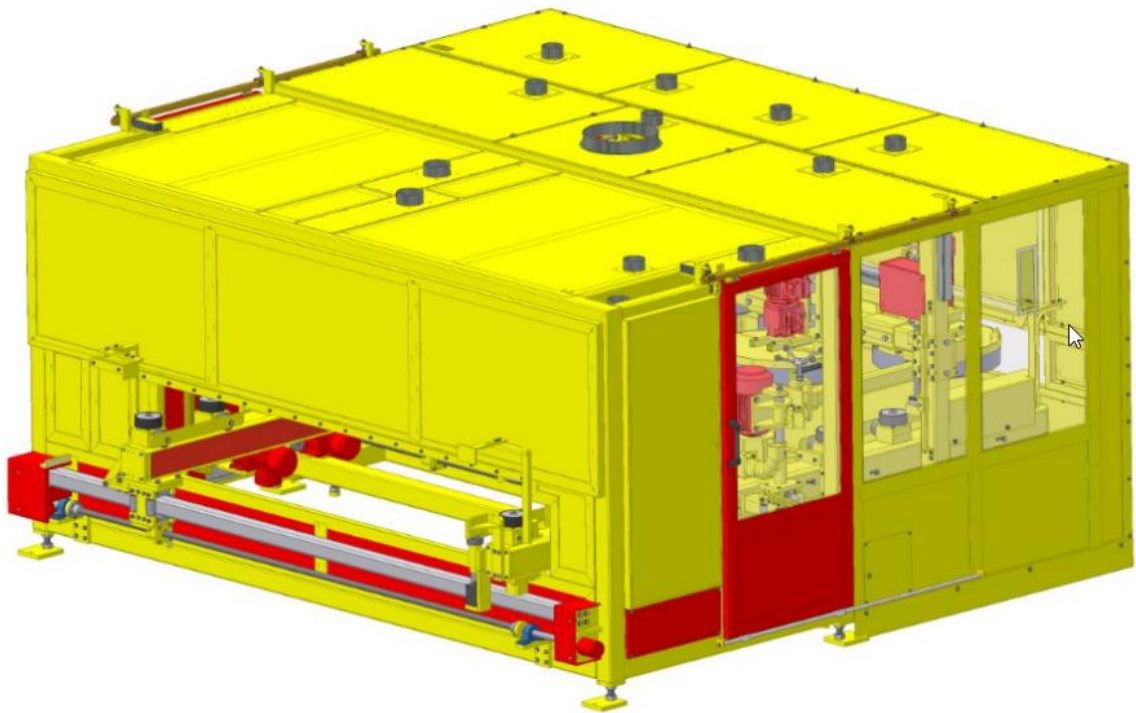


Operating instructions

Frame Formwork Cleaner Model SB10B



Machine number: 5253

Year of build: 2017



State of documentation 08/2017



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Table of contents

Table of contents	3
List of figures	5
List of tables	6
1 Preface	7
1.1 Basic notes	7
1.2 Warranty.....	7
1.3 Copyright	8
1.4 Our address.....	8
2 Safety notes	9
2.1 Safety provisions and cautionary measures	9
2.2 Symbol and notice explanation in the text of these instructions	10
2.3 Safety notes at the machine.....	11
2.4 General safety notes	12
2.5 Operation.....	12
2.6 Dangers from electrical energy	13
2.7 Oils and lubricants	13
2.8 Maintenance and care.....	13
2.9 Repairs.....	14
2.10 Disassembly and disposal.....	14
3 Working method, purpose	15
3.1 Working notes	15
3.2 Intended use.....	15
3.3 Non-intended use	15
3.4 Prohibitions.....	15
4 Technical information	16
4.1 Technical data	16
4.2 Transport and storage of the machine	17
4.3 Machine setup and commissioning	17
4.4 Deduster setup and commissioning	18
4.5 Machine disassembly	18
4.6 Electrical connections.....	18
4.7 Commissioning.....	19
5 Operation	20
5.1 Operating panel overview	20
5.2 Switching on and starting the machine	21

5.3	Working with the machine	21
5.4	Setting up the machine (height and width settings)	23
5.5	Setting up the transverse cleaning sensors	24
5.6	Setting the Press-on Pressure of the Transverse Cleaning	25
5.7	Setting the pressure pre-tension	25
5.8	Switching off the machine.....	25
5.9	EMERGENCY OFF button	25
5.10	Menu structure of the operating panel.....	27
5.10.1	Information pages:	28
5.10.2	Settings:	28
5.10.3	Manual operation:	30
5.11	Functions via the operating panel	31
5.11.1	Reference run:	31
5.11.2	Homing run:	31
5.11.3	Message "Element in system" - Reset:	31
5.11.4	Reversing request.....	32
5.11.5	Display and colours in the operating panel.....	32
5.11.6	Login settings, service pages	33
5.11.7	Reading and resetting of fault messages	33
6	Maintenance and care	34
6.1	Maintenance notes	34
6.2	Maintenance plan	34
6.3	Changing the transverse cleaning brush.....	36
6.4	Changing the side brushes.....	37
6.5	Changing the disc brushes	38
6.6	Changing the infeed rollers, drive chains and chain wheels	39
6.7	Lubrication points	40
6.8	Electrical	41
6.9	Deduster maintenance	41
7	Interference and remedies	42
7.1	Drive	42
7.2	Transverse cleaning	43
7.3	Side cleaning	44
7.4	Cover cleaning.....	45
7.5	Notes on troubleshooting for the electrician	46
8	Spare parts and circuit diagrams.....	47
8.1	Overview drawings	47

8.2	Total list mechanical spare and wear parts.....	54
8.3	general mechanical spare and wear parts	64
8.4	Mechanical spare and wear parts drive beam	67
8.5	Mechanical spare and wear parts transverse cleaning.....	69
8.6	Mechanical spare and wear parts side cleaning	71
8.7	Mechanical spare and wear parts cover cleaning.....	74
8.8	Mechanical spare and wear parts width adjustment	78
8.9	Electrical spare and wear parts.....	80
8.10	Circuit diagram	86
9	Equipment and accessories.....	86
9.1	Equipment	86
9.2	Accessories	86
10	EC declaration of conformity	87
10.1	EC declaration of conformity	87
11	Annex third-party documentation.....	91
12	Notes.....	93
12.1	Notes	93

List of figures

Figure 2.1	Safety note "Danger"	11
Figure 2.2	Safety note "Caution"	11
Figure 2.3	Safety note "Warning"	11
Figure 5.1	Operating panel "001 Start"	20
Figure 5.2	Description of the signal lamp.....	22
Figure 5.3	Setting cover cleaning.....	23
Figure 5.4	Adjust transverse-cleaning of the sensors.....	24
Figure 5.5	Menu page "400 Target values".....	25
Figure 5.6	Operating panel "001 Start"	27
Figure 5.7	Information pages	28
Figure 5.8	Settings see page 400	28
Figure 5.9	Settings pages 401, 402	28
Figure 5.10	Settings pages 403, 404	29
Figure 5.11	Settings pages 405, 406	29
Figure 5.12	Manual operation pages 301, 302	30
Figure 5.13	Manual operation pages 303, 304	30

Figure 5.14 Manual operation pages 305, 306.....	30
Figure 5.15 Element in system	31
Figure 5.16 Display and colours in the operating panel	32
Figure 5.17 Operating panel page 501	33
Figure 6.1 Replacing the cross-cleaning brush and disassembly brush package	36
Figure 6.2 Changing the side brush	37
Figure 6.3 Changing the disc brushes.....	38
Figure 6.4 Changing the infeed rollers	39
Figure 6.5 Lubrication points swivel shafts and stop bolts	40
Figure 8.1 Overview spare parts page 1	47
Figure 8.2 Overview spare parts page 2	48
Figure 8.3 Overview spare parts page 3	49
Figure 8.4 Overview spare parts page 4	50
Figure 8.5 Overview spare parts page 5	51
Figure 8.6 Overview spare parts page 6	52
Figure 8.7 Overview spare parts page 7	53

List of tables

Table 6.1 Maintenance plan 1	34
Table 6.2 Maintenance plan 2	35
Table 7.1 Drive - measures at faults	42
Table 7.2 Transverse cleaning - measures at faults	43
Table 7.3 Side cleaning - measures at faults	44
Table 7.4 Lining cleaning - measures at faults.....	45
Table 8.1 Total list mechanical spare and wear parts	54
Table 8.2 Total list mechanical spare and wear parts	64
Table 8.3 Spare and wear parts drive beam	67
Table 8.4 Spare and wear parts transverse cleaning.....	69
Table 8.5 Spare and wear parts side cleaning	71
Table 8.6 Spare and wear parts cover cleaning.....	74
Table 8.7 Spare and wear parts width adjustment.....	78
Table 8.8 Electrical spare and wear parts	80

1 Preface

1.1 Basic notes

These operating instructions are to make it easier for you to operate this machine and to get to know it, as well as using it for its intended use.

These operating instructions contain important notes to securely, properly and economically operate this machine.

Observing the operating instructions helps avoid dangers, reduce downtimes and repair costs. Proper treatment of this machine increases its reliability and service life.

In addition to the information in the operating instructions, instructions regarding present national provisions on accident prevention provisions and environmental protection must be observed.

The operating instructions must be read and applied by any person who is charged with the following work at and with this machine:

- ⇒ Operation, removal of interferences in the work process, removal of production wastes, care, disposal of operating and auxiliary substances.
- ⇒ Maintenance (servicing, inspection, repairs) and (or) transport

1.2 Warranty

The agreed and confirmed sales and delivery conditions apply.

Warranty and liability claims in case of person and property damage are excluded if they are due to one or several of the following causes:

- ⇒ Non-observance of the notes and operating instructions
- ⇒ Non-intended use of the machine
- ⇒ Improper assembly, commissioning, operation and maintenance/servicing of the machine
- ⇒ Maintenance and servicing by staff not authorised by **Schwarz GmbH**
- ⇒ Operation of the machine with defective safety devices or improperly applied or non-functional safety and protection devices
- ⇒ Use of other than genuine **Schwarz GmbH** spare parts
- ⇒ Non-observance of the notes in the operating instructions regarding transport, storage, assembly, commissioning, maintenance and setting of the machine
- ⇒ Independent constructional changes to this machine
- ⇒ Independent changes of technical parameters (e.g. performance)
- ⇒ Defective monitoring of parts subject to wear
- ⇒ Improperly performed repairs
- ⇒ Disasters due to foreign body effects and force majeure

1.3 Copyright

The copyright in these operating instructions remains with the company **Schwarz GmbH**. These operating instructions are intended for the operator and his staff only.

These operating instructions must not be reproduced, distributed or passed on to any third parties wholly or in part without our approval.

Violations may lead to consequences under criminal law.

1.4 Our address

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2 Safety notes

2.1 Safety provisions and cautionary measures

Obligation of the operator:

The operator commits to only letting persons work on this machine who are at least 18 years old,

- ⇒ who are familiar with the provisions on work safety and accident prevention
- ⇒ who have been instructed in handling of this machine
- ⇒ who have proven their qualification to the operator
- ⇒ who have read and understood the warning notes in the operating instructions

If several persons work together at this machine, the operator must specify a supervisor.

Obligations of the operating staff:

All persons who are charged with work at this machine commit before taking up work:

- ⇒ to observe the provisions on work safety and accident prevention,
- ⇒ to read the safety notes in these operating instructions.

Danger when handling the machine:

This machine is built to the state of the art and the recognised safety rules. Nevertheless, its use may cause danger to the health of the user or third parties, or impairment of this machine or property.

Organisational measures:

The operating instructions must be kept at hand at all times at the site of use of the machine.

In addition to the operating instructions, generally valid statutory and other binding rules on accident prevention and environmental protection must be observed. All persons must be instructed accordingly. This also includes wearing of personal protection of any kind. Safety- and danger-aware work of staff must be inspected under observation of the operating instructions.

Ensure that all safety and danger notes at this machine are present in full and well readable. In case of changed safety-relevant operating behaviour, shut down this machine at once. The interferences that occurred must be reported to the relevant body or person. No other additional devices than those approved by the manufacturer must be used.

Unauthorised use of the machine by third parties must be excluded by the operator. Proper and safe operation of the machine requires proper transport, professional setup and commissioning, as well as careful operation and maintenance. The operating instruction's information must be observed with care.

Ensure that no one can be endangered by the machine starting up before switching on/starting the machine.

2.2 Symbol and notice explanation in the text of these instructions

Observe the safety notes in the text. They are always placed in front of the corresponding activity to warn you in time. Possible dangers when working with and at the machine are marked as follows in the text:

Personal injury:



DANGER! designates a directly threatening danger. If it is not avoided, death or very severe injury will result.



WARNING! designates a possibly threatening danger. If it is not avoided, death or very severe injury may result.



CAUTION! designates a possibly threatening danger. If it is not avoided, light or minor injury may result.

Product/machine/plant damage:



ATTENTION! designates a possibly harmful situation. If it is not avoided, the plant or something in its environment may be damaged.

2.3 Safety notes at the machine

Icons are applied to the machine at the respective danger position to inform you of possible dangers.

The icons have the following meaning:



Figure 2.1 Safety note "Danger"

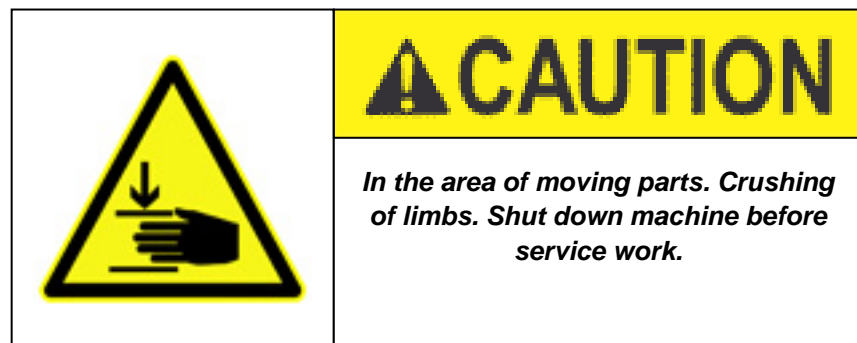


Figure 2.2 Safety note "Caution"

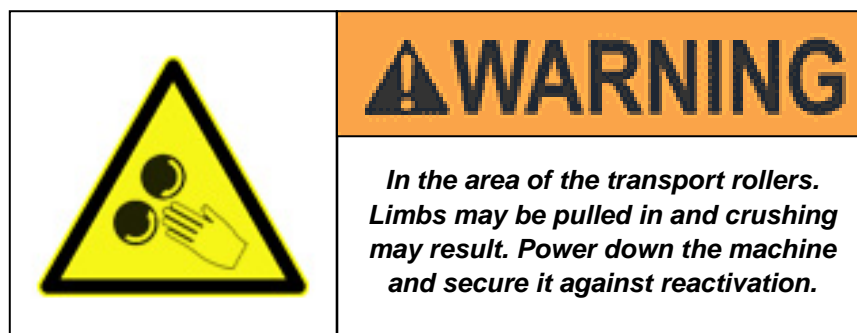


Figure 2.3 Safety note "Warning"

2.4 General safety notes

The machine may cause danger to persons or property damage if it is operated or serviced improperly, other than intended or by persons not trained for it.

The operator must ensure that only staff who is accordingly qualified and authorised work at this machine.

At certain intervals, safety- and danger-aware work of the staff under compliance with the operating instructions should be inspected.

The machine's safety can be impaired if:

- ⇒ safety and danger notes at or on this machine are not kept legible.
- ⇒ conversions or modifications of this machine are performed.
- ⇒ any other spare and wear parts than those intended by the manufacturer are used.
- ⇒ any other additional devices than those intended or approved by the manufacturer are used at this machine.
- ⇒ Never perform any work that impairs the machine's safety.
- ⇒ The operator must report any changes that occurred at this machine and that impair safety, to his supervisor at once.

2.5 Operation

NOTICE

For any work that refers to operation, setup and commissioning of the machine, the work steps indicated in the operating instructions must be complied with precisely. Furthermore, the following cautionary measures must be complied with.

Machine operation

- ⇒ Only instructed person familiar with the operating instructions must be charged with handling of this machine.
- ⇒ Unauthorised use of the machine by third parties must be excluded by the operator.
- ⇒ The safety devices must not be deactivated, disassembled or impaired in their function.
- ⇒ In case of outage or impairment of individual safety devices, shut down this machine at once.

2.6 Dangers from electrical energy



If the power supply is not interrupted (main switch), no maintenance work must be performed at the components.

2.7 Oils and lubricants

Due to the contents (additives), these substances may pose a danger to health and the environ-

NOTICE

Selection and use is solely subject to the operator's responsibility. An operating instruction to be drawn up by the operator that provides for handling of these substances should include the following:

- ⇒ Designation of the substances
- ⇒ Designation of dangers for persons and the environment
- ⇒ Protective measures and rules of conduct, e.g.:
 - wear protective gloves of resilient plastic
 - avoid contact with skin and eyes
 - do not inhale vapours and mists
 - fire, open flame and smoking are prohibited
 - conduct in case of danger, first aid

2.8 Maintenance and care

This machine must be regularly inspected for wear and any affected parts must be replaced if applicable. (Chapter 8 Spare parts and circuit diagrams).

This machine is not subject to any inspections.

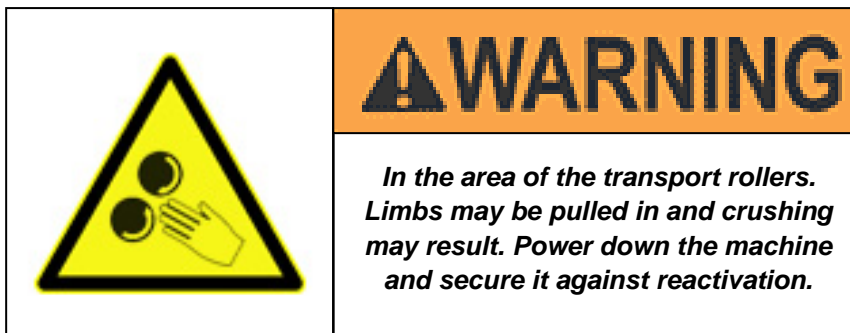
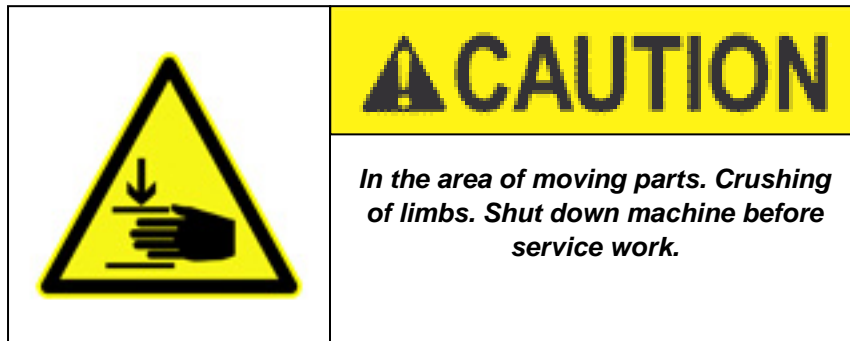
Before any maintenance and care work is performed, the main switch must be turned to the secured position 0-OFF and secured against unauthorised reactivation.

NOTICE

- ⇒ Always ensure that there are no persons in the machine's danger area.
- ⇒ Care work must only be performed by instructed staff under compliance with the provisions in the operating instructions.

2.9 Repairs

When the machine must be ready for operation during repairs, special caution is required.



- ⇒ Ensure that there are no persons in the danger area under any circumstances.
- ⇒ If safety facilities must be disassembled for repairs, they must be assembled and reviewed again after completion of the repair work.
- ⇒ Damaged safety devices must be replaced.

2.10 Disassembly and disposal

National and international provisions must be observed for disposal of the machine.

3 Working method, purpose

3.1 Working notes

Usual progress of a work step

The frame formwork cleaner SB10B is designed for cleaning frame formwork.

- ⇒ Loading the frame formwork cleaner with a frame formwork.
- ⇒ Fully automatic cleaning.
- ⇒ Remove the frame formwork.

The work steps repeat afterwards.

3.2 Intended use

The frame formwork cleaner SB10B is intended for:

- ⇒ Cleaning of frame formwork within the adjustable width and height.

The maximum dimensions of the frame formwork to be cleaned must not exceed the dimensions (see chapter [4.1](#) Technical data, page [16](#)) of the machine.

3.3 Non-intended use

For non-intended use, improper treatment and when the machine is operated by untrained or unauthorised persons, the machine may cause danger to the staff and the machine. Therefore, only trained, instructed and charged persons must operate this machine. Non-intended use of this machine means, among others:

- ⇒ Non-observance of the notes and instructions in the operating instructions regarding transport, assembly, commissioning, operation, maintenance and equipment of the machine
- ⇒ Operation of this machine with defective safety facilities.
- ⇒ Independent constructional changes.
- ⇒ Independent changes at the machine's drive.
- ⇒ Improperly performed repairs
- ⇒ Disasters due to external effects and force majeure
- ⇒ Use in automatic operation (programme-controlled operation) by control change.

3.4 Prohibitions

- ⇒ Modification or deactivation of safety devices.
- ⇒ Operation of this machine with defective safety facilities.
- ⇒ Painting over or removing signs, notes, etc.
- ⇒ Operation of this machine by unauthorised and uninstructed persons.

4 Technical information

4.1 Technical data

Drives:

Electrical drive	total 31 KW 400 V / 50 Hz
Protection of the supply	80A

Emission values (sound):

Idle	59 dB(A)
Work step approx.	83 dB(A)

Dimensions:

Height	2300 mm
Length	3800 mm
Width	3900 mm

Adjustment area:

Height	60 mm to 150 mm
Width	200 mm to 2700 mm

Weights:

Total machine	4000 kg
Front segment	2200 kg
Rear segment	1800 kg

4.2 Transport and storage of the machine

The cleaning machine can be loaded onto a truck trailer with a front stacker after the corresponding disassembly of the machine segments.

When transporting or storing, the machine must be secured against inadvertent slipping with suitable attachment means.

Observe the following items for setting up and commissioning:

- ⇒ This machine must only be loaded with suitable lifting gear (e.g. front stacker).
- ⇒ The required carrying capability of the means of transport is according to this machine's dead weight and unloading of the machine segments (see Technical data, page [16](#)).
- ⇒ Ensure a secure, load-bearing and stable underground.

4.3 Machine setup and commissioning

The place of setup of the machine must be selected to warrant proper stance on firm underground. When setting up the machine, observe the correct safety distances.

NOTICE

- ⇒ When setting up, observe the infeed direction of the cleaning machine.
- ⇒ Set up the cleaning machine horizontally.
- ⇒ Put a roller table in front of the machine and a roller table behind the machine.
- ⇒ Align the roller tables with a yardstick levelly and laterally along the guide rollers of the cleaning machine.
- ⇒ Now fasten the cleaning machine and roller tables to the floor
- ⇒ Install the extraction unit properly.

Attention: The machine is designed for a right-ward turning rotating field.

NOTICE

! Connection polarity of the supply must only be reversed by an electrician!

- ⇒ Create the power supply to the machine (phase sequence L1-L2-L3 right rotating field).
- ⇒ Check all emergency off buttons for triggering.
- ⇒ Safety doors must be closed.
- ⇒ Switch on the machine by putting the main switch in the On position
- ⇒ Operate the emergency off reset through the button.
- ⇒ The deduster is started automatically.
- ⇒ Start the machine by pushing the respective start buttons. (see page [21](#))
- ⇒ Check the rotating direction of the cleaning machine and reverse polarity of the connection if required.
- ⇒ Check all emergency off devices for function

Observe the respective operating instructions for any further setting measures.

NOTICE

4.4 Deduster setup and commissioning

Type of deduster: PF-Jet 9000

NOTICE

The place of setup of the deduster must be selected to warrant proper stance on firm underground.

When setting up, observe the extraction connection.

- ⇒ Set up the deduster with a crane at the transport eyelets intended for this.
- ⇒ The included sealing tape must be glued on between the muffler hood and deduster.
- ⇒ Put the muffler hood on the deduster with the scripture Fa. Richters to the front.
- ⇒ Fasten the hood to the deduster with the lateral closures.
- ⇒ Create electrical connections
- ⇒ Open the fan chamber door and check deduster motor rotating direction. (see arrow at the motor).
- ⇒ Properly connect pipelines to cleaning machine and seal.

4.5 Machine disassembly

- ⇒ Disconnect the cleaning machine from the circuit and clean.
- ⇒ Disassemble the roller tables at the inlet and outlet sides and put them aside.
- ⇒ Disconnect deduster from the machine.
- ⇒ Remove floor fastenings.

4.6 Electrical connections

The electrical supply is created by a fixed connection. The supply is to be protected according to the Technical data (see page [16](#)) and the circuit diagram (see page [86](#)).

The electrical supply line is produced by connecting the supply cable in the control cabinet. Observe the right-ward turning field. The supply is to be protected according to the technical data (see chapter [4.1 Technical data](#), page [16](#)) and the circuit diagram (see chapter [8.10](#), page [86](#)).

4.7 Commissioning

Preparation:

Suitable power supply to the machine must be ensured.

Switching on:

To switch the machine on, turn the main switch to the 1-ON position.

- ⇒ Now operate the EMERGENCY OFF RESET button at the control cabinet.
- ⇒ Then switch on the control of the system with the button control ON.
- ⇒ Pushing the symbol for automatic mode on the operating panel switches the system to automatic mode.
- ⇒ Pushing and holding the ON symbol on the operating panel starts the system after an acoustic start-up warning.

Safety inspection:

The machine is equipped with several EMERGENCY OFF devices.

When they are operated, the machine must stop.

The EMERGENCY OFF facilities are located:

- ⇒ On the control cabinets on the left and right sides of the machine
- ⇒ At the end of the roller tables.
- ⇒ Opening one of the four doors to the inside of the machine also trips a at the machine.

5 Operation

5.1 Operating panel overview

A precise description of the functions starts on page [27](#).

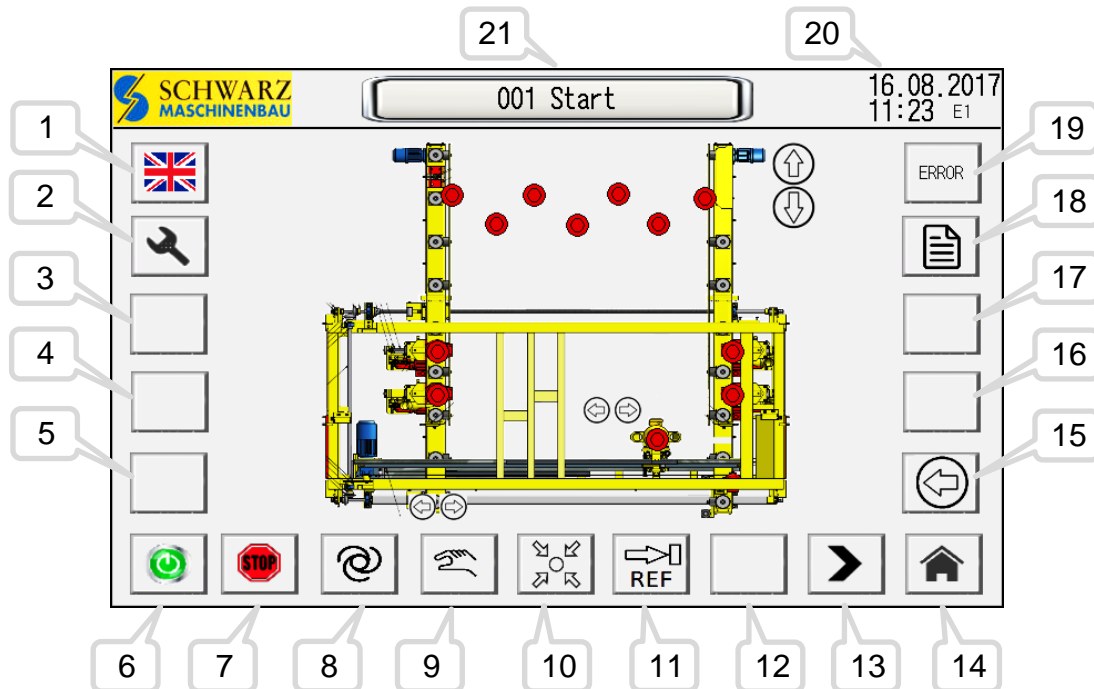


Figure 5.1 Operating panel "001 Start"

Keys of the operating panel:

- 1) Language switching
- 2) Settings
- 3) Res.
- 4) Res.
- 5) Res.
- 6) "ON" automatic
- 7) "STOP" automatic
- 8) Automatic mode
- 9) Manual mode
- 10) Homing run
- 11) Reference run width adjustment (160 mm)
- 12) Browse back
- 13) Browse forward
- 14) Start/Home operating interface
- 15) Reversing request
- 16) Res.
- 17) Res.
- 18) Information pages
- 19) Display and opening error pages
- 20) Time + date
- 21) Page name of the current display

5.2 Switching on and starting the machine

Switching on:

- ⇒ The machine is switched on via the main switch at the control cabinet on the right side. To switch the machine on, turn the main switch to the 1-ON position.
- ⇒ Push the blue EMERGENCY OFF reset button at the control cabinet
- ⇒ Switch on the control via the green CONTROL ON button.

Starting automatic:

- ⇒ Tap the automatic mode symbol in the operating panel so that its background turns green.
- ⇒ Tap and hold the On button (icon no.: [6](#), page [20](#)) (for approx. 2.5 s), automatic mode is activated after an acoustic warning.

5.3 Working with the machine

Safety:

Before switching on the machine, make certain that there are no persons inside the machine or in its intake area.



Preparations for automatic mode:

Check that the machine is empty before starting automatic mode. In particular after any service work, check that the brushes are in their home positions.



Work process in automatic mode:

Generally, the corresponding personal protection must be worn when working at the machine (safety shoes, safety goggles, etc.).



- ⇒ Switch on the machine
- ⇒ Push the corresponding buttons to start the system in automatic mode.
- ⇒ Observe the signal lamps (see Figure 5.2):
 - Green -> Push the formwork to the next stop bolt
 - Yellow -> Setting processes in the machine
 - Red -> Machine is occupied
 - Flashing red -> A fault occurred, observe error list.
- ⇒ Put the frame formwork onto the inlet roller table.
- ⇒ Push the frame formwork against the side stop.
- ⇒ Push the frame formwork against the first stop bolt.
- ⇒ The frame formwork is now measured. When this process has ended, the stop bolt releases the formwork.

- ⇒ Now the formwork is pushed against the inner stop bolt.
- ⇒ The frame formwork is now picked up and fully automatically transported into the system and cleaned there.
- ⇒ Remove the cleaned frame formwork from the outlet roller table after cleaning.
- ⇒ If the frame formwork is to be cleaned again or if settings are required, push the icon "Reverse" (see Figure 5.1 Operating panel "001 Start", page 20) to supply the frame formwork to the plant again. Transport of the frame formwork from the outlet roller table to the inlet roller table thus is not required.



There must not be any frame formwork inside or in front of the machine for reversing! It could be pushed out beyond the inlet roller table!

- ⇒ After completing cleaning, switch off the machine control by the right control cabinet. Switch off the machine by turning the main switch to the position 0-OFF.



<- acoustic signal when starting automatic START

<- red machine occupied, red flashing fault

<- setting processes of the machine

<- insert element

Figure 5.2 Description of the signal lamp

See commissioning for EMERGENCY OFF or power outage on page 19.

5.4 Setting up the machine (height and width settings)

- ⇒ Switch on the machine.
- ⇒ The system fully-automatically adjusts in weight and height to the frame formwork to be cleaned.
- ⇒ Setting the pressure pre-tension of the width setting (see page [25](#))
- ⇒ The height setting does not need to be adjusted, since fine setting of the cover cleaning is performed from the outside. See below section cover cleaning.
- ⇒ Adjustment of all brushes is possible in operation.

Side cleaning

- ⇒ Moving and regulating of the side brushes is possible via the corresponding buttons at the control cabinet.
- ⇒ Side brushes can be switched ON or OFF in pairs via the operating panel for automatic mode (see Figure [5.13](#)).

Cover cleaning

- ⇒ If required or if the disc brushes are worn, the respective disc brush may be adjusted individually in height via the carriage "A" from the outside using the nut wrench (accessories SW19) "B" (see Figure [5.3](#) Setting cover cleaning).
- ⇒ The disc brushes should have an incline of 3 to no more than 5 degrees. "C". Thus, the front edge of the brushes is higher than the rear edge and the formwork elements can be transported more easily under the disc brushes.

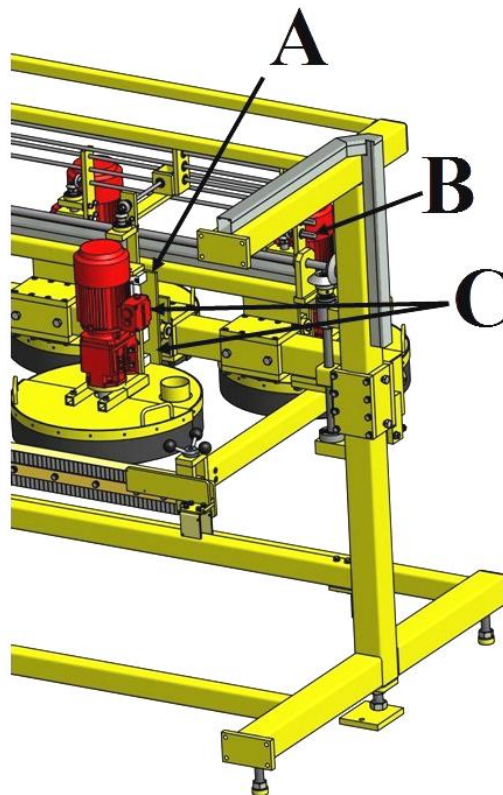


Figure 5.3 Setting cover cleaning

Abbildung 5.4 Einstellung Belagreinigung Figure 5.13 Manual operation pages 301, 302

Figure [5.13](#)

5.5 Setting up the transverse cleaning sensors

The following setting work must only be performed with a new brush.

- ⇒ Bring the machine to a standstill.
- ⇒ Set both wear amounts of the sensor to be adjusted to zero in the menu "400 Target values" (see Figure [5.6](#), page [25](#)).
- ⇒ Perform test run.
- ⇒ If the distance from the frame formwork is too large, the respective sensor "A" or "B" must be pushed closer towards the other (see Figure [5.5](#) Adjust transverse-cleaning of the sensors., page [24](#)).
- ⇒ The front side is adjusted via sensor "A".
- ⇒ The rear side is adjusted via sensor "B".
- ⇒ The sensors can be adjusted by moving the holding angles "C" or "D".
- ⇒ Correct setting: Wear amount = 0 and brush slightly touches at the formwork.
- ⇒ Perform test run.
- ⇒ Repeat the adjustment until the correct setting has been reached.

The settings described above are performed ex works and may need to be repeated after a sensor change.

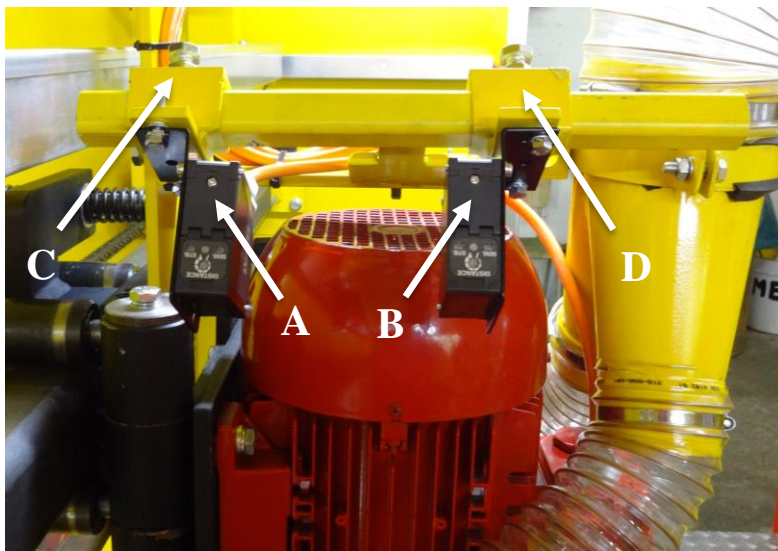


Figure 5.5 Adjust transverse-cleaning of the sensors.

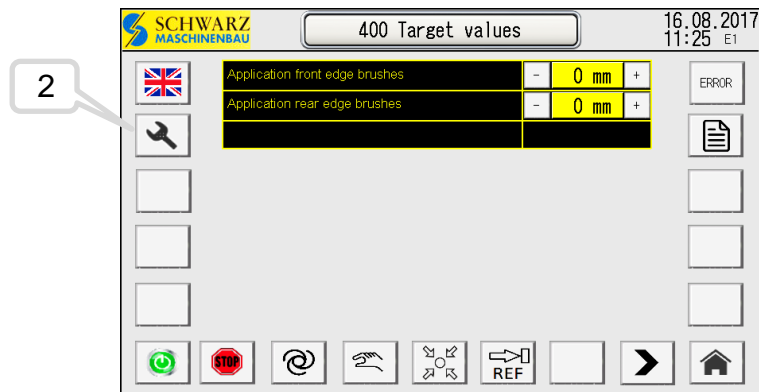


Figure 5.6 Menu page "400 Target values"

5.6 Setting the Press-on Pressure of the Transverse Cleaning

The pressure of the transverse-cleaning brush to the front or rear edge of the formwork element can be adjusted via the operating panel (see Figure 5.6, page 25).

In order to apply more pressure to the brush on the front face, the button "+" in the field "Supply front edge of brushes" must be pushed; less pressure is applied with button "-".

The pressure of the transverse cleaning brush to the rear edge is set in the field below.

The possible setting range is between 0 and 30. The value displayed refers to wear of the brush.

For a new brush, the value is at "0mm",
for a worn one, it is at "30mm".

After a brush change, both values must be manually reset to "0"!

NOTICE

5.7 Setting the pressure pre-tension

The sensor is set ex works and re-adjustment usually is not necessary. Only exchange of the sensor or a strong mechanical effect on the sensor holder requires subsequent settings. Please contact our technical support.

5.8 Switching off the machine

After termination of the cleaning work, operate the button "STOP" at the right control cabinet. Switch off the machine by turning the main switch to the position 0-OFF.

5.9 EMERGENCY OFF button

In case of emergencies, the machine can be stopped at once with the EMERGENCY OFF button.

The EMERGENCY OFF buttons are located at the right and left of the control cabinets and at the last roller table.

The main switch on the right of the control cabinet also has the function of an EMERGENCY OFF switch. Turning it to the OFF position will shut down the machine at once and power down the machine.

Regarding recommissioning of the machine, see commissioning, page [19](#).

5.10 Menu structure of the operating panel

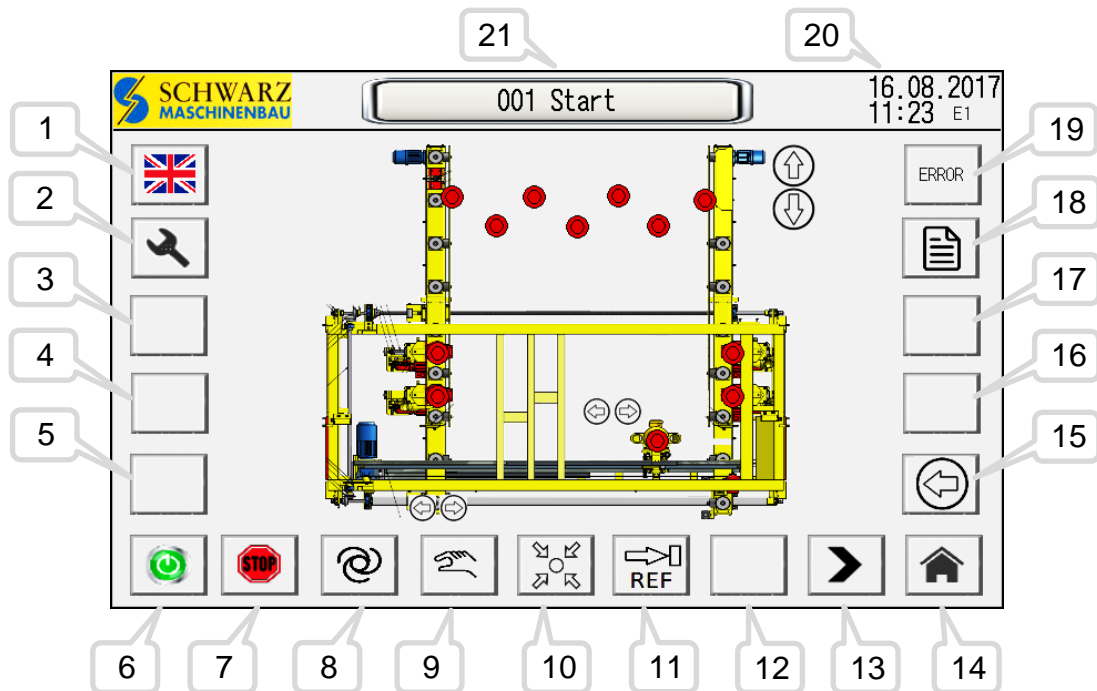


Figure 5.7 Operating panel "001 Start"

Keys of the operating panel:

- 1) Language switching
- 2) Settings
- 3) Res.
- 4) Res.
- 5) Res.
- 6) "ON" automatic
- 7) "STOP" automatic
- 8) Automatic mode
- 9) Manual mode
- 10) Homing run
- 11) Reference run width adjustment (160 mm)
- 12) Browse back
- 13) Browse forward
- 14) Start/Home operating interface
- 15) Reversing request
- 16) Res.
- 17) Res.
- 18) Information pages
- 19) Display and opening error pages
- 20) Time + date
- 21) Page name of the current display

5.10.1 Information pages:

Call via symbol "18" at the operating panel. This contains information on the:

- ⇒ Total operating hours
- ⇒ Operating hours until the next service interval
- ⇒ Day counter: Formwork elements number and areas with reset function
- ⇒ Overall counter: Formwork elements number and areas

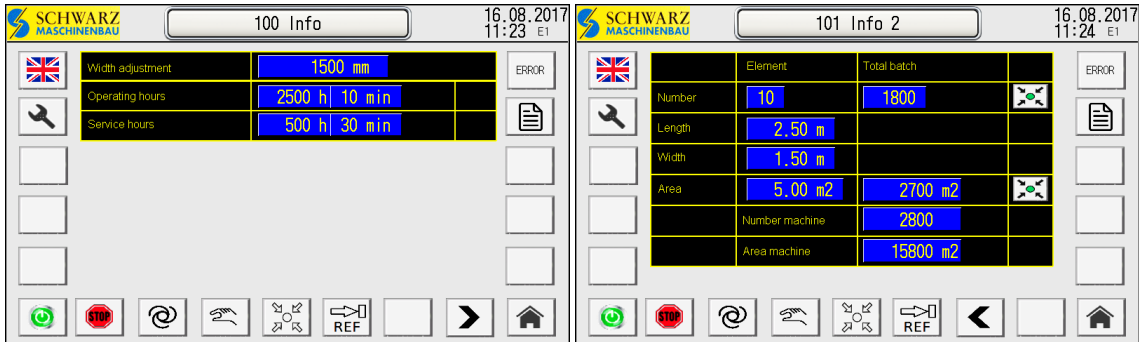


Figure 5.8 Information pages

5.10.2 Settings:

Call via symbol "2" at the operating panel. On the menu page "400 Target values", the transverse cleaning brush application can be set. These settings are password-protected.

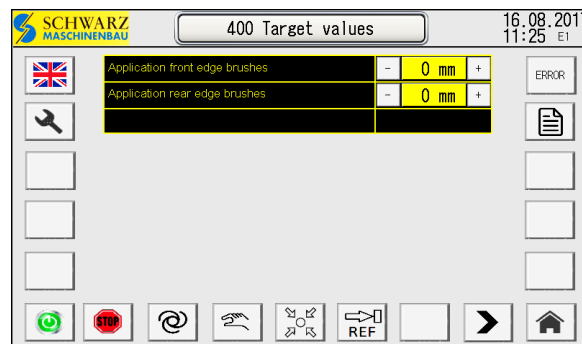


Figure 5.9 Settings see page 400

The further pages under settings provide information on values that is stored in the software and information on diagnosis.

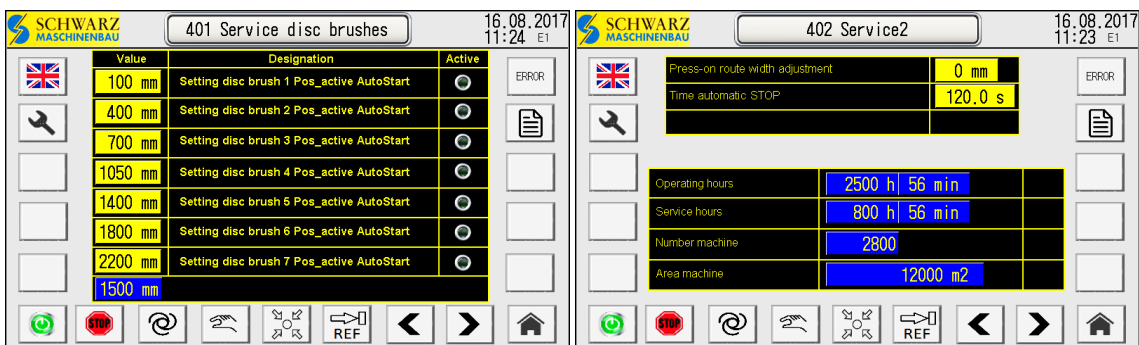


Figure 5.10 Settings pages 401, 402

Conditions of the sensors and switching outputs of the PLC. They can be used for diagnosis if necessary.

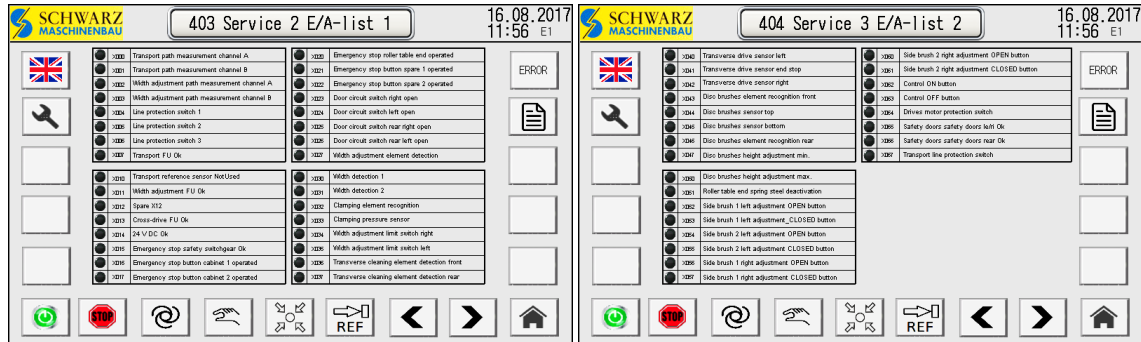


Figure 5.11 Settings pages 403, 404

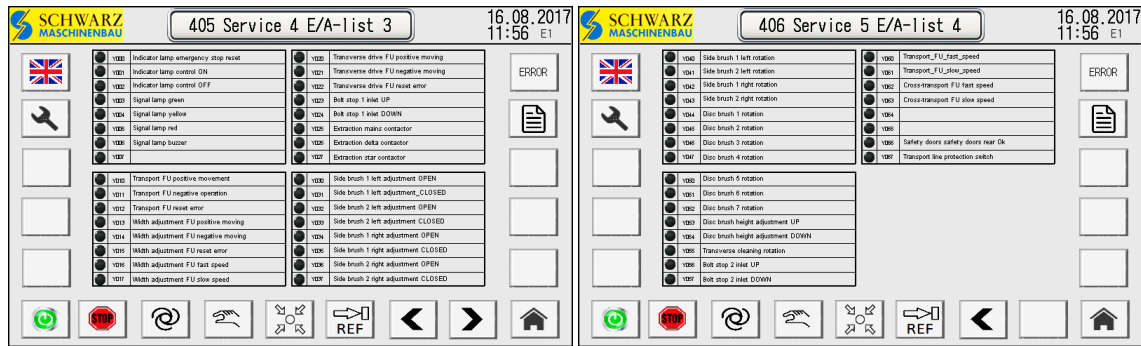


Figure 5.12 Settings pages 405, 406

5.10.3 Manual operation:

Once manual mode (symbol "9") has been selected, the different menu pages of the individual functions can be selected with the forward browsing icon "13".

- ⇒ Side brush rotation and supply, left/right, switch ON/OFF in pairs for automatic mode
- ⇒ Disc brush rotation, height adjustment and display of the associated sensors
- ⇒ Transverse cleaning rotation, transverse drive procedure and display of the sensors
- ⇒ Transport forward and reverse, moving the stop bolts up and down
- ⇒ Moving the width adjustment and display of the limit position sensors

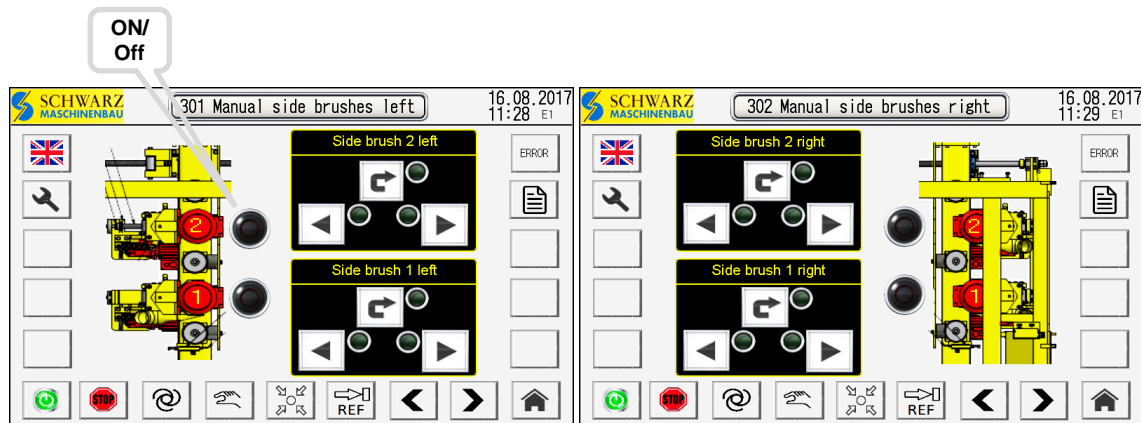


Figure 5.13 Manual operation pages 301, 302

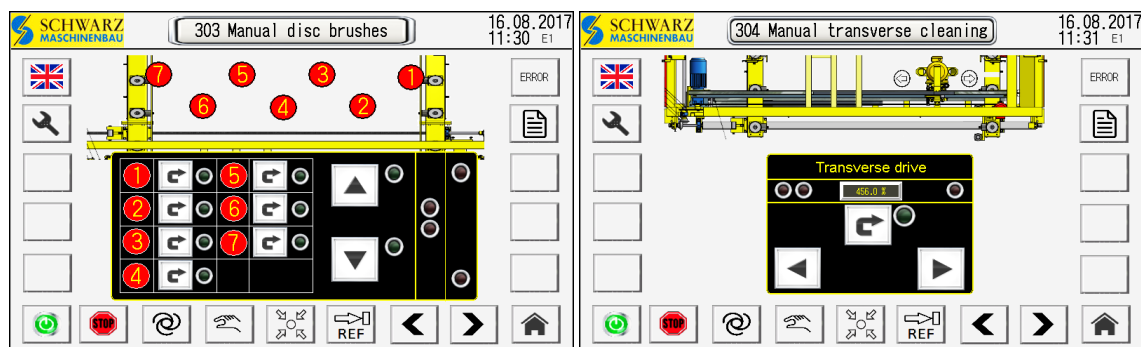


Figure 5.14 Manual operation pages 303, 304

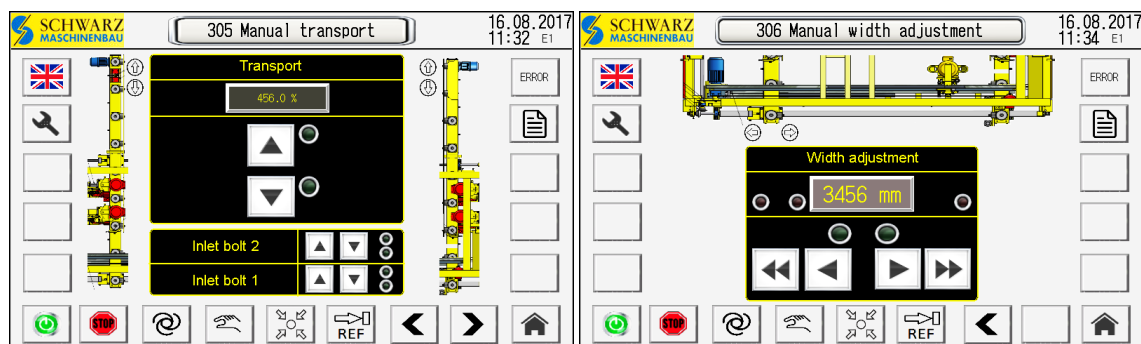


Figure 5.15 Manual operation pages 305, 306

5.11 Functions via the operating panel

5.11.1 Reference run:

The width measurement should be inspected at regular intervals. Ex works, the difference across the width is +/-3 mm from the display in the operating panel to the measured width between the transport rollers. If the values have any larger deviations, the automatic width referencing can be used to re-adjust the values (see Figure 5.7). After the reference run, the distance of the transport rollers is (160 mm).

The active reference run is displayed via the yellow signal lamp on the machine and the flashing symbol at the operating panel.

Please observe that the machine must be cleared for the reference run!

NOTICE

5.11.2 Homing run:

If the machine must be cleared, this can be done with the homing run. The following functions are performed:

- ⇒ Lifting the dish brushes to the maximum
- ⇒ Moving the transverse drive until the transverse cleaning brush is in the position above the adjustment beam.
- ⇒ The transport rollers are started, so that any present formwork elements are moved from the machine.

The active homing run is displayed via the yellow signal lamp on the machine and the flashing symbol at the operating panel.

5.11.3 Message "Element in system" - Reset:

Interruption of the automated cleaning process or manual occupation of one of the element recognition sensors may switch the control to the status "Element in the system" even though the machine is empty or has already been cleared.

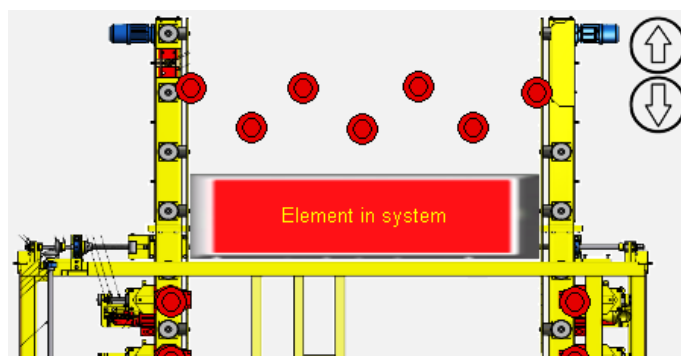


Figure 5.16 Element in system

The message can be reset when manual mode has been selected. Tapping the message in the operating panel will issue a message for resetting the element counter.

5.11.4 Reversing request

If subsequent cleaning of an element is required or for setting work, the SB10B offers the option to reverse the formwork elements.

The requirement of reversing is tripped with the symbol "15") Reversing request" (see page 27). The request can only be set in automatic mode and is displayed by the flashing symbol at the operating panel.

The control moves the still-present elements out of the machine. In order to avoid collision, the disc brushes are then moved up via the automatic height adjustment. The transport now switches to reversing and the formwork element can be inserted into the machine from behind. The return transport is ended as soon as the formwork element is moved back until it is placed in front of the transverse cleaning brush. Now the control switches and the element is cleaned in the standard automatic mode again.

5.11.5 Display and colours in the operating panel

- ⇒ The corresponding symbols have a green background for active functions.
- ⇒ If the machine moves to the home position, reference run or the transverse drive to position, the symbols flash yellow or the signal light flashes.
- ⇒ If fault messages are pending, the Error symbol flashes red.

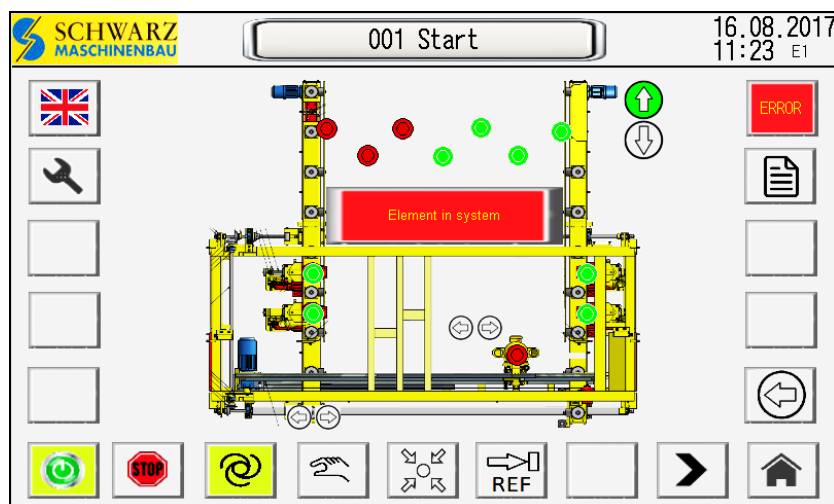


Figure 5.17 Display and colours in the operating panel

5.11.6 Login settings, service pages

A code is required for calling the setting pages (menu pages 400-406) and for resetting the day counter (menu page 101). Pushing the symbol "Settings" or the symbol "Reset" opens a window for entering the code.

5.11.7 Reading and resetting of fault messages

Call via symbol "19" at the operating panel. This page lists information on the type of the errors in case of a fault.

After the fault is removed, the messages in the list can be reset. This is done via the symbol "RESET" (see Figure 5.18).

Note:

Fault messages that were tripped by pushing EMERGENCY OFF switches are displayed and can only be reset via the button EMERGENCY OFF RESET at the right control cabinet.

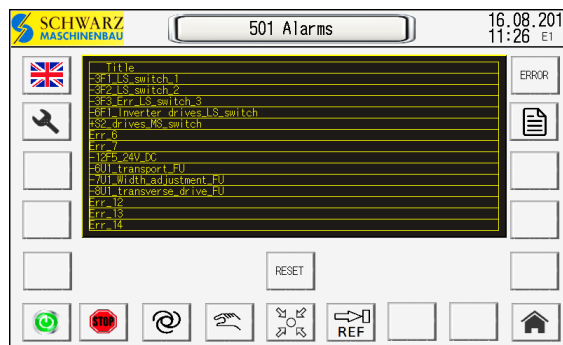


Figure 5.18 Operating panel page 501

6 Maintenance and care

6.1 Maintenance notes

NOTICE

Maintenance and service work must only be performed by trained, instructed and charged staff.

Turn the main switch to 0-OFF and secure it against unauthorised reactivation. Only genuine spare parts must be used.

6.2 Maintenance plan

NOTICE

The measures marked "(E)" must only be performed by an electrician

Table 6.1 Maintenance plan 1

Activity	Interval	Aids	Person
Checking emergency off function	Daily	Visual inspection	Operating staff
Lubricating swivel shaft	Weekly	Grease gun	Operating staff
Lubricating the stop bolt.	Weekly	Grease gun	Operating staff
Check brushes, re-place if required	Weekly	Visual inspection	Operating staff
Cleaning the machine	Weekly	%	Operating staff
Check extraction for function	Weekly	Visual inspection	Operating staff

Table 6.2 Maintenance plan 2

Activity	Interval	Aids	Person
Check cover scraper, adjust or replace if required.	Monthly	Visual inspection	Operating staff
Check side scraper, adjust or replace if required.	Monthly	Visual inspection	Operating staff
Check chains for wear, replace if required.	Monthly	Visual inspection	Operating staff
Check sprockets for wear, replace if required.	Monthly	Visual inspection	Operating staff
Check infeed rollers for wear, replace if required.	Monthly	Visual inspection	Operating staff
Check electrical connections for tightness, tighten if required.	Before initial commissioning, then annually.	Specific tools	Electrician (E)
Inspection of the entire plant	Annually	%	Installer Schwarz

6.3 Changing the transverse cleaning brush

- ⇒ Free transverse cleaning carriage if required to permit easier change of the brush.
- ⇒ Power down the machine and secure it against reactivation.
- ⇒ The brush package can now be removed entirely from the motor shaft by loosening the hexagon socket screw "A" (from the bottom in the brush shaft).
- ⇒ If the brush shaft cannot be removed easily, turn in the removal device (Item no.021 205) and remove the brush shafts with it.
- ⇒ Now clamp the brush shaft in the clamp (lower retention nut down)
- ⇒ Use an open-faced wrench (item no.021 202) to loosen the upper retention nut (counter-clockwise)
- ⇒ Replace worn brushes by new one.
- ⇒ After attachment of the new brushes, tighten the retention nut.
- ⇒ Install brush shaft and secure again with hexagon socket screw "A".
- ⇒ Activate the machine and perform a test run.

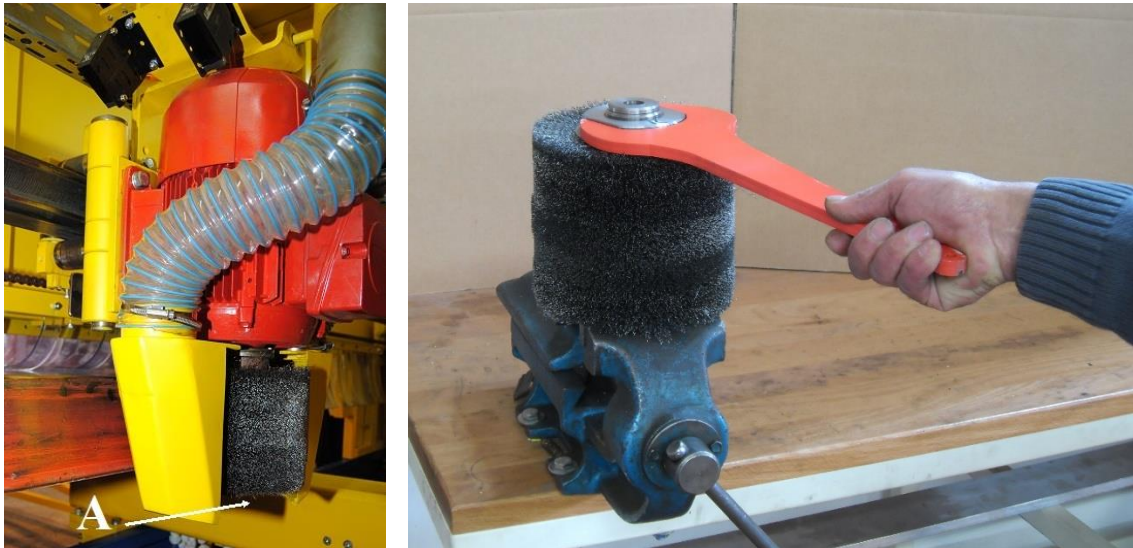


Figure 6.1 Replacing the cross-cleaning brush and disassembly brush package

6.4 Changing the side brushes

- ⇒ Move the brush to be changed all the way outwards and the other one inwards.
- ⇒ Power down the machine and secure it against reactivation.
- ⇒ Use an open-faced wrench (SW 19) to loosen the lower arresting screws "B" at the swivel shaft of the brush motor and swivel the entire side brush inwards (towards the other brush).
When turning, observe the motor cables to avoid crushing them.
- ⇒ Tighten the arresting screw "B" again to permit secure work.
- ⇒ The brush package can now be removed entirely from the motor shaft by loosening the hexagon socket screw "A" (from the bottom in the brush shaft).
- ⇒ If the brush shaft cannot be removed easily, turn in the removal device (Item no.021 205) and remove the brush shafts with it.
- ⇒ Now clamp the brush shaft in the clamp (lower retention nut up)
- ⇒ Use an open-faced wrench (item no.021 202) to loosen the lower retention nut
(left side brush = counterclockwise)
(right side brush = clockwise)
- ⇒ Replace worn brushes by new brushes.
- ⇒ After attachment of the new brushes, tighten the retention nut.
- ⇒ Install brush shaft and secure again with hexagon socket screw "A".
- ⇒ Swivel in the side brush again. It should be about 5 degrees in running direction backwards so that the spring effect of the swivel device is warranted.
- ⇒ Tighten the arresting screw "B" again.
- ⇒ Activate the machine and perform a test run.

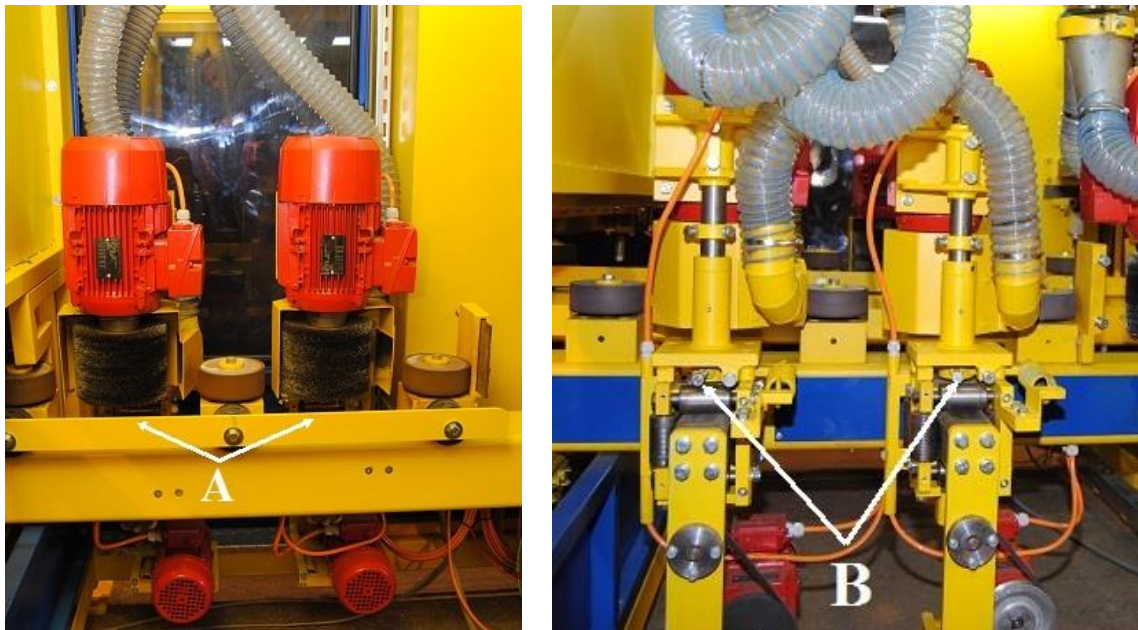


Figure 6.2 Changing the side brush

6.5 Changing the disc brushes

- ⇒ Power down the machine and secure it against reactivation.
- ⇒ Move a suitable frame formwork below the brushes.
- ⇒ Loosen the screws at the protective sheet of the brushes and remove it.
- ⇒ Loosen the 4 hexagon screws (SW13) "A" at the brush and pull them out.
- ⇒ Remove brush with dampening ring from the motor shaft.
- ⇒ Loosen the 3 screws "B" and remove them.
- ⇒ Remove brush from dampening ring.
- ⇒ Install new brush in reverse order.
- ⇒ Set all brushes on the same height.
- ⇒ Install protective sheet.
- ⇒ Remove frame formwork from the machine.
- ⇒ Perform height adjustment; see machine setup.
- ⇒ Activate the machine and perform a test run.

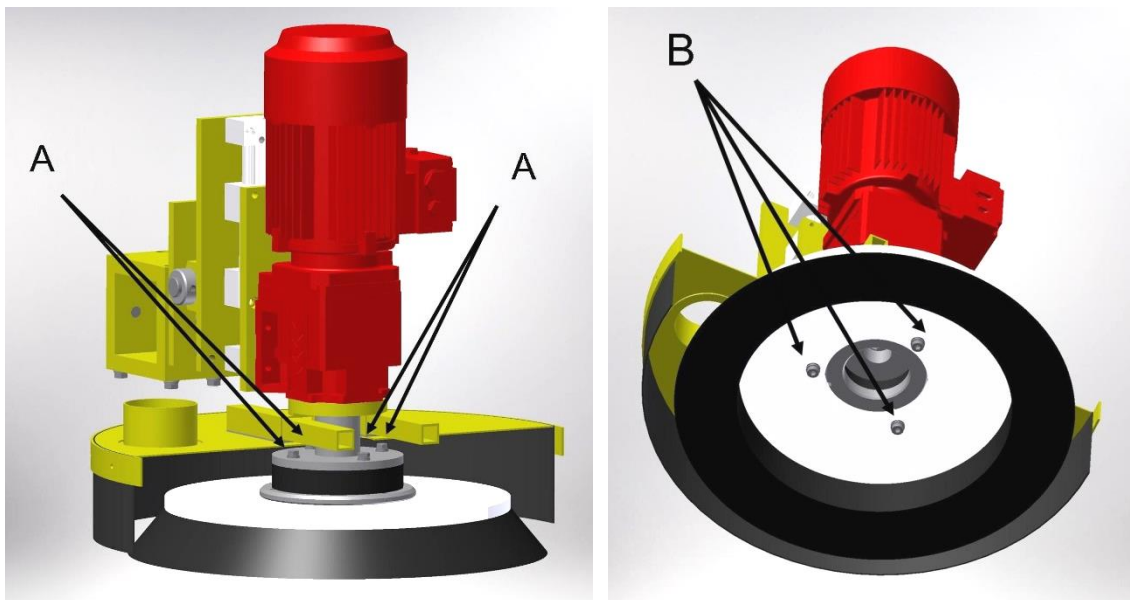


Figure 6.3 Changing the disc brushes

6.6 Changing the infeed rollers, drive chains and chain wheels

Infeed rollers

- ⇒ Power down the machine and secure it against reactivation.
- ⇒ To replace the infeed rollers, loosen the screw "A" and remove it.
- ⇒ Pull off infeed roller "B" to the top. Attention: Tappet piece may fall from the shaft.
- ⇒ If required, insert tappet back in the shaft and put on new infeed roller.
- ⇒ Turn in screw "A" again and tighten it.
- ⇒ Activate the machine and perform a test run.

Chain and Sprockets

- ⇒ Power down the machine and secure it against reactivation.
- ⇒ To replace the infeed chains or sprockets, remove the lateral chain box covers "C".
- ⇒ Loosen chain tensioner via screw "D" and counter-nut "E".
- ⇒ Open chain lock and remove chain.
- ⇒ Loosen screw "F" at the sprocket and take it out. Attention: Tappet piece may fall from the shaft.
- ⇒ If required, insert tappet back in the shaft and put on new sprocket.
- ⇒ Insert chain and connect with chain lock.
- ⇒ Tension chain tensioner via screw "D" until no play is present anymore.
- ⇒ Secure screw "D" with counter-nut "E".
- ⇒ Install chain box cover "C" again.
- ⇒ Activate the machine and perform a test run.

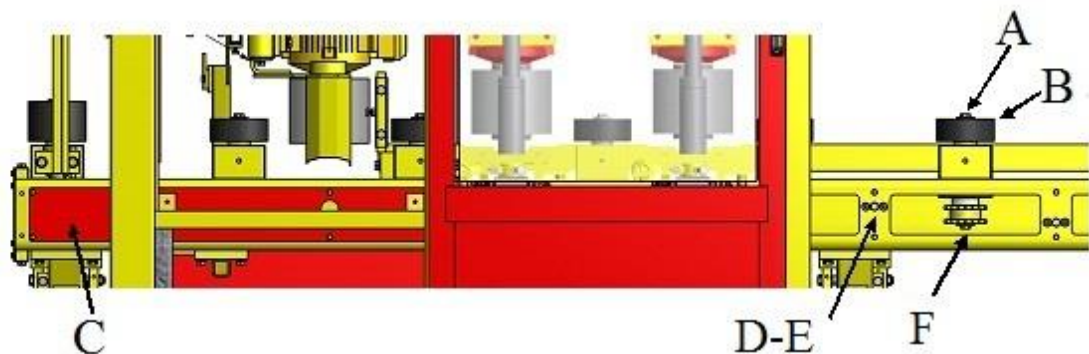


Figure 6.4 Changing the infeed rollers

6.7 Lubrication points

- ⇒ Lubrication nipple A at the swivel shafts. 2 on either side of the machine.
- ⇒ Lubrication nipple B at the stop bolts.

Lubrication instructions

- ⇒ Power down the machine and secure it against reactivation.
- ⇒ Open safety doors.
- ⇒ Close doors after completing maintenance.
- ⇒ Perform test run.

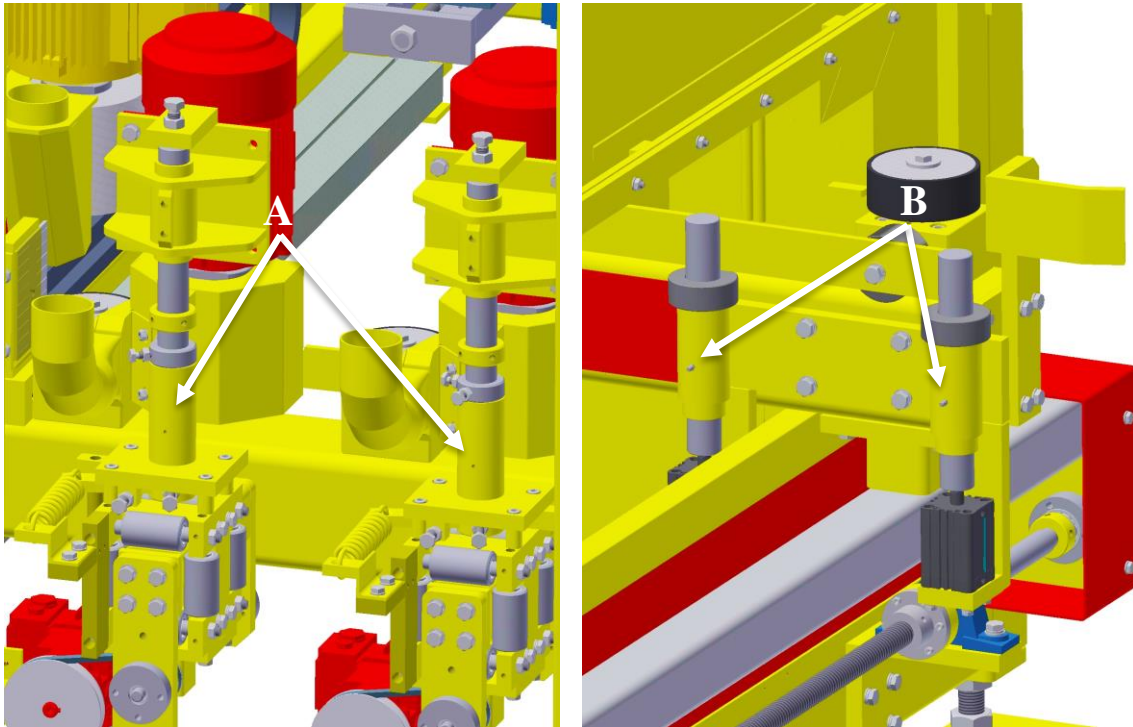


Figure 6.5 Lubrication points swivel shafts and stop bolts

6.8 Electrical

⇒ This machine is not subject to any special maintenance.

6.9 Deduster maintenance

Third-party documentation: See operating instructions deduster, model PF-Jet 9000.

Before any maintenance work, switch off the main switch at the SB10B in order to power down the deduster.

Attention!

The device must not be used to extract any flammable and explosive dusts.



7 Interference and remedies

7.1 Drive

NOTICE

The measures marked "(E)" must only be performed by an electrician

Table 7.1 Drive - measures at faults

<i>No infeed</i>		
Error	Cause	Remedies
Power	<ul style="list-style-type: none"> - not connected to the mains - connections defective - building protection 	<ul style="list-style-type: none"> - check connection (E) - check connections (E) - check (E)
Drive	<ul style="list-style-type: none"> - motor defective - connections defective - sprocket loose - chains defective - infeed rollers 	<ul style="list-style-type: none"> - check motors (E) - check connection (E) - tighten sprocket screw - repair chains, replace - replace
Control	<ul style="list-style-type: none"> - operate emergency off switch - switching off the machine - frequency converter - PLC 	<ul style="list-style-type: none"> - unlock emergency off button - switching on - check (E) - check (Schwarz GmbH)

NOTICE

The measures marked "(E)" must only be performed by an electrician

7.2 Transverse cleaning

Table 7.2 Transverse cleaning - measures at faults

No transverse cleaning		
Error	Cause	Remedies
No power	<ul style="list-style-type: none"> - motor protection tripped - control defective - connections - brush motor defective 	<ul style="list-style-type: none"> - check cause (E) - check (E) - check (E) - check (E)
Drive	<ul style="list-style-type: none"> - carriage bearing defective - motor defective - drive chain defective - tappet screws defective - control defective - connections - frequency converter - PLC 	<ul style="list-style-type: none"> - repair - check motor (E) - check, repair - replace - check (E) - check (E) - check (E) - check (Schwarz GmbH)
Transverse cleaning sensors	<ul style="list-style-type: none"> - defective - incorrect setting 	<ul style="list-style-type: none"> - replace and readjust - see "Setting up the transverse cleaning sensors"
Brush	<ul style="list-style-type: none"> - retention nut loose - tappet piece on shaft is missing 	<ul style="list-style-type: none"> - tighten - check, insert if required
Transverse cleaning too strong or too weak		
Error	Cause	Remedies
Transverse cleaning sensors	<ul style="list-style-type: none"> - sensor misadjusted - defective - PLC - supply via screen 	<ul style="list-style-type: none"> - see "Setting up the transverse cleaning sensors" - check (E) - check (Schwarz GmbH) - correct
Drive	<ul style="list-style-type: none"> - PLC - roller carriage bearing - frequency converter 	<ul style="list-style-type: none"> - check (Schwarz GmbH) - check, replace if required - check (E)
Brush	<ul style="list-style-type: none"> - worn 	<ul style="list-style-type: none"> - replace

7.3 Side cleaning

NOTICE

The measures marked "(E)" must only be performed by an electrician

Table 7.3 Side cleaning - measures at faults

No side cleaning

Error	Cause	Remedies
No power	<ul style="list-style-type: none"> - motor protection tripped - control defective - connections - brush motor defective 	<ul style="list-style-type: none"> - check cause (E) - check (E) - check (E) - check (E)
Drive	<ul style="list-style-type: none"> - motor defective - connections 	<ul style="list-style-type: none"> - check (E) - check (E)
Setting	<ul style="list-style-type: none"> - press-on - scraper - brush 	<ul style="list-style-type: none"> - setting - setting - replace

Side cleaning too strong or too weak

Error	Cause	Remedies
Brushes	<ul style="list-style-type: none"> - press-on too strong - press-on too weak - brush 	<ul style="list-style-type: none"> - reset - readjust - replace
Scraper	<ul style="list-style-type: none"> - press-on too strong - press-on too weak - scraper 	<ul style="list-style-type: none"> - reset - readjust - replace

7.4 Cover cleaning

The measures marked "(E)" must only be performed by an electrician

NOTICE

Table 7.4 Lining cleaning - measures at faults

No lining cleaning		
Error	Cause	Remedies
No power	<ul style="list-style-type: none"> - motor protection tripped - control defective - connections - motor defective 	<ul style="list-style-type: none"> - check cause (E) - check (E) - check (E) - check (E)
Height adjustment	<ul style="list-style-type: none"> - motor - mechanics - control 	<ul style="list-style-type: none"> - check (E) - check - check (E)
Brush	<ul style="list-style-type: none"> - setting too high - brush worn 	<ul style="list-style-type: none"> - adjustment via height setting from the outside - replace
Control	<ul style="list-style-type: none"> - switching points - PLC 	<ul style="list-style-type: none"> - check (Schwarz GmbH) - check (Schwarz GmbH)
Cover cleaning too strong or too weak		
Error	Cause	Remedies
Brush	<ul style="list-style-type: none"> - worn - defective - brush loose 	<ul style="list-style-type: none"> - readjust, replace if required - replace - check
Setting	<ul style="list-style-type: none"> - too high, too low 	<ul style="list-style-type: none"> - adjustment via height setting from the outside
Control	<ul style="list-style-type: none"> - PLC 	<ul style="list-style-type: none"> - check (Schwarz GmbH)

7.5 Notes on troubleshooting for the electrician

Procedure during troubleshooting:

- | | | |
|--|-----------------|-----------------|
| ⇒ Voltage measurement at the main switch | Input L1-L2-L3 | approx. 400V |
| | Output L1-L2-L3 | approx. 400V |
| ⇒ Voltage measurement at a motor protection switch input | | approx. 400V |
| ⇒ Voltage measurement at the power supply input side | | approx. 400V AC |
| ⇒ Voltage measurement at the power supply output side | | approx. 24V AC |

Checking the sensors

- ⇒ Switching on the machine. The green LED must be lit at the sensors.
- ⇒ The red LED must be lit when the sensors are operated.
- ⇒ All sensors can be checked on the screen below the menu item inputs of whether there is any feedback.

Motor does not work

- ⇒ Check motor protection switch, measure voltage at the output.
- ⇒ Measure voltage at the switched contactor.
- ⇒ Measure voltage at the terminals.
- ⇒ Check motor cable for damage.
- ⇒ Measure voltage at the motor terminal board; observe that the corresponding contactor switches, operate contactor manually or via the corresponding screen menu if required.
- ⇒ Checking motor winding.

8 Spare parts and circuit diagrams

8.1 Overview drawings

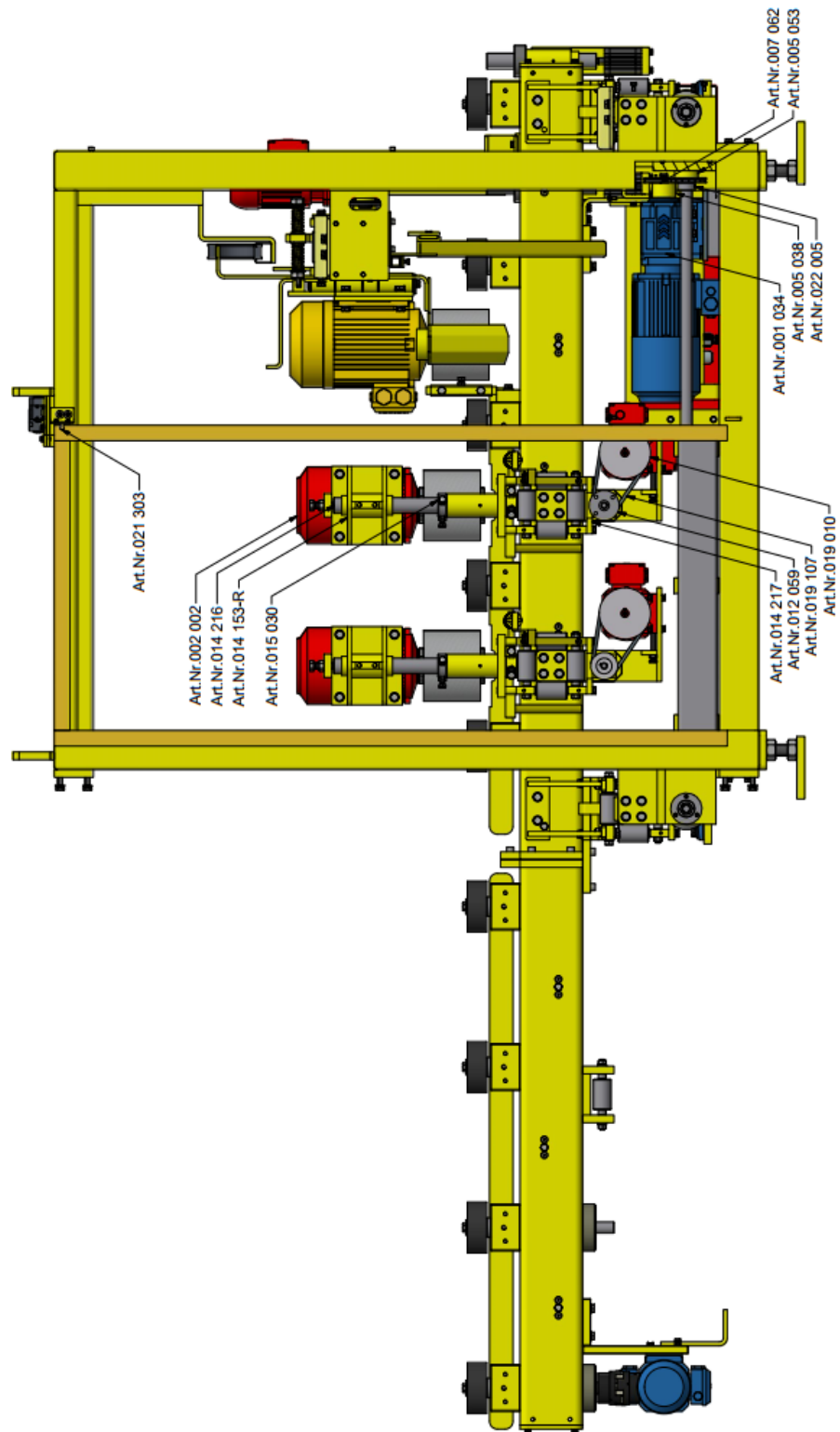


Figure 8.1 Overview spare parts page 1

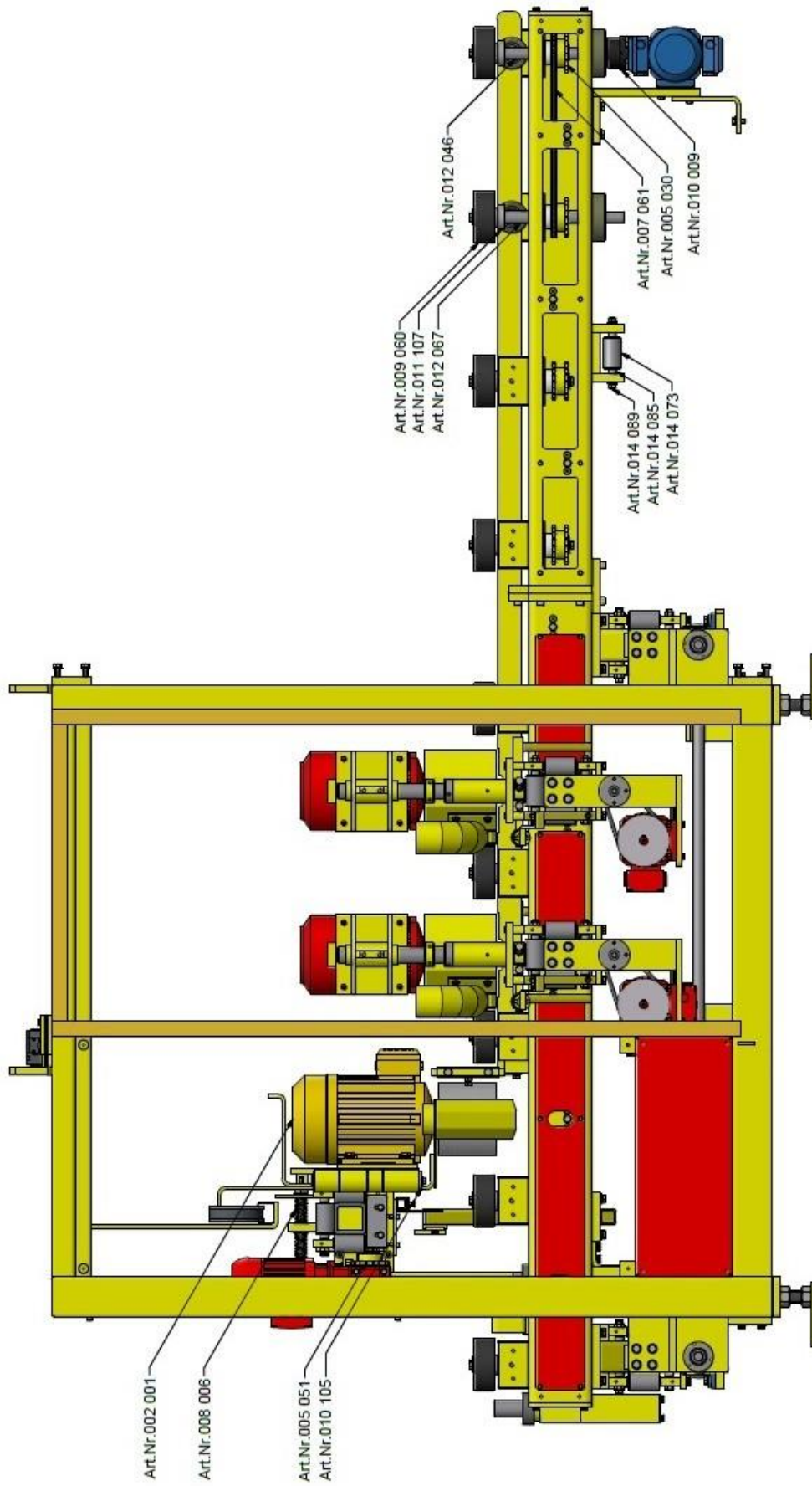


Figure 8.2 Overview spare parts page 2

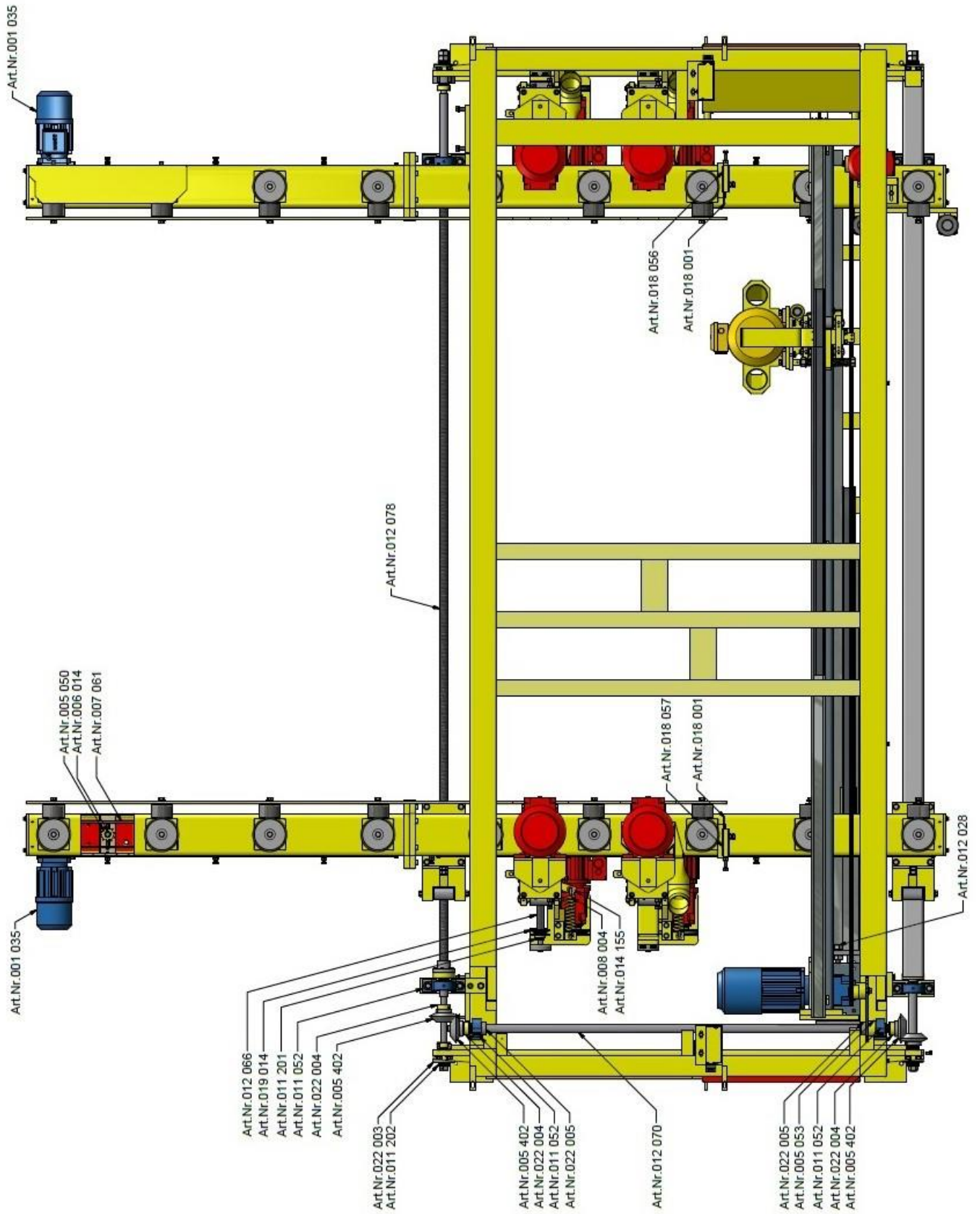


Figure 8.3 Overview spare parts page 3

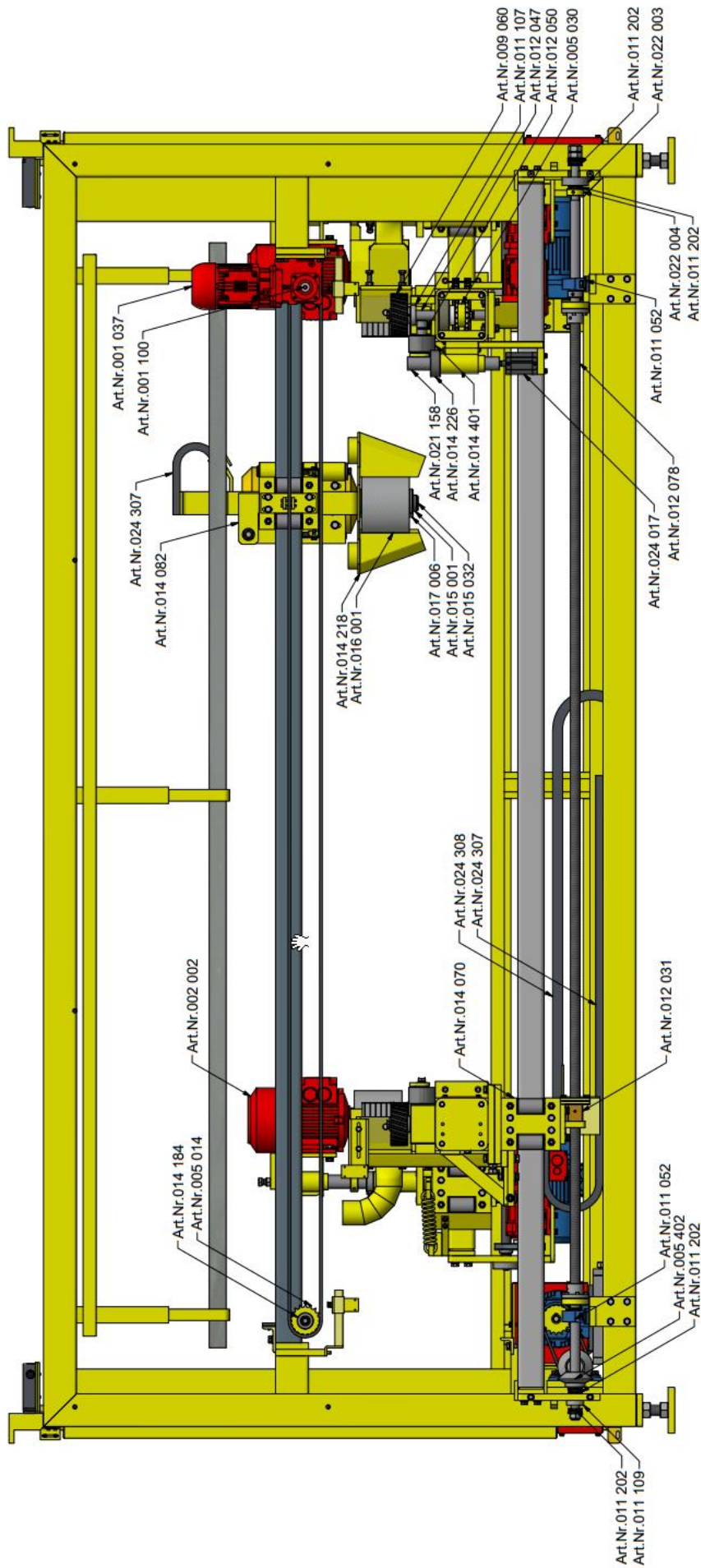


Figure 8.4 Overview spare parts page 4

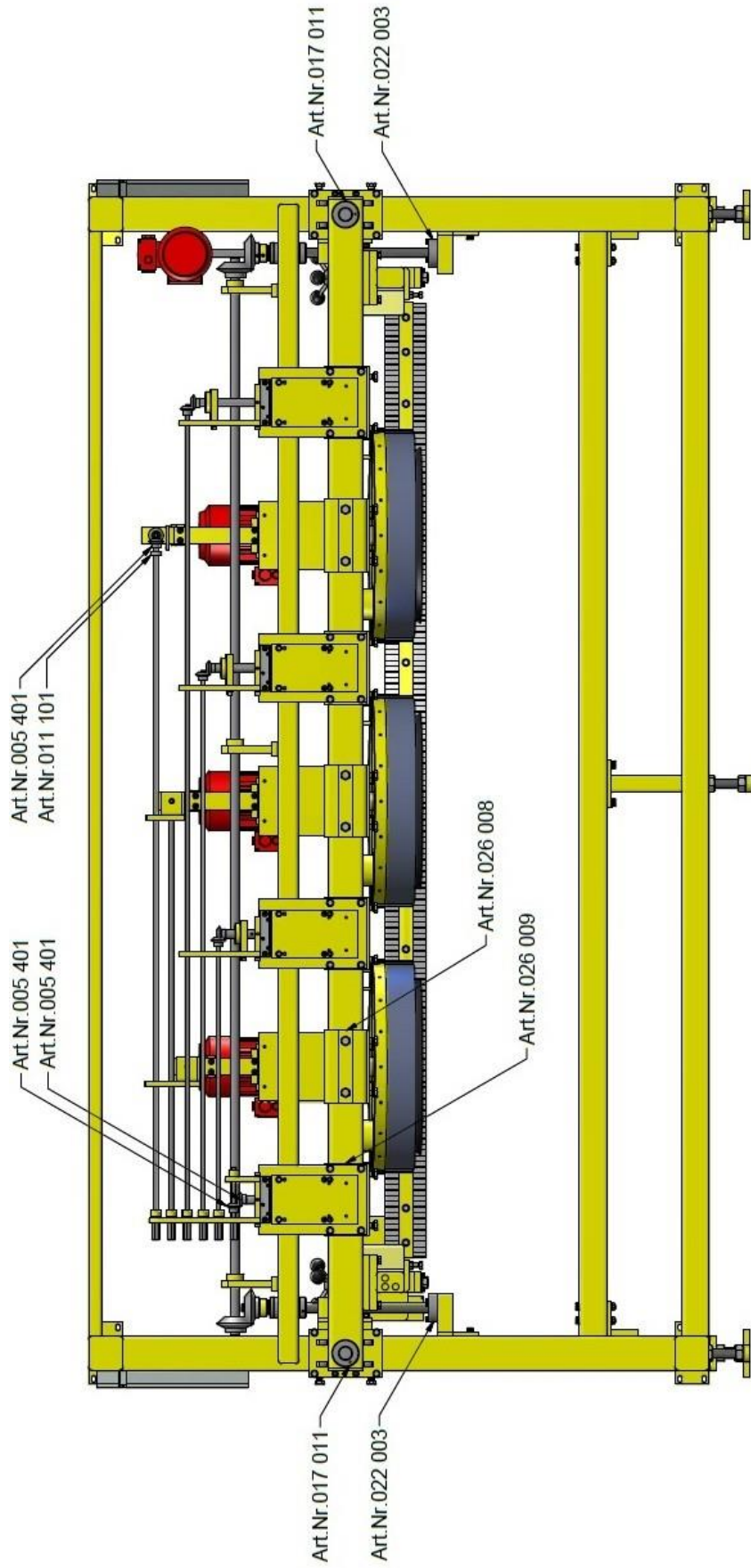


Figure 8.5 Overview spare parts page 5

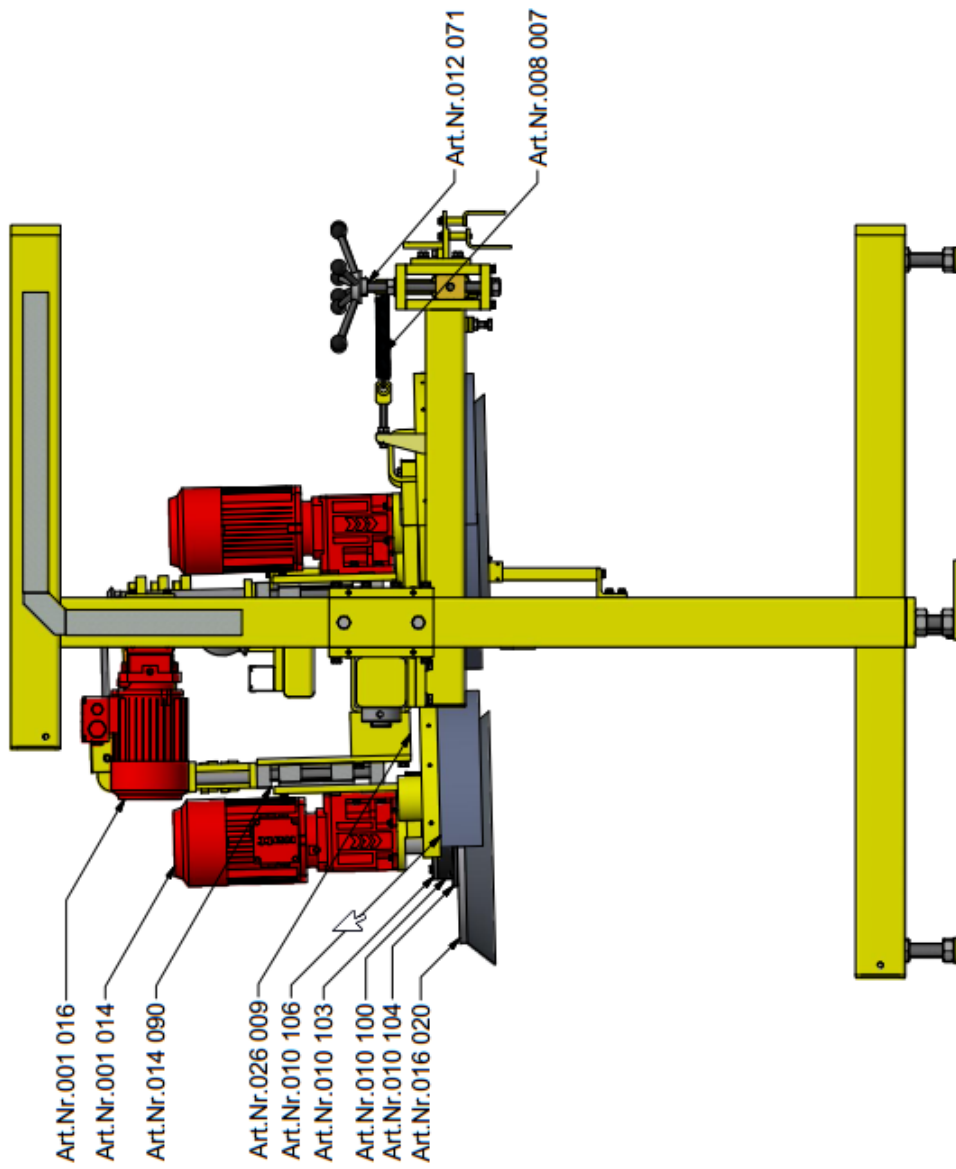


Figure 8.6 Overview spare parts page 6

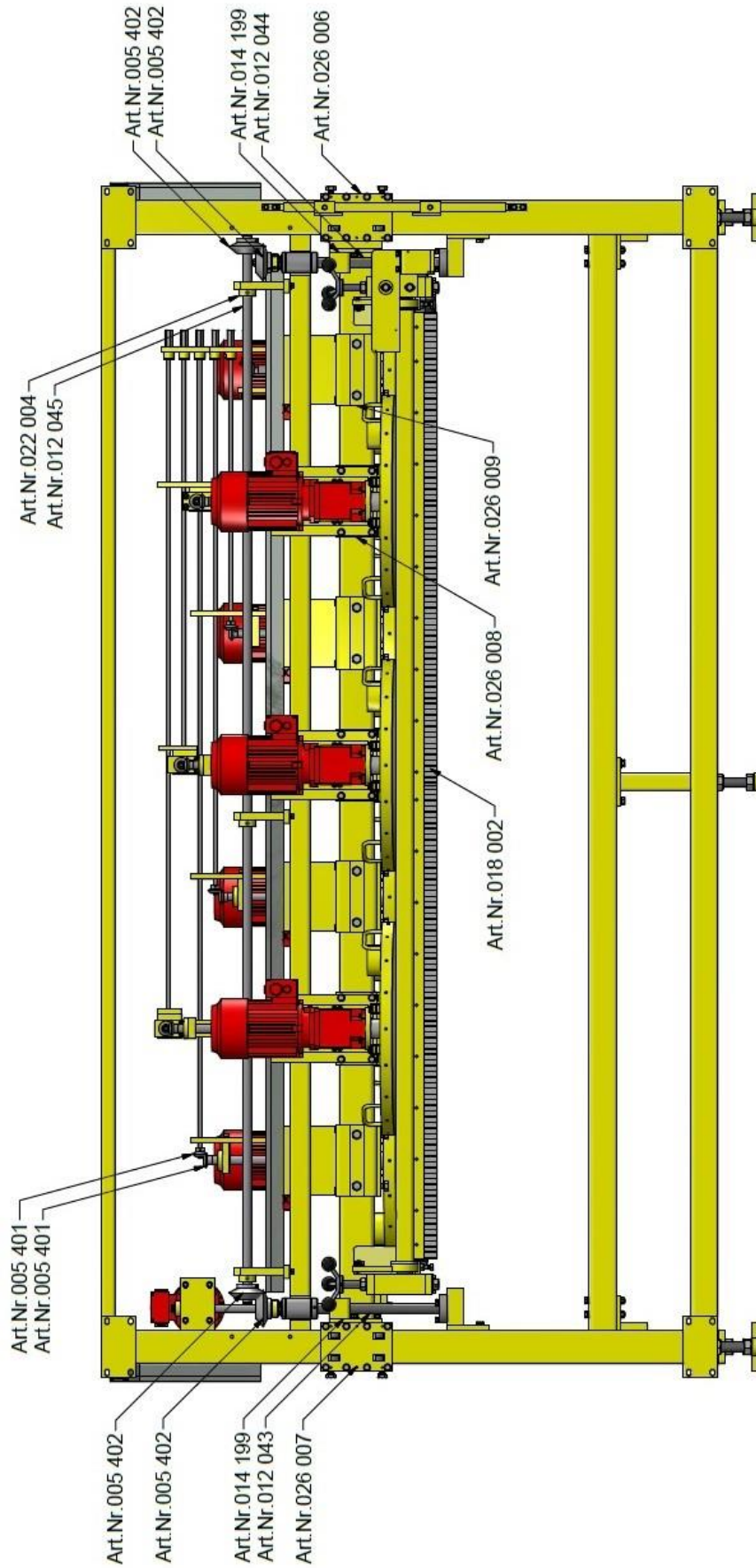
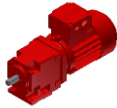









Figure 8.7 Overview spare parts page 7

8.2 Total list mechanical spare and wear parts








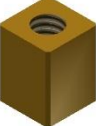



<i>When placing the order, please indicate item number and machine number.</i>	
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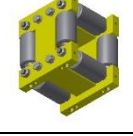

Table 8.1 Total list mechanical spare and wear parts

Preview	Component num-	Description	Features
	Item no.001 013	Gear motor Output = 0.25kW Turns = 63/min	Side cleaning Supply
	Item no.001 014	Gear motor Output = 1.5kW Turns = 172/min	Cover cleaning Rotation brushes
	Item no.001 016	Helical worm-gear motor Output = 0.55kW Turns = 51/min	Cover cleaning Automated height adjustment brushes total
	Item no.001 034	Helical worm-gear motor Output = 1.5kW Turns = 282/min	Width adjustment with rotary encoder
	Item no.001 035	Helical worm-gear motor Output = 0.25kW Turns = 10/min	Transport
	Item no.001 037	Helical worm-gear motor Output = 0.37kW Turns = 20/min	Transverse drive
	Item no.001 100	Motor axis Ø25x130	Transverse drive
	Item no.002 001	Motor Output = 4kW Turns = 1400/min	Rotation Transverse cleaning

	Item no.002 002	Motor Output = 3kW Turns = 1400/min	Rotation Side cleaning
	Item no.005 014	Sprocket Inner diameter = Ø32 Number of teeth = Z18	Transverse drive Chain deflection
	Item no.005 030	Double sprocket Inner diameter = Ø30 Number of teeth = Z18	Transport Drive beam
	Item no.005 038	Sprocket Inner diameter = Ø25 Number of teeth = Z18 Width = 50	Width adjustment Sprocket drive
	Item no.005 050	Sprocket Inner diameter = Ø20 Number of teeth = Z10	Transport Chain tensioner Drive beam
	Item no.005 051	Sprocket Inner diameter = Ø25 Number of teeth = Z18	Transverse drive Gear motor
	Item no.005 053	Sprocket f. drive shaft side adjustment Inner diameter = Ø30 Number of teeth = Z18	Width adjustment
	Item no.005 401	Conical wheel 16 teeth module 2.5 Module=2.5 / 16 teeth S235JR	Cover cleaning Manual height adjustment
	Item no.005 402	Steel bevel wheel 20 teeth	Width adjustment Height adjustment Longitudinal shafts & transverse shafts
	Item no.006 014	Guide bolt Ø30x53 Axis diameter = Ø20	Transport Drive box
	Item no.007 057	Roller chain 5/8" x 3/8"x6381	Transverse drive
	Item no.007 061	Roller chain, single for drive box 5/8" x 3/8" Length = 1115	Transport Drive box

	Item no.007 062	Roller chain f. drive shaft Width adjustment 5/8" x 3/8" Length = 600	Width adjustment
	Item no.008 004	Tension spring Ø45x85 Wire diameter = Ø7	Side cleaning
	Item no.008 006	Pressure spring Ø30x70 Wire diameter = Ø4	Transverse cleaning Press-on damping
	Item no.008 007	Tension spring Ø25x150 Wire diameter = Ø3.3	Cover cleaning Scraper bar
	Item no.009 060	Transport roller, rubber-coated Ø130x60 Inner diameter = Ø30	Transport
	Item no.010 009	Coupling for drive unit	Transport
	Item no.010 051	Coupling rubber Matching Item no.010 009	Transport
	Item no.010 100	Dampening ring Ø160x30 Bore94	Cover cleaning
	Item no.010 103	Brush shaft for disc brush	Cover cleaning
	Item no.010 104	Brush receptacle ring Ø190x19	Cover cleaning
	Item no.010 105	Lid Ø50x6 Inner diameter = Ø10.5	Transverse cleaning
	Item no.010 106	Protective sheet for disc brushes	Cover cleaning

	Item no.011 052	Pedestal bearing UCP 206 Ø 30 Inner diameter = Ø30	Width adjustment
	Item no.011 101	Deep-groove ball bearing	Outer diameter = Ø32 Inner diameter = Ø12
	Item no.011 107	Deep-groove ball bearing Outer diameter = Ø62 Inner diameter = Ø30	Transport Drive roller
	Item no.011 109	Deep-groove ball bearing	Outer diameter = Ø52 Inner diameter = Ø25
	Item no.011 201	Deep groove ball thrust bearing Axial-Rillenkugellager Outer diameter = Ø30 Inner diameter = Ø17	Side cleaning Supply
	Item no.011 202	Deep groove ball thrust bearing Axial-Rillenkugellager Outer diameter = Ø42 Inner diameter = Ø25	Width adjustment, among others
	Item no.012 028	Threaded rod M20 M20x220	Width adjustment
	Item no.012 031	Trapezoid threaded nut 46x46x60	Width adjustment
	Item no.012 043	Spindle for cover cleaning M27x780	Cover cleaning Height adjustment left Motor side
	Item no.012 044	Spindle for cover cleaning M27x550	Cover cleaning Height adjustment right
	Item no.012 045	Drive shaft for cover cleaning Ø25x3120	Cover cleaning Height adjustment

	Item no.012 046	Drive shaft – drive box Ø30x375	Transport 2x on motor axis
	Item no.012 047	Gear shaft for drive box Ø30x235.4	Transport Drive box
	Item no.012 050	Axis for support roller – drive box Matching Item no.014 401	Transport Drive box
	Item no.012 053	Nut M27 VK-45x45x46 Brass	Cover cleaning Height adjustment
	Item no.012 059	Bearing holder Including deep-groove ball bearing Ø78x20	Side cleaning Supply
	Item no.012 066	Threaded spindle M27x390 (total length)	Side cleaning Supply
	Item no.012 067	Gear shaft for drive box Ø30x275.4	Transport
	Item no.012 070	Drive shaft f. side adjustment Ø 30x1733 lg	Width adjustment Connecting shaft
	Item no.012 071	Spindle for height adjustment cover cleaning M20x300	Cover cleaning Scraper bar
	Item no.012 078	Trapezoid threaded spindle Tr. 30x6x3000	Width adjustment spindle
	Item no.014 070	Roller carriage	Width adjustment Main carriage drive box
	Item no.014 073	Roller including deep-groove ball bearing Ø45x78	Width adjustment Rear support

	Item no.014 080	Roller carriage screw M12x160	???
	Item no.014 081	Roller carriage axis Ø12x110	???
	Item no.014 082	Roller carriage	Transverse cleaning
	Item no.014 085	Spacer ring Outer diameter = Ø20 Inner diameter = Ø12.5 Length = 12.5	Width adjustment Rear support
	Item no.014 089	Roller screw for support block Ø12x180 Thread = M12	Width adjustment Rear support
	Item no.014 090	Spindle linear table SLW-2080-50/20	Cover cleaning Wear tracking Manual height adjustment
	Item no.014 153-R	Holder brush motor right	Side cleaning
	Item no.014 155	Spring holder L+R	Side cleaning
	Item no.014 184	Idler bolt Ø50x105 (total length) Axis diameter = Ø30 Thread = M16	Transverse drive
	Item no.014 199	Nut box M27	Cover cleaning Height adjustment
	Item no.014 209	Rubber for protective sheet Set = 2 pieces Matching 010 106	Cover cleaning
	Item no.014 216	Swivel shaft Ø40x450	Side cleaning

	Item no.014 217	Nut box	Side cleaning Supply
	Item no.014 218	Extraction hood for transverse cleaning	Transverse cleaning
	Item no.014 219	Protective hood for brushes right	Side cleaning Right side
	Item no.014 220	Protective hood for brushes left Ø80x30	Side cleaning Left side
	Item no.014 226	Safety ring for run-in stop Plastic black	Stop bolt
	Item no.014 401	Support roller for drive box	Transport
	Item no.015 001	Brush shaft for transverse cleaning and left side cleaning Right thread	Transverse cleaning Side cleaning left
	Item no.015 002	Brush shaft for right side cleaning Left thread	Side cleaning right
	Item no.015 030	Adjustment ring Including threaded pins Ø60x23	Side cleaning Swivel shaft
	Item no.015 032	Lid for brush shaft Ø45x25.5	Transverse cleaning Side cleaning
	Item no.016 001	Brush segment Ø180 Wire thickness = 0.3	Transverse cleaning Side cleaning
	Item no.016 020	Disc brush drag nylon Ø510	Cover cleaning

	Item no.017 002	Cylinder head screw for brush shaft M10x130	Transverse cleaning Side cleaning
	Item no.017 006	nut for transverse cleaning and left side cleaning Right thread	Transverse cleaning Side cleaning Brush shaft
	Item no.017 007	nut for right side cleaning Left thread	Side cleaning Brush shaft
	Item no.017 011	nut Ø78x30	Cover cleaning Height adjustment
	Item no.018 001	Scraper plate left/right 150mm Set = 6 pieces	Side cleaning
	Item no.018 002	Cover scraper Length = 1350 Set = 2 pieces	Cover cleaning Scraper bar
	Item no.018 056	Scraper box, right	Side cleaning Right machine side
	Item no.018 057	Scraper box left	Side cleaning Left machine side
	Item no.019 010	V-belt pulley Ø125x13 Inner diameter = Ø20	Side cleaning Supply
	Item no.019 014	V-belt pulley Ø63x13 Inner diameter = Ø17	Side cleaning Supply
	Item no.019 107	V-belt DIN2215 size 13/560	Side cleaning Supply
	Item no.021 129	Safety disc 670x1090x4	Doors, sides

	Item no.021 202	Open-faced wrench SW 75-10	Brush shaft
	Item no.021 204	Extractor	Brush shaft
	Item no.021 303	Catch brass	Doors
	Item no.022 003	Bearing sleeve including deep-groove ball bearing Ø80x25 Inner diameter deep-groove ball bearing = Ø25	Width adjustment, Height adjustment, among others
	Item no.022 004	Adjustment ring Ø50x20 Including threaded pins Inner diameter = Ø25	Width adjustment Height adjustment for bevel wheel
	Item no.022 005	Adjustment ring Ø50x30 Including threaded pins Inner diameter = Ø30	Width adjustment
	Item no.024 017	Cylinder PDI-050-0050-A-P-M	Stop bolt
	Item no.024 104	Maintenance unit Compressed air	Stop bolt
	Item no.024 307	Energy chain 22.0380.0/70 Length = 1800	Transverse cleaning & Width adjustment S1
	Item no.024 308	Energy chain 30,050.0/100 Length = 1800	Width adjustment S2
	Item no.026 006	Carriage height adjustment right	Cover cleaning
	Item no.026 007	Carriage height adjustment left	Cover cleaning

	Item no.026 008	Carriage f. disc brushes Suspension front	Cover cleaning
	Item no.026 009	Carriage f. disc brushes Suspension rear	Cover cleaning
	Item no.028 006	PUR spiral hose Ø100 x 1000	Cover cleaning 900-> 1000
	Item no.028 007	PUR spiral hose Ø80 x 800	Side cleaning right
	Item no.028 008	PUR spiral hose Ø80 x 250	Transverse cleaning
	Item no.028 009	PUR spiral hose Ø80 x 2250	Side cleaning left 1960mm+-
	Item no.028 010	PUR spiral hose Ø125 x 1550	Transverse cleaning
	Item no.021 158	Stop bolt	Stop bolt
	Item no.021 306	Bow-type handle	Doors

When placing the order, please indicate item number and machine number.

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8.3 general mechanical spare and wear parts

<i>When placing the order, please indicate item number and machine number.</i>	
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Table 8.2 Total list mechanical spare and wear parts

Preview	Component num-	Description	Features
	Item no.011 101	Deep-groove ball bearing	Outer diameter = Ø32 Inner diameter = Ø12
	Item no.011 109	Deep-groove ball bearing	Outer diameter = Ø52 Inner diameter = Ø25
	Item no.011 202	Deep groove ball thrust bearing Axial-Rillenkugellager Outer diameter = Ø42 Inner diameter = Ø25	Width adjustment, among others
	Item no.014 080	Roller carriage screw M12x160	???
	Item no.014 081	Roller carriage axis Ø12x110	???
	Item no.014 226	Safety ring for run-in stop Plastic black	Stop bolt
	Item no.021 129	Safety disc 670x1090x4	Doors, sides

	Item no.021 202	Open-faced wrench SW 75-10	Brush shaft
	Item no.021 204	Extractor	Brush shaft
	Item no.021 303	Catch brass	Doors
	Item no.022 003	Bearing sleeve including deep-groove ball bearing $\varnothing 80 \times 25$ Inner diameter deep-groove ball bearing = $\varnothing 25$	Width adjustment, Height adjustment, among others
	Item no.022 004	Adjustment ring $\varnothing 50 \times 20$ Including threaded pins Inner diameter = $\varnothing 25$	Width adjustment Height adjustment for bevel wheel
	Item no.022 005	Adjustment ring $\varnothing 50 \times 30$ Including threaded pins Inner diameter = $\varnothing 30$	Width adjustment
	Item no.024 017	Cylinder PDI-050-0050-A-P-M	Stop bolt
	Item no.024 104	Maintenance unit Compressed air	Stop bolt
	Item no.024 307	Energy chain 22.0380.0/70 Length = 1800	Transverse cleaning & Width adjustment S1
	Item no.024 308	Energy chain 30,050.0/100 Length = 1800	Width adjustment S2
	Item no.021 158	Stop bolt	Stop bolt
	Item no.021 306	Bow-type handle	Doors

When placing the order, please indicate item number and machine number.

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8.4 Mechanical spare and wear parts drive beam

<i>When placing the order, please indicate item number and machine number.</i>	
Schwarz GmbH Engineering Freiburgerstr. 3b 79822 Titisee-Neustadt	Phone : 0049 7651/5770 Fax: 0049 7651/3770 Email: mail@schalungsreiniger.de Homepage: www.schalungsreiniger.de

Table 8.3 Spare and wear parts drive beam

Preview	Component num-	Description	Features
	Item no.001 035	Helical worm-gear motor Output = 0.25kW Turns = 10/min	Transport
	Item no.005 030	Double sprocket Inner diameter = Ø30 Number of teeth = Z18	Transport Drive beam
	Item no.005 050	Sprocket Inner diameter = Ø20 Number of teeth = Z10	Transport Chain tensioner Drive beam
	Item no.006 014	Guide bolt Ø30x53 Axis diameter = Ø20	Transport Drive box
	Item no.007 061	Roller chain, single for drive box 5/8" x 3/8" Length = 1115	Transport Drive box
	Item no.009 060	Transport roller, rubber-coated Ø130x60 Inner diameter = Ø30	Transport
	Item no.010 009	Coupling for drive unit	Transport
	Item no.010 051	Coupling rubber Matching Item no.010 009	Transport


	Item no.011 107	Deep-groove ball bearing Outer diameter = Ø62 Inner diameter = Ø30	Transport Drive roller
	Item no.012 046	Drive shaft – drive box Ø30x375	Transport 2x on motor axis
	Item no.012 047	Gear shaft for drive box Ø30x235.4	Transport Drive box
	Item no.012 050	Axis for support roller – drive box Matching Item no.014 401	Transport Drive box
	Item no.012 067	Gear shaft for drive box Ø30x275.4	Transport
	Item no.014 401	Support roller for drive box	Transport

8.5 Mechanical spare and wear parts transverse cleaning

<i>When placing the order, please indicate item number and machine number.</i>	
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Table 8.4 Spare and wear parts transverse cleaning





Preview	Component num-	Description	Features
	Item no.001 037	Helical worm-gear motor Output = 0.37kW Turns = 20/min	Transverse drive
	Item no.001 100	Motor axis Ø25x130	Transverse drive
	Item no.002 001	Motor Output = 4kW Turns = 1400/min	Rotation Transverse cleaning
	Item no.005 014	Sprocket Inner diameter = Ø32 Number of teeth = Z18	Transverse drive Chain deflection
	Item no.005 051	Sprocket Inner diameter = Ø25 Number of teeth = Z18	Transverse drive Gear motor
	Item no.007 057	Roller chain 5/8" x 3/8"x6381	Transverse drive
	Item no.008 006	Pressure spring Ø30x70 Wire diameter = Ø4	Transverse cleaning Press-on damping
	Item no.014 082	Roller carriage	Transverse cleaning

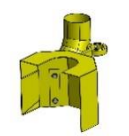



	Item no.014 184	Idle bolt Ø50x105 (total length) Axis diameter = Ø30 Thread = M16	Transverse drive
	Item no.014 218	Extraction hood for transverse cleaning	Transverse cleaning
	Item no.015 001	Brush shaft for transverse cleaning and left side cleaning Right thread	Transverse cleaning Side cleaning left
	Item no.015 032	Lid for brush shaft Ø45x25.5	Transverse cleaning Side cleaning
	Item no.016 001	Brush segment Ø180 Wire thickness = 0.3	Transverse cleaning Side cleaning
	Item no.017 002	Cylinder head screw for brush shaft M10x130	Transverse cleaning Side cleaning
	Item no.017 006	nut for transverse cleaning and left side cleaning Right thread	Transverse cleaning Side cleaning Brush shaft

8.6 Mechanical spare and wear parts side cleaning

<i>When placing the order, please indicate item number and machine number.</i>	
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Table 8.5 Spare and wear parts side cleaning

Preview	Component num-	Description	Features
	Item no.001 013	Gear motor Output = 0.25kW Turns = 63/min	Side cleaning Supply
	Item no.002 002	Motor Output = 3kW Turns = 1400/min	Rotation Side cleaning
	Item no.008 004	Tension spring Ø45x85 Wire diameter = Ø7	Side cleaning
	Item no.011 201	Deep groove ball thrust bearing Axial-Rillenkugellager Outer diameter = Ø30 Inner diameter = Ø17	Side cleaning Supply
	Item no.012 059	Bearing holder including deep-groove ball bearing Ø78x20	Side cleaning Supply
	Item no.012 066	Threaded spindle M27x390 (total length)	Side cleaning Supply
	Item no.014 153-R	Holder brush motor right	Side cleaning

	Item no.014 155	Spring holder L+R	Side cleaning
	Item no.014 217	Nut box	Side cleaning Supply
	Item no.014 216	Swivel shaft Ø40x450	Side cleaning
	Item no.014 219	Protective hood for brushes right	Side cleaning Right side
	Item no.014 220	Protective hood for brushes left Ø80x30	Side cleaning Left side
	Item no.015 030	Adjustment ring Including threaded pins Ø60x23	Side cleaning Swivel shaft
	Item no.015 001	Brush shaft for transverse cleaning and left side cleaning Right thread	Transverse cleaning Side cleaning left
	Item no.015 002	Brush shaft for right side cleaning Left thread	Side cleaning right
	Item no.015 032	Lid for brush shaft Ø45x25.5	Transverse cleaning Side cleaning
	Item no.016 001	Brush segment Ø180 Wire thickness = 0.3	Transverse cleaning Side cleaning
	Item no.017 002	Cylinder head screw for brush shaft M10x130	Transverse cleaning Side cleaning
	Item no.017 006	Nut for transverse cleaning and left side cleaning Right thread	Transverse cleaning Side cleaning Brush shaft








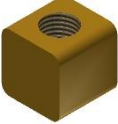




	Item no.017 007	nut for right side cleaning Left thread	Side cleaning Brush shaft
	Item no.018 001	Scraper plate left/right 150mm Set = 6 pieces	Side cleaning
	Item no.018 056	Scraper box, right	Side cleaning Right machine side
	Item no.018 057	Scraper box left	Side cleaning Left machine side
	Item no.019 010	V-belt pulley $\varnothing 125 \times 13$ Inner diameter = $\varnothing 20$	Side cleaning Supply
	Item no.019 014	V-belt pulley $\varnothing 63 \times 13$ Inner diameter = $\varnothing 17$	Side cleaning Supply
	Item no.019 107	V-belt DIN2215 size 13/560	Side cleaning Supply

8.7 Mechanical spare and wear parts cover cleaning






<i>When placing the order, please indicate item number and machine number.</i>	
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Table 8.6 Spare and wear parts cover cleaning

Preview	Component num-	Description	Features
	Item no.001 014	Gear motor Output = 1.5kW Turns = 172/min	Cover cleaning Rotation brushes
	Item no.001 016	Helical worm-gear motor Output = 0.55kW Turns = 51/min	Cover cleaning Automated height adjustment brushes total
	Item no.005 401	Conical wheel 16 teeth module 2.5 Module=2.5 / 16 teeth S235JR	Cover cleaning Manual height adjustment
	Item no.005 402	Bevel wheel Number of teeth = Z20	Width adjustment Height adjustment Longitudinal shafts & transverse shafts
	Item no.008 007	Tension spring Ø25x150 Wire diameter = Ø3.3	Cover cleaning Scraper bar
	Item no.010 100	Dampening ring Ø160x30 Bore94	Cover cleaning
	Item no.010 103	Brush shaft for disc brush	Cover cleaning
	Item no.010 104	Brush receptacle ring Ø190x19	Cover cleaning

	Item no.010 105	Lid Ø50x6 Inner diameter = Ø10.5	Transverse cleaning
	Item no.010 106	Protective sheet for disc brushes	Cover cleaning
	Item no.011 101	Deep-groove ball bearing Outer diameter = Ø32 Inner diameter = Ø12	Cover cleaning Manual adjustment
	Item no.011 109	Deep-groove ball bearing Outer diameter = Ø52 Inner diameter = Ø25	Width adjustment
	Item no.012 043	Spindle for cover cleaning M27x780	Cover cleaning Height adjustment left Motor side
	Item no.012 044	Spindle for cover cleaning M27x550	Cover cleaning Height adjustment right
	Item no.012 045	Drive shaft for cover cleaning Ø25x3120	Cover cleaning Height adjustment
	Item no.012 053	Nut M27 VK-45x45x46 Brass	Cover cleaning Height adjustment
	Item no.012 071	Spindle for height adjustment cover cleaning M20x300	Cover cleaning Scrapper bar
	Item no.014 073	Roller including deep-groove ball bearing Ø45x78	Width adjustment Support front, center, rear
	Item no.014 080	Roller carriage screw M12x160	???
	Item no.014 085	Spacer ring Outer diameter = Ø20 Inner diameter = Ø12.5 Length = 12.5	Width adjustment Rear support

	Item no.014 090	Spindle linear table 50/20	Cover cleaning Wear tracking Manual height adjustment
	Item no.014 199	Nut box M27 Cover cleaning	Cover cleaning
	Item no.014 209	Rubber for protective sheet Set = 2 pieces Matching 010 106	Cover cleaning
	Item no.016 020	Disc brush drag nylon Ø510	Cover cleaning
	Item no.017 011	nut Ø78x30	Cover cleaning Height adjustment
	Item no.018 002	Cover scraper Length = 1350 Set = 2 pieces	Cover cleaning Scraper bar
	Item no.022 003	Bearing sleeve Ø80x25 Including deep-groove ball bearing Inner diameter: Deep-groove ball bearing = Ø25	Width adjustment Left
	Item no.022 004	Adjustment ring Ø50x20 Including threaded pins	Width adjustment Height adjustment for bevel wheel
	Item no.026 006	Carriage height adjustment right	Cover cleaning
	Item no.026 007	Carriage height adjustment left	Cover cleaning
	Item no.026 008	Carriage f. disc brushes Suspension front	Cover cleaning
	Item no.026 009	Carriage f. disc brushes Suspension rear	Cover cleaning

	Item no.028 006	PUR spiral hose Ø100 x 1000	Cover cleaning 900-> 1000
	Item no.028 007	PUR spiral hose Ø80 x 800	Side cleaning right
	Item no.028 008	PUR spiral hose Ø80 x 250	Transverse cleaning
	Item no.028 009	PUR spiral hose Ø80 x 2250	Side cleaning left 1960mm+-
	Item no.028 010	PUR spiral hose Ø125 x 1550	Transverse cleaning

When placing the order, please indicate item number and machine number.

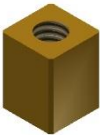



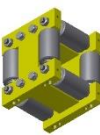



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8.8 Mechanical spare and wear parts width adjustment

<i>When placing the order, please indicate item number and machine number.</i>	
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Table 8.7 Spare and wear parts width adjustment

Preview	Component num-	Description	Features
	Item no.001 034	Helical worm-gear motor Output = 1.5kW Turns = 282/min	Width adjustment with rotary encoder
	Item no.005 038	Sprocket Inner diameter = Ø25 Number of teeth = Z18 Width = 50	Width adjustment Sprocket drive
	Item no.005 053	Sprocket f. drive shaft side adjustment Inner diameter = Ø30 Number of teeth = Z18	Width adjustment
	Item no.005 402	Steel bevel wheel 20 teeth	Width adjustment Height adjustment Longitudinal shafts & transverse shafts
	Item no.007 062	Roller chain f. drive shaft Width adjustment 5/8" x 3/8" Length = 600	Width adjustment
	Item no.011 052	Pedestal bearing UCP 206 Ø 30 Inner diameter = Ø30	Width adjustment
	Item no.011 202	Deep groove ball thrust bearing Axial-Rillenkugellager Outer diameter = Ø42 Inner diameter = Ø25	Width adjustment, among others
	Item no.012 028	Threaded rod M20 M20x220	Width adjustment

	Item no.012 031	Trapezoid threaded nut 46x46x60	Width adjustment
	Item no.011 202	Deep groove ball thrust bearing Axial-Rillenkugellager Outer diameter = Ø42 Inner diameter = Ø25	Width adjustment, among others
	Item no.012 070	Drive shaft f. side adjustment Ø 30x1733 lg	Width adjustment Connecting shaft
	Item no.012 078	Trapezoid threaded spindle Tr. 30x6x3000	Width adjustment spindle
	Item no.014 070	Roller carriage	Width adjustment Main carriage drive box
	Item no.014 073	Roller, including deep-groove ball bearing Ø45x78	Width adjustment Rear support
	Item no.014 085	Spacer ring Outer diameter = Ø20 Inner diameter = Ø12.5 Length = 12.5	Width adjustment Rear support
	Item no.014 089	Roller screw for support block Ø12x180 Thread = M12	Width adjustment Rear support

8.9 Electrical spare and wear parts













<i>When placing the order, please indicate item number and machine number.</i>	
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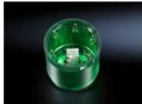




Table 8.8 Electrical spare and wear parts

Preview	Component num-	Description	Features
	Item no.901 053	FX5U-80MT-DSS	CPU MELSEC iQ-F FX5
	Item no.901 054	FX3U-32BL	Battery for FX5 CPU
	Item no.901 055	FX5-16EX-ES	16DI
	Item no.901 056	FX5-16EYT-ESS	16DO
	Item no.901 028	FFR-CSH-036-8A-RF1-LL	Radio interference filter
	Item no.901 057	GS2110-WTBD	Operating panel
	Item no.901 058	L1MEM-2GBSD	SD memory card 2GB
	Item no.901 027	FR-D740-036SC-EC	Frequency inverter protection class IP 20

	Item no.900 051	DILA-22(24VDC)	Auxiliary contactor, 2S+2Ö, DC
	Item no.900 146	DILM38-01(RDC24)	Output contactor, 3p+1Ö, 18.5kW/400V/AC3
	Item no.900 055	DILA-40(24VDC)	Auxiliary contactor, 4S, DC
	Item no.900 322	PN1-125	Load-break switch 3p, 125A
	Item no.900 332	NZM1-XKSA	MOE NZM1-XKSA cover for BG1 3P
	Item no.900 336	NZM1-XTVDVR	MOE NZM1-XTVDVR door coupling rotary handle
	Item no.900 337	NZM1/2-XV6	MOE NZM1/2-XV6 extension shaft
	Item no.900 338	ZFS62-NZM7	MOE ZFS62-NZM7 shield main switch English
	Item no.900 339	NZM1-XC35	Adapter plate
	Item no.900 300	M22-R1K	Potentiometer, 1k, front attachment
	Item no.900 226	M22S-ST-X	Button addition shield carrier without shield sw
	Item no.900 273	M22-WKV	Selection button, toggle, V-position, black, scanning

	Item no.900 340	M22-CK10	Contact element, %1S, front attachment, cage clamp
	Item no.900 271	M22-A	Attachment adapter
	Item no.900 275	M22-DL-B	Lighted pushbutton, flat, blue, scanning
	Item no.900 343	M22-CLED-W	LED element, white front
	Item no.900 260	M22-PV	EMERGENCY OFF button, unlit
	Item no.900 341	M22-CK01	Contact element, %1Ö, front attachment, cage clamp
	Item no.900 228	M22-XAK1	Emergency off sign in four languages
	Item no.900 342	M22-CKC10	Contact element, 1S, floor attachment, cage clamp
	Item no.900 265	M22-D-X	Pushbutton, flat, without touch plate, scanning
	Item no.900 247	M22-XD-S-X7	Selection guide for pushbuttons
	Item no.900 344	M22-DL-G	Lighted pushbutton, flat, green, blank
	Item no.900 345	M22-DL-R	Lighted pushbutton, flat, red, scanning

	Item no.900 063	DILM25-01(RDC24)	Output contactor, 3p+1Ö, 11kW/400V/AC3
	Item no.900 130	PKZM0-16	Motor protection switch, 3p, I _r = 10-16A
	Item no.900 124	NHI-E-11-PKZ0	Standard auxiliary switch, 1S+1Ö, installation
	Item no.900 064	MSC-R-0,63-M7(24VDC)	Reversing starter
	Item no.900 105	BK25/3-PKZ0	Supply terminal
	Item no.900 065	B3.0/5-PKZ0	AC busbar for 5 x PKZM0 or PKE
	Item no.900 129	H-B3-PKZ0	Empty closure cover for ro- tary current rail block
	Item no.900 066	MSC-D-10-M7(24VDC)	Direct starter
	Item no.900 067	MSC-D-4-M7(24VDC)	Direct starter
	Item no.900 068	MSC-R-1,6-M7(24VDC)	Reversing starter
	Item no.900 069	PNOZ s4 C 24VDC	PNOZsigma safety relay %3n/o %1n/c
	Item no.900 070	PNOZ s11 C 24VDC	PNOZsigma safety relay %8n/o %1n/c

	Item no.900 758	SD-D/SC/LA/GY	Socket
	Item no.900 147	GTF 76/ 48	Disconnect terminal
	Item no.900 346	SZ.4140830	System luminaire LED type 24 V (DC)
	Item no.900 347	SZ.4140000	Mounting kit magnet
	Item no.900 276	SG.2368010	Terminal element for signal pillars, modular for wall/floor mounting
	Item no.900 277	SG.2374000	Signal pillar mounting element, foot with integrated tube, Ø 25mm, length 110 mm
	Item no.900 349	SG.2372000	LED steady light element 24V AC/DC, 25mA red for signal pillars, modular
	Item no.900 350	SG.2372010	LED steady light element 24V AC/DC, 25mA green for signal pillars, modular
	Item no.900 351	SG.2372020	LED steady light element 24V AC/DC, 25mA yellow for signal pillars, modular
	Item no.900 352	SG.2376000	Acoustic elements for signal pillars, modular, 85 dB, 24V AC/DC
	Item no.900 348	SZ.4315800	Connection accessories for system luminaire LED connection cable LED
	Item no.901 047	852-111	Industrial ECO switch

	Item no.901 059	UR5i SLv2 ETH	VPN industrial router
	Item no.901 084	05.00.6041.8311.010M	Encoder cable M12 8-pole 10m
	Item no.901 086	8.0000.6101.0010	Encoder cable M23 12-pole 10m
	Item no.901 085	8.5821.133E.0500	Encoder
	Item no.902 102	LED luminaire 2x36W	6500Kelvin
	Item no.901 200	BCC M415-0000-1A-001-PX0334-050	Plug-type connector with cable
	Item no.900 647	BES 517-132-M3-H-S4	Sensor inductive
	Item no.900 608	GC-U1 FF	Spring rod switch
	Item no.900 601	OT 59 59 00	Sensor visual
	Item no.900 664	BES Q40KFU-PAC20A-S04G-W01	Sensor inductive
	Item no.901 201	BCC M425-0000-1A-002-PX0334-100	Plug-type connector with cable

When placing the order, please indicate item number and machine number.

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8.10 Circuit diagram

⇒ See annex circuit diagram, extra folder.

9 Equipment and accessories

9.1 Equipment

⇒ Non-existent.

9.2 Accessories

- ⇒ 1 crank height adjustment, special wrench SW19
- ⇒ Inlet and outlet tables
- ⇒ Removal device for brush shaft
- ⇒ 2 fork wrenches, brush shaft SW75, wrench table feet

10 EC declaration of conformity

10.1 EC declaration of conformity

⇒ See supplement

Declaration of Conformity

purs. to EC directive machinery 2006/42/EC

We hereby declare that the machine designated in the following corresponds to the relevant basic safety and health requirements of the EC Machinery Directive in its design and build and in the version marketed by us.

This declaration loses its validity in case of changes to the machine that are not coordinated with us.



We hereby declare that the build of:

SB10B

Machine number:

5253

corresponds to the following relevant provisions:

EC directive 2006/42/EC (directive machinery)

Applied harmonised standards in particular:

EN ISO 12100-1/-2

Applied national technical specifications specifically:

BGV A1

BGV A3

.....
Date
Manager

Signature

.....
Date
Documentation officer

Signature

11 Annex third-party documentation

See supplements



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