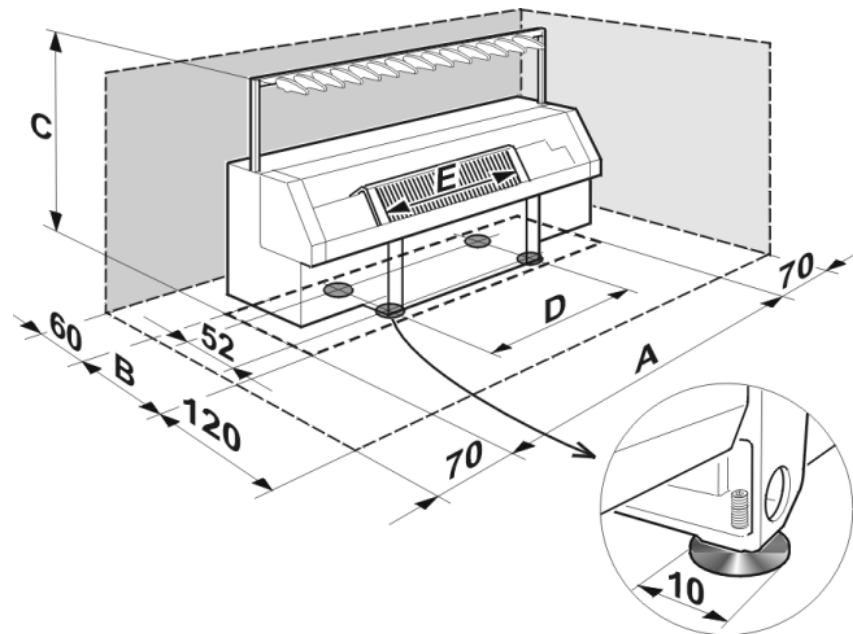


Fig. 2-1 Machine dimensions (in cm)

A	Width	B	Depth	C	Height
D	Spacing of set screws	E	Nominal working width		

The back-and-forth movement of the carriage causes the dynamic loads listed above to occur at the set screws.

	A	B	C	D	E	Weight (kg)	Dynamic weight (kg)
CMS 933	510	106	205	270	244	2060	700
CMS 922	456	106	205	270	244	1960	660
CMS 830 C k&w	403	91	205	239	213	1690	740
CMS 822	403	91	205	239	213	1670	730
CMS 740	355	91	205	209	183	1530	620
CMS 730 T k&w	355	91	205	209	183	1510	630
CMS 730 S k&w	355	91	205	209	183	1520	630
CMS 530 T	270	91	205	153	127	1260	550
CMS 530	270	91	205	153	127	1240	540
CMS 520 C	270	91	205	153	127	1250	540
CMS 520	270	91	205	153	127	1220	510
CMS 420 E (type 579)	237	91	205	153	114	990	470
CMS 420 E (type 575, 577)	270	91	205	153	114	1170	500

Tab. 2-1 Dimensions, weight and dynamic weight

2.2 Electrical data

Valid for:					
≥ Component type 003	CMS 822				
≥ Component type 002	CMS 933	CMS 830 C	CMS 740	CMS 530 T	CMS 520
	CMS 922	CMS 822	CMS 730 S	CMS 530	
			CMS 730 T	CMS 520 C	
≥ Component type 000					CMS 420 E (type 579)

Electrical data	Values
Supply voltage	400 V ±10 % 50 or 60 Hz
No. of phases	3 Observe clock wise phase sequence
Rated current	7 A
Main fuse (of customer)	16 A slow-blow each phase
Power consumption	approx.. 2.6 kW

Tab. 2-2 Connection data of the knitting machine

Before connecting the machine, check the mains voltage available on site.

It is generally not admissible to connect electrical or electronical components of other makes to the machine's internal wiring. If such assemblies are used, we are unable to guarantee optimum functional performance of the machine.

If the knitting machine is operated by means of a generator, make sure that the voltage supplied by the generator meets the requirements of the EN 60204-1, paragraph 4.3.1.

In case of queries, please call the STOLL Helpline.

2.3 Electrical data (component type 000 and 001)

Valid for:					
Component type 000 - 001	CMS 933	CMS 830 C	CMS 740	CMS 530 T	CMS 520
	CMS 922	CMS 822	CMS 730 S	CMS 530	CMS 420 E (type 575, 577)
			CMS 730 T	CMS 520 C	

Electrical data	Values
Supply voltage	200 to 440 V ± 10 % 50 or 60 Hz
No. of phases	3 Observe clock wise phase sequence
Rated current	8 A
Main fuse (of customer)	16 A slow-blow each Phase
Power consumption	approx. 2,6 kW

Tab. 2-3 Connection data of the knitting machine

Before connecting the machine, check the mains voltage available on site.

It is generally not admissible to connect electrical or electronical components of other makes to the machine's internal wiring. If such assemblies are used, we are unable to guarantee optimum functional performance of the machine.

If the knitting machine is operated by means of a generator, make sure that the voltage supplied by the generator meets the requirements of the EN 60204-1, Para. 4.3.1.

In case of queries, please call the STOLL Helpline.

2.4 Gauge ranges

Gauge	Needle number			
	Nominal width: 50" (127 cm)	Nominal width: 72" (183 cm)	Nominal width: 84" (213 cm)	Nominal width: 96" (244 cm)
E 3	149			
E 3.5	174			
E 4	199			
E 5 (E 2,5.2)	249	359	419	479
E 7 (E 3.5.2)	349	503	587	671
E 8	399	575	671	767
E 10 (E 5.2)	499	719	839	959
E 12 (E 6.2)	599	863	1007	1151
E 14 (E 7.2)	699	1007	1175	1343
E 16 (E 8.2)	799	1151	1343	1535
E 18 (E 9.2)	899	1295		1727

Tab. 2-4 Number of needles per needle bed



You can adapt the machine to another gauge (not for CMS 420 E). Please demand our offer.

2.5 Operating conditions

- Set the machine on a level, firm surface in a building
- Do not set the machine in an area endangered by explosions or underground
- Ambient temperature 59 °F to 113 °F (+15 °C to +45 °C)
- Relative humidity:
 - min. 50 %
 - max. 80 %
 - not kondensed

When yarns are being processed, electrostatic charges can be produced if the relative humidity is not at least 50 %

In the case of deviating operating conditions please contact STOLL-Helpline.

2.6 Storage conditions

If the knitting machine is to be stored for a longer period of time the following tasks must be carried out:

1. Clean the knitting machine thoroughly.
2. Lubricate knitting machine.
3. When the knitting machine is transported to another place, the transport locks must be applied.
4. All bare metals must be sprayed with an anti-corrosion material.(for. e.g.. WD-40).
5. Cover the area yarn carrier rods -needle beds with gas paper/anti-rust paper.
6. Cover the knitting machine with a protective foil.
7. Store the knitting machine in a dry place within a building.



Storage temperature -15 °C to +60 °C.

Protect the machine carefully from corrosion especially against sea air.

2.7 Noise emissions

The measurements have been performed on a representative basis for the series CMS 3xx TC on a CMS 340 TC E8. The machines of the CMS 3xx TC series emit a sound pressure level which is no higher than the specified values under comparable conditions.

Applied standards:

- ISO/CD 9902 "Textile machine Regulations for Noise Emissions"
- ISO/CD 9902-1 and ISO/CD 9902-6.

Level specifications in dB(A)	Mean sound pressure level LpA	Uncertainty KpA	Mean sound output level LWA	Uncertainty KWA
CMS 340 TC	75,8	3,5	92	3,5

Tab. 2-5 Noise emissions

3 Main components of the knitting machine

3.1 Front side

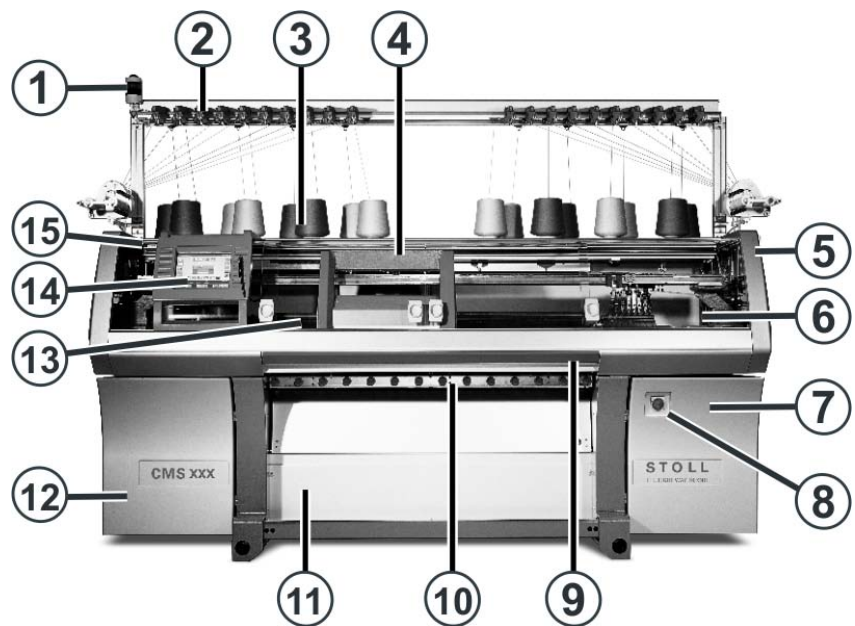


Fig. 3-1 Front view of the knitting machine

No.	Designation	No.	Designation
1	Signal light (green,yellow)	9	Engaging rod (red)
2	Yarn control equipment	10	Fabric take-down (main take-down, auxiliary take-down, take-down comb)
3	Bobbin board (with yarn bobbin)	11	Fabric collection chamber
4	Carriage	12	Left control cabinet
5	Protective hood (left, right)	13	Needle and additional beds (front)
6	Cover hoods (over carriage and needle bed)	14	Touch screen
7	Right control cabinet	15	USB-Connection
8	Main switch (yellow)		

Inner view

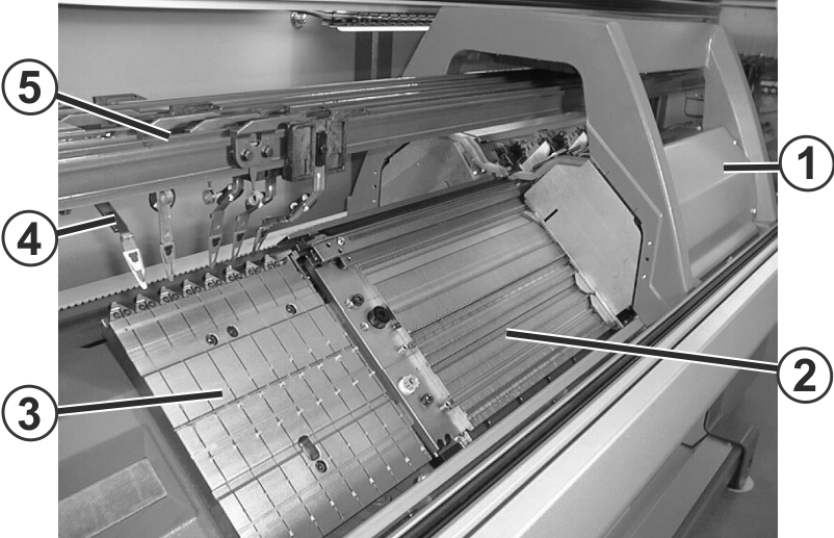


Fig. 3-2 Inner view of the knitting machine

No.	Designation	No.	Designation
1	Carriage	4	Yarn carrier
2	Front needle bed	5	Yarn carrier rod
3	Left clamping and cutting bed		

3.2 Lateral view (right)

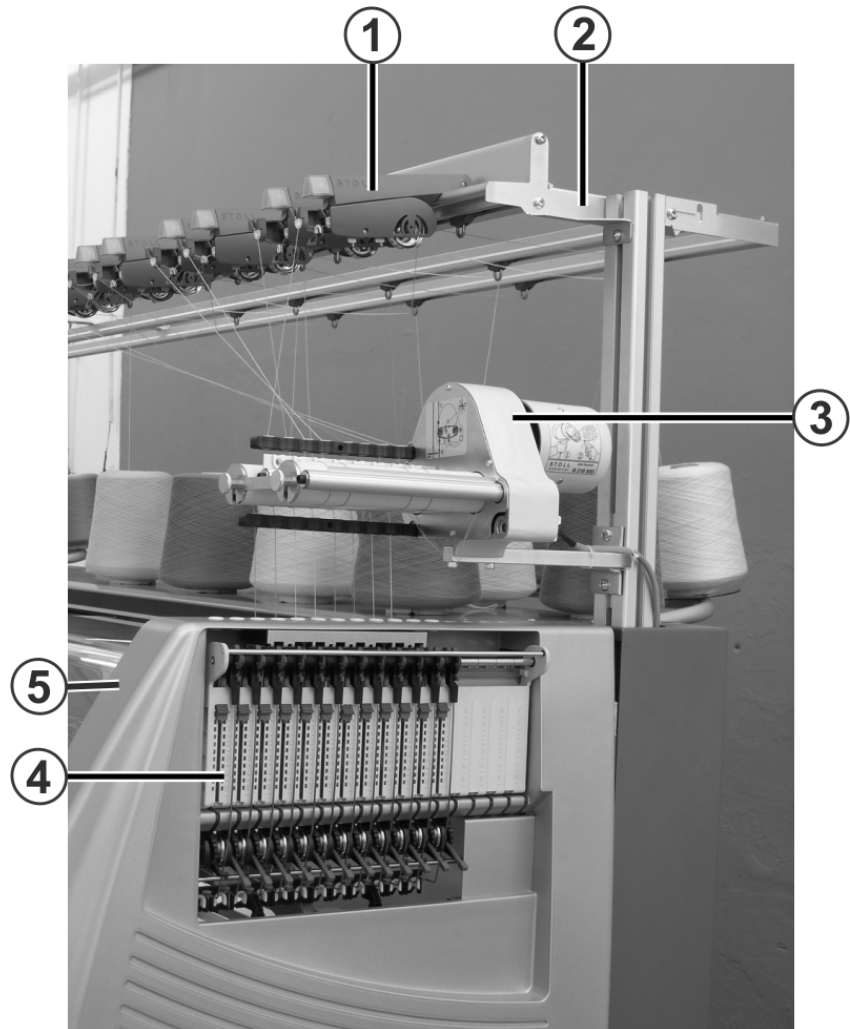


Fig. 3-3 Right lateral view

No.	Designation	No.	Designation
1	Yarn control device	4	Lateral yarn tensioner
2	Yarn feeding and control device	5	Lateral protective cover
3	Friction feed wheel		

3.3 Rear side

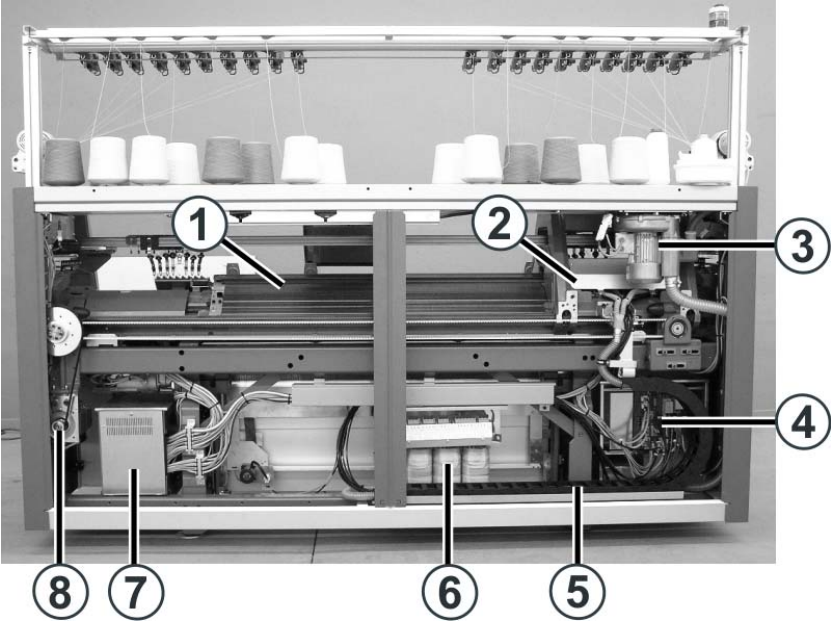


Fig. 3-4 Rear side (without rear panel segments)

No.	Designation	No.	Designation
1	Rear needle bed	5	Trailing cable (energy chain)
2	Carriage	6	Transformer (Fuses)
3	Fluff absorption	7	Control unit on the right
4	Left control unit	8	Main drive

3.4 Optical and acoustic Signal elements

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.

3.4.1 Signal lamp



Fig. 3-5 Signal lamp (1)

The signal lamp (1) indicates the operating status of the knitting machine.

Model: single flame-signal
lamp (green)

Color	Status of the knitting machine
green	Knitting machine is producing
green (flashes, slowly)	Knitting machine is stopped with engaging rod
green (flashes, fast)	Knitting machine is not producing, as an error has occurred during knitting
off	Main switch is off

Model: two-flame-signal
lamp (green, yellow)




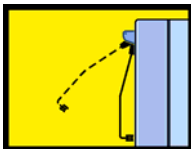
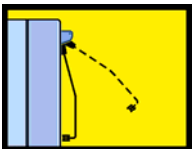


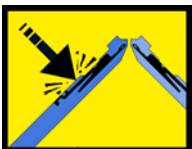




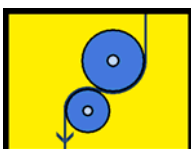
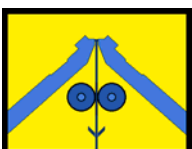
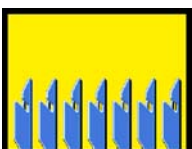
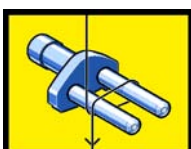
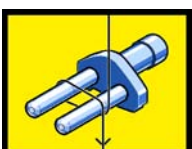
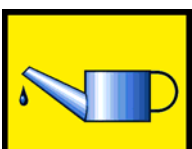
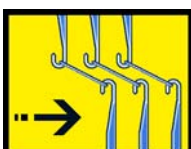
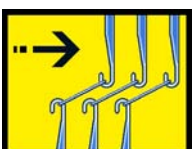

Color	Status of the knitting machine
green	Knitting machine is producing
green (flashes)	Knitting machine is stopped with engaging rod
yellow	Knitting machine is not producing, as an error has occurred during knitting
green, yellow	Both lamps light up during the shutdown process. Duration is approximately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

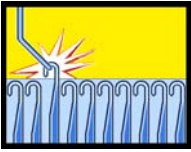
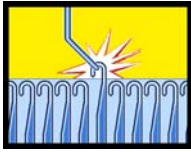
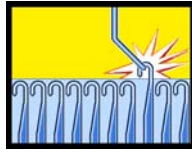
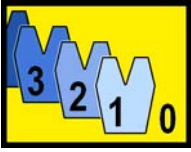

Tab. 3-1 Signal lamp colors

3.4.2 Touch screen

The most common error causes are shown in the pictographs on the touch screen.

If an error occurs, one pictograph appears (on a yellow background), 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.

Pictographs		
		
Protective hood left	Protective hood right	Shrouding cover
		
Yarn tensioner left	Yarn tensioner right	Yarn control device
		
Shock stop motion front	Shock stop motion rear	Carriage (Power monitor)
		
Additional bed front	Additional bed rear	Shock stop motion (additional bed)
		
Take-down	Auxiliary take-down	Take-down comb
		
Friction feed wheel left	Friction feed wheel right	Oiling
		
Racking front	Racking rear	Power failure

Pictographs		
		
Needle stop left	Needle stop centre	Needle stop right
		
Piece counter	Miscellaneous causes for stoppage	

Tab. 3-2 Pictographs for the display of stoppages

3.4.3 Horn

A signal tone is produced in the following situations:

- if the machine stops because of an error
- approx. 60 seconds after this the main switch gets rotated to "0"



The signal tone can be switched on and off (standard setting = off).

3.4.4 Lamps on the yarn control device

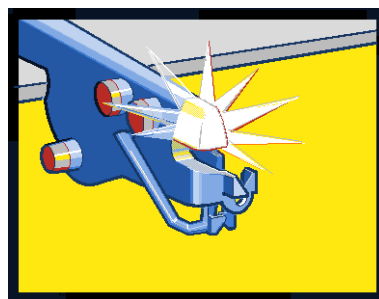


Fig. 3-6 Lamps on the yarn control device

In the case of a thread breakage or thread end, the thread break control device/the tension arm of the yarn control device switches off the knitting machine. The error is displayed by the LED on the yarn control device, the signal lamp glows yellow and a message appears on the touch-screen.

4 Assembly and setting up

4.1 Preparing assembly

4.1.1 Preparing installation location

Installation location The installation location of the knitting machine must fulfill the following conditions:

- flat, firm surface in a building
- sufficient space between the knitting machines for
 - Operating the machine
 - Removing the fabric pieces from the machine
- do not put up the machine underground

4.1.2 Having tools and aids ready

The knitting machine is delivered packed in one of the following ways:

- on a transport base packed in film
- on a transport base packed in a crate
- on trolleys

The following tools and aids are required for all types of packing:

- Accessories for knitting machine
 - Washers for machine feet
 - Grub screws for aligning the machine
 - Square spanner for opening the rear machine panel. An Allen key is necessary for CMS 420 E.
- Tool
- Level

4.1.3 Transporting machine to installation location

Transport the knitting machine to the installation location in its packing and remove the packing there.

4.1.4 Unpacking knitting machine

1. When delivered in a crate: Remove crate lid and side sections.
2. Remove boxes with accessory parts from the fabric collection chamber.

4.2 Assembling machine

4.2.1 Putting up knitting machine

Lift the knitting machine with a ground conveyor (e.g. forklift) and transport it.

In this case the following things have to be taken care of:

- The position of the centre of gravity is indicated on the front traverse (carriage in left transport position).
- Both the lifting arms of the ground conveyor should be long enough so that the front and the back traverse can be lifted.
- Lift and set the machine carefully. Danger of damage if it hits the floor very hard.



Lift the machine only on both the machine feet or on the traverses.

Setting up knitting machine

1. Remove Screw 1 that holds the knitting machine to the trolley.
2. Lift the knitting machine with a fork lift from the transport surface.
3. Bring the knitting machine to the site of installation
4. Lay Washers (1) from the accessories under the knitting machine foot. Place the washers in such a manner that the cavity comes exactly under the Grub Screw (2)

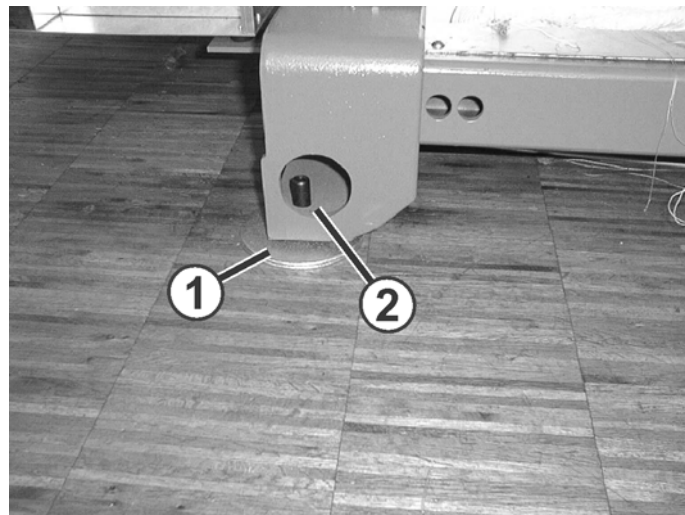


Fig. 4-1 Washers under the knitting machine foot

5. Setting knitting machine on the floor
6. Remove wood pieces, adhesive strips, packing film and paper.

7. Remove side walls (3), spacer (5) (for component type 000) and transport flaps (4) on both machine sides.

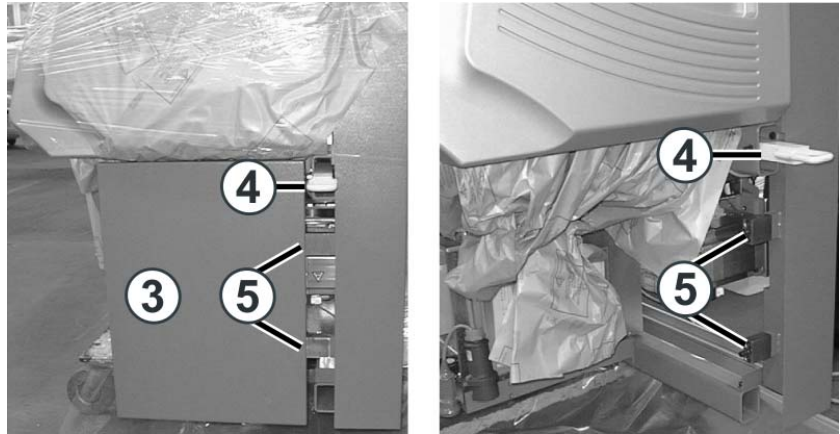


Fig. 4-2 Assemble transport flap (4)

8. sides (3) on both sides.
9. Remove all transport locks.

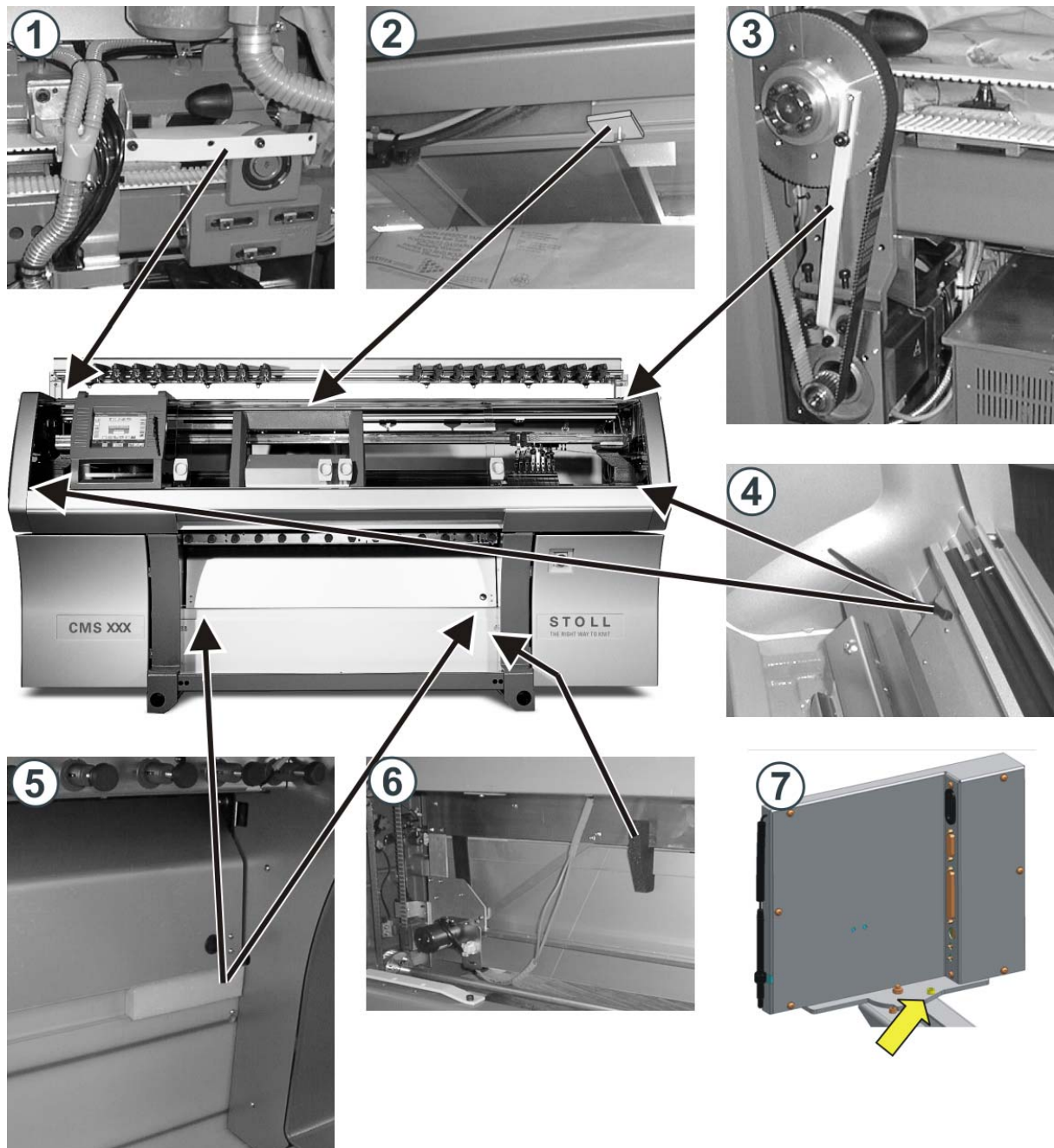


Fig. 4-3 Fixing spots for transport locks

Transport lock for:

- 1 Carriage
- 2 Touch screen (not for CMS 420 E)
- 3 Drive
- 4 Left and right protective hoods (CMS 420 E: right protective hood only)
- 5 Cover at take-down comb
- 6 Comb take-down (2 pieces for CMS 7xx and CMS 8xx)
- 7 Touch screen (CMS 420 E, type 579)



Preserve the transport locks.

4.2.2 Connect the knitting machine

Valid for:					
≥ Component type 003	CMS 822				
≥ Component type 002	CMS 933	CMS 830 C	CMS 740	CMS 530 T	CMS 520
	CMS 922	CMS 822	CMS 730 S	CMS 530	
			CMS 730 T	CMS 520 C	
≥ Component type 000					CMS 420 E (type 579)



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Deenergize building mains supply.

The knitting machine is connected in the following steps:

- Measuring the mains voltage
- Connecting the mains supply to the main switch
- Adapting the fluff absorption to the mains frequency

Authorized personnel

The knitting machine must be connected by an electrician. Country-specific laws and regulations are to be followed.

Operating the knitting machine with a generator

If the knitting machine is operated by means of a generator, make sure that the voltage supplied by the generator meets the requirements of the EN 60204-1, paragraph 4.3.1.

In case of queries, please call the STOLL Helpline.

Mains voltage 400 V

The machine is set for a mains voltage of 400 V as standard. If there is another mains voltage, then a series transformer is to be used.

	Series transformer (ident. number)
CMS 922, CMS 933	253 924
CMS 420, CMS 520, CMS 520 C, CMS 530	253 650
CMS 530 T, CMS 730 S, CMS 730 T, CMS 740, CMS 822, CMS 830 C	253 923

Tab. 4-1 Series transformer

Connect mains supply to
the main switch

The knitting machine must be connected in the clockwise phase sequence.

The mains supply is either led from the floor (1) to the main switch or from the ceiling (2) through the right support of the yarn feeding and control device to the main switch.

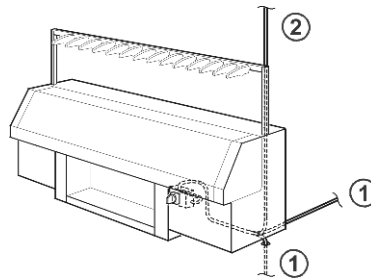


Fig. 4-4 Mains supply

1. Determine the direction of rotation of the mains supply.



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Deenergize building mains supply.

2. Open the mains switch housing.



Potential equalization missing!

Serious errors or disturbances can be caused in the machine and the electronic circuit if the terminal "PE" is not connected.

Terminal "PE" to be connected always

3. Connect the mains supply to the terminals L1, L2, L3 and N of the terminal strip and to the yellow-green protective conductor (PE).
4. Close the main switch housing.

The right connection of the mains supply is controlled (clockwise phase sequence: Terminals L1, L2, L3 (R, S, T)). If the signal "4272 Power Supply Phase Sequence Wrong" appears on the touch screen, then the connection is wrong.

Correction of the error "4272 Power Supply Phase Sequence Wrong":



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

- ➔ Interrupt the mains supply to the machine
It is not sufficient to simply switch off the machine at the main switch!
- ➔ Swap the two phases of the mains supply.

Adapting fluff absorption to mains frequency

Depending on the mains frequency (50 Hz or 60 Hz), the fluff absorption operates with or without sealing plugs.



Fig. 4-5 Adapting fluff absorption (on the left: from component type 001 on, on the right: component type 000)



The fluff absorption can be damaged if the mains frequency is not adapted!

The fluff absorption is overloaded if it is not adapted to the mains frequency.

-> Adapt the fluff absorption to the mains frequency.

1. Open the left cover.
2. Check the sealing plugs (3) of the suction unit.
3. At Mains frequency 50 Hz: Insert sealing plug.
- or -
- ➔ At Mains frequency 60 Hz: Remove sealing plug.

4.2.3 Connect the knitting machine (component types 000 and 001)

Valid for:					
Component type 000 - 001	CMS 933	CMS 830 C	CMS 740	CMS 530 T	CMS 520
	CMS 922	CMS 822	CMS 730 S	CMS 530	CMS 420 E
			CMS 730 T	CMS 520 C	(type 575, 577)



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Deenergize building mains supply.

The knitting machine is connected in the following steps:

- Measuring the mains voltage
- Setting the transformer and protective motor switch to the mains voltage
- Connecting the mains cable to the main switch
- Adapting the fluff absorption to the mains frequency

Authorized personnel

The knitting machine must be connected by an electrician. Country-specific laws and regulations are to be followed.

Operating the knitting machine with a generator

If the knitting machine is operated by means of a generator, make sure that the voltage supplied by the generator meets the requirements of the EN 60204-1, Para. 4.3.1.

In case of queries, please call the STOLL Helpline.

Setting transformer and protective motor switch to mains voltage

The knitting machine can be operated with various mains voltages. The connectors XTA and XTB are plugged in on the transformer T1 in accordance with the available mains voltage. The protective motor switch Q1 in the main switch is set accordingly.

Mains voltage	Connector XTA	Connector XTB	Protective motor switch Q1
440 V	XT 6	XT 1	6.3 A
415 V	XT 6	XT 2	6.3 A
400 V	XT 6	XT 3	7.0 A
385 V	XT 5	XT 1	8.0 A
362 V	XT 5	XT 2	8.0 A
346 V	XT 5	XT 3	9.0 A
240 V	XT 4	XT 1	10.0 A
215 V	XT 4	XT 2	10.0 A
200 V	XT 4	XT 3	10.0 A

Tab. 4-2 Connection data of the knitting machine

Setting transformer to mains voltage:

1. Check the mains voltage of building mains supply.

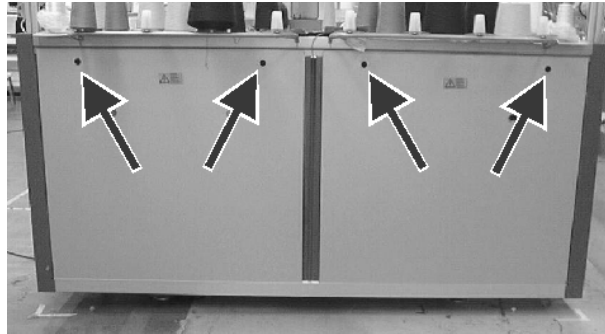


Fig. 4-6 Remove the rear panel segments

2. Open the rear panel segments with the key from the enclosed accessories and take off the segments.



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Deenergize building mains supply.

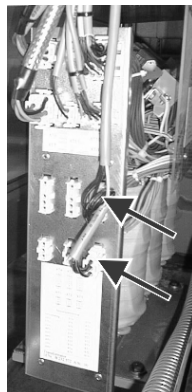


Fig. 4-7 Transformer T1 at the rear of the knitting machine

3. Plug in the connectors XTA and XTB on the transformer T1 in accordance with the building mains voltage.



The measured voltage differs from the setting value.

➔ Select the mains voltage setting closest to the measured voltage.

Set the protective motor switch in accordance with the mains voltage:



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Deenergize building mains supply before opening the housing.

1. Open the mains switch housing.

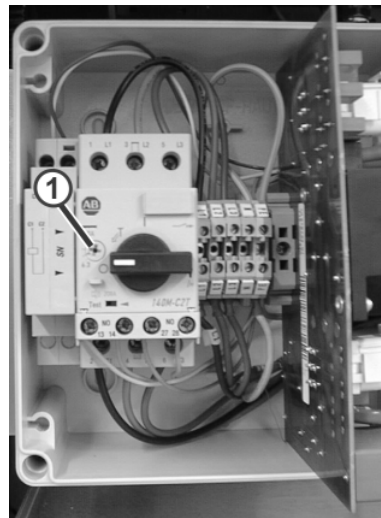


Fig. 4-8 Protective motor switch Q1

2. Set the protective motor switch Q1 (1) in accordance with the mains voltage of the building mains supply.
3. Close the main switch housing.

Connect mains supply to
the main switch

The knitting machine must be connected in the clockwise phase sequence.

The mains supply is either led from the floor (1) to the main switch or from the ceiling (2) through the right support of the yarn feeding and control device to the main switch.

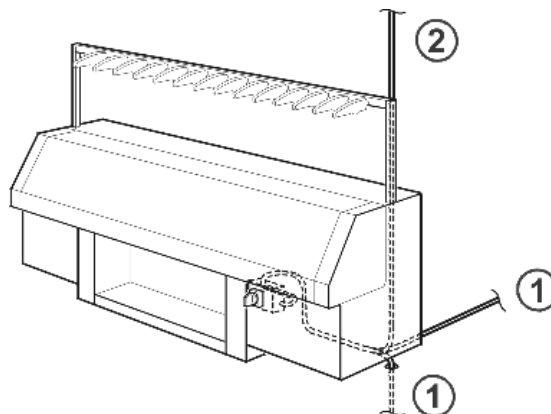


Fig. 4-9 Mains supply

1. Determine the direction of rotation of the mains supply.



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Deenergize building mains supply.

2. Open the mains switch housing.



Potential equalization missing!

Serious errors or disturbances can be caused in the machine and the electronic circuit if the terminal "PE" is not connected.

Terminal "PE" to be connected always

3. Connect the mains supply to the terminals L1, L2, L3 and N of the terminal strip and to the yellow-green protective conductor (PE).

4. Close the main switch housing.

The right connection of the mains supply is controlled (clockwise phase sequence: Terminals L1, L2, L3 (R, S, T)). If the signal "4272 Power Supply Phase Sequence Wrong" appears on the touch screen, then the connection is wrong.

Correction of the error "4272 Power Supply Phase Sequence Wrong":



DANGER

High voltage!

Electrical shock may cause death or serious injuries.

➔ Interrupt the mains supply to the machine

It is not sufficient to simply switch off the machine at the main switch!

➔ Swap the two phases of the mains supply.

Adapting fluff absorption to
mains frequency

Depending on the mains frequency (50 Hz or 60 Hz), the fluff absorption operates with or without sealing plugs.

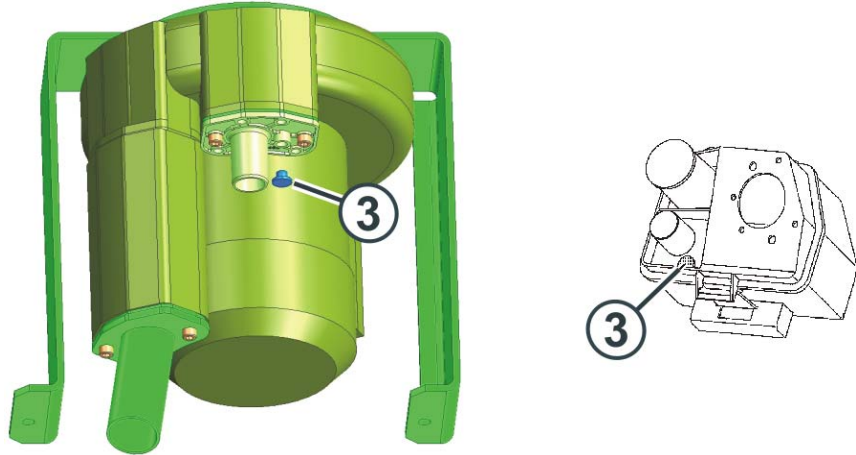


Fig. 4-10 Adapting fluff absorption (on the left: from component type 001 on, on the right: component type 000)



The fluff absorption can be damaged if the mains frequency is not adapted!

The fluff absorption is overloaded if it is not adapted to the mains frequency.

Adapt the fluff absorption to the mains frequency.

1. Open the left cover.
2. Check the sealing plugs (3) of the suction unit.
3. At Mains frequency 50 Hz: Insert sealing plug.
- or -
➔ At Mains frequency 60 Hz: Remove sealing plug.

4.2.4 Aligning knitting machine

Align the machine:

1. Lay the level on the support surface on the right-hand side of the needle bed.

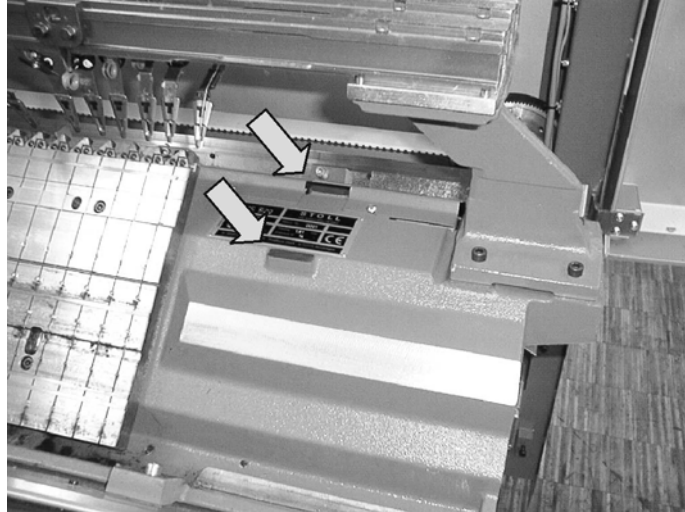


Fig. 4-11 Right support surface for level

2. Align the knitting machine with the grub screws from the enclosed accessories.



Fig. 4-12 Grub screws for aligning the machine

3. Switch on the main switch and wait for the "Main menu" to appear on the touch screen.

4. Call up "Manual interventions" window



Fig. 4-13 "Manual interventions" window

5. Tap "Rel. drive brake" key.
6. Push the carriage to the right by hand until the support surfaces on the left side of the needle bed are accessible.
7. Lay the level on the support surfaces on the left side of the needle bed.

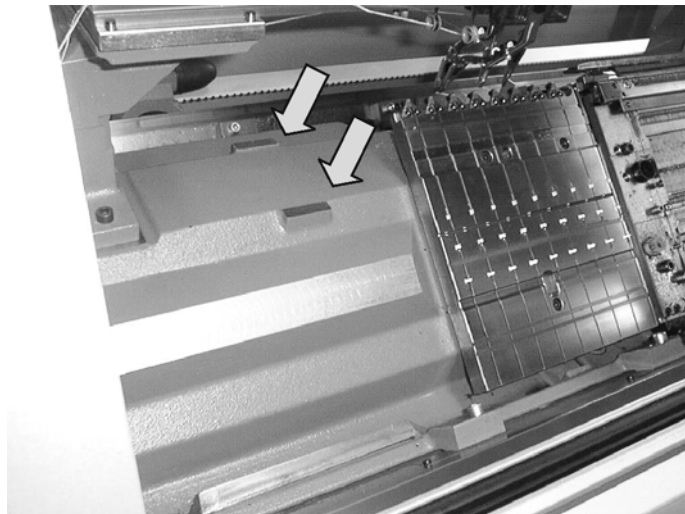


Fig. 4-14 Left support surface for level

8. Align the knitting machine with the grub screws from the enclosed accessories.

4.3 Mounting yarn feeding and control device

When setting up the yarn feeding and control device, the following components are assembled:

- Yarn control device
- Signal lamp

4.3.1 Mount the yarn control device



Push the supports of the yarn control device upward together with another mechanic to prevent the supports from jamming.

1. Open the side safety covers and release the screws (1) on both sides of the machine.

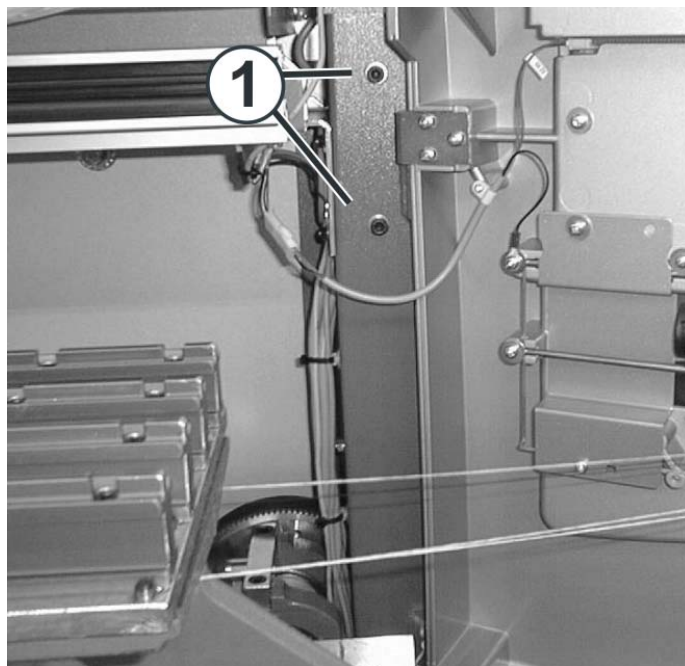


Fig. 4-15 Supports for the yarn control device

2. Push the left and right supports of the yarn feeding and control device upward simultaneously until the distance between the bobbin board and the yarn feeding and control device is 50 to 55 cm.
3. Retighten the screws (1) on both sides of the machine.
4. Move the rear track of the yarn feeding and monitoring unit from the transport into the production position.

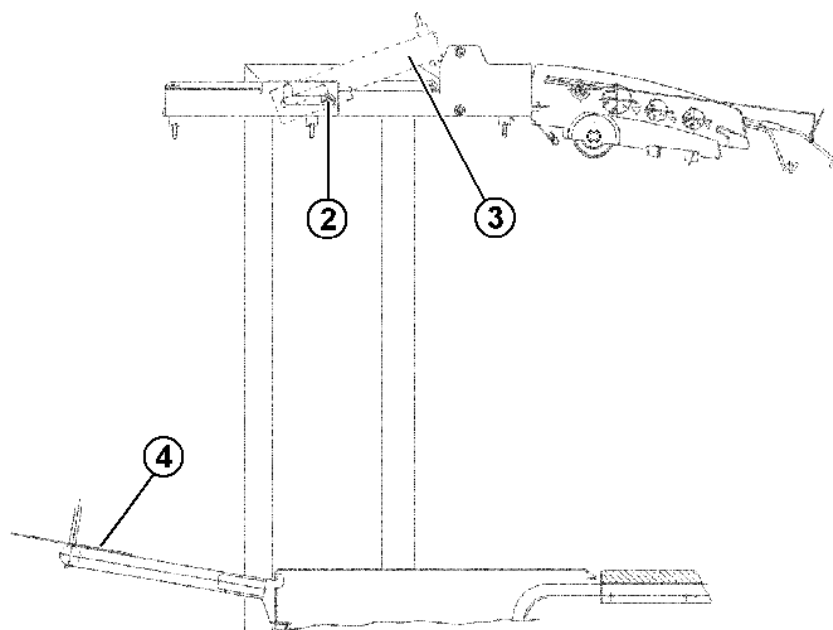


Fig. 4-16 Position of supports for the yarn control device

5. Release the screw (2) on the left and right-hand sides of the machine, fold down the track (3) and tighten the screw (2) again.
6. Tighten the screw for fastening the rear track in the center of the machine.
7. Hook in both additional bobbin boards (4).



The additional bobbin boards (4) are not supplied as standard with some machine types. They are available as a special equipment.

4.3.2 Mounting signal lamp



The power supply for the yarn control devices and the signal lamp are moved into the supports when the knitting machine is shipped. The signal lamp from the accessories needs only be connected and screwed into place.



Fig. 4-17 Signal lamp



Carefully tighten the fastening screw of the signal lamp to prevent the plastic holder from being damaged.

1. Plug the power cable from the left support into the signal lamp (1).
2. Screw on the signal lamp onto the left support with the screws present there.

4.4 Glue on measuring tape

The measuring tape is used to check the fabric length on the machine. It can, for example, be glued on above the engaging rod. You will find the self-adhesive measuring tape in the accessories.

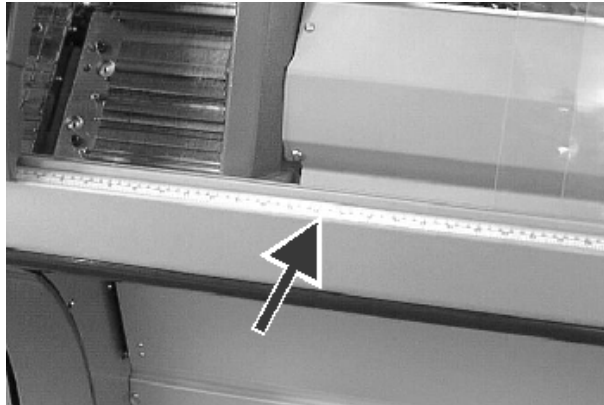


Fig. 4-18 Gluing on the measuring tape

4.5 Switching on machine

1. Turn the main switch on the front of the machine to "1".
The STOLL logo is displayed. As soon as the machine is ready, the "BootOkc" window appears.
2. To begin production without changing the basic settings, tap the "Warm start" key.
The "Main Menu" appears. The machine is ready to knit.

4.6 How to bring the carriage to an immediate standstill



In order to stop the movement of the carriage immediately, carry out one of the following functions:

- ➔ Press the (1)engaging rod downward.
- ➔ Open Cover hood (2)
- ➔ Open Cover hood (3)
- ➔ Switch off main switch

4.7 Checking safety equipment

The safety devices must be checked at least once every 24 hours:



DANGER

Defective safety device!
Death or serious injury.

- ➔ If a safety device does not stop the machine, it must be stopped for safety reasons and secured against being started up again. Repair must be carried out immediately.








DANGER

Open shrouding covers and safety covers.
Danger of crushing and cutting by the carriages, racking, fabric take-down, take-down comb and additional beds!

- ➔ Do not reach into the running machine when the shrouding covers and safety covers are open.

Safety device	Checking
Engaging rod (1)	Production setting
	<ul style="list-style-type: none"> ■ Pull engaging rod to highest position and release. The carriage pulls out. The engaging rod is held by a magnet. ■ Press engaging rod to bottom position (zero position). The carriage must be stopped immediately
	Middle position <ul style="list-style-type: none"> ■ Pull engaging rod to middle position and release. The carriage pulls out. The engaging rod is not held by a magnet, must rather fall back to the zero position. The carriage must be stopped immediately
Cover hood (2)	<ul style="list-style-type: none"> ■ Pull engaging rod to highest position and release. The carriage pulls out. ■ Open shrouding cover The carriage must be stopped immediately The engaging rod falls to zero position simultaneously. ■ Repeat this process for each shrouding cover
Side protective hoods (3)	<ul style="list-style-type: none"> ■ Pull engaging rod to highest position and release. The carriage pulls out. ■ Open the protective hood on the right side of the machine. The carriage must be stopped immediately The engaging rod falls to zero position simultaneously. ■ Repeat this process for the protective hood on the left side of the machine.
Main switch, (4) Emergency stop switch	<ul style="list-style-type: none"> ■ Pull engaging rod to highest position and release. The carriage pulls out. ■ Switch off main switch / emergency shutdown switch (position "OFF") The carriage must be stopped immediately The engaging rod falls to zero position simultaneously. The machine must switch off automatically

Drive limit switch	<ul style="list-style-type: none"> ■ Call up the "Reference runs"  window from the main menu and tap the "S<" key. ■ Pull engaging rod to highest position. The carriage moves towards left. The machine must stop shortly before reaching the buffer. The limit switch triggers the stop signal. ■ Push carriage from limit switch manually. <p>To confirm the calibration, tap the  key.</p> <ul style="list-style-type: none"> ■ Repeat the check on the right side of the machine, in that call up the window  "Reference runs" in the main menu and tap the "S<" key.
Cover (5)at take-down comb	<ul style="list-style-type: none"> ■ Pull engaging rod to highest position and release. The carriage pulls out. ■ Push cover to the left. A moulded handle is located on the right-hand side of the cover. Caution Caution: The cover is tilted a little outwards. ■ The carriage must be stopped immediately The Touch-Screen displays an error message. ■ Close the cover again. <p>To confirm the calibration, tap the  key.</p>
Cover (5)at take-down comb (light barrier)	<ul style="list-style-type: none"> ■ Pull engaging rod to highest position and release. The carriage pulls out. ■ Push the cover lightly toward the rear. ■ The carriage must be stopped immediately The Touch-Screen displays an error message. <p>■ To confirm the calibration, tap the  key.</p>