Translation of the original operating manual

KTS SpeedTec mini

Machine number		**Quality control**	
Customer		**Date**	

KABATEC

Taping • Insulation • Bundling • Marking • Fixing • Wrapping

EC Declaration of Conformity

CE

We hereby confirm that the following product

KTS SpeedTec mini

satisfies the regulations specified in Machinery Directive 2006/42/EC,
Annex II A, in particular the protection requirements.
Likewise, it satisfies the regulations that are specified in the European Community directive for harmonization of statutory regulations concerning electromagnetic compatibility (2004/108/EC), in the directive for changing the
CE mark (93/68/EEC), in the Low-Voltage Directive (2006/95/EC), as well as those regulations specified in the Device Product Safety Law (Ninth Ordinance to the Equipment and Product Safety Act (9th GPSGV)).

This declaration applies to all identical models of the product, which are manufactured in accordance with the development, design and manufacturing drawings and descriptions included herein (these being components of this declaration).

The following applicable harmonized European standards, the sources of which have been published in the Official Journal of the European Union, have been applied:

EN ISO 13857	EN 349	EN 1037
EN ISO 14121-1	EN 547-2	EN 60204-1
EN ISO 12100-1	EN 614-1	EN 61000-4-2
EN ISO 12100-2	EN 983	EN 61000-4-4
EN ISO 13850	EN 999	EN 13849

This declaration is made on behalf of the following manufacturer:

Company name:	KABATEC GmbH & Co. KG
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Tel.:	+49 (0) 6652 79362 – 0

Name of person authorized to compile the documentation:	Heinz Billing (in-house)
Name of signatory:	Heinz Billing
Position in the company:	Managing director

Burghaun	14/6/2016	
Place	Date	Legally-binding signature

Legal notice

General information
This operating manual was prepared by KABATEC GmbH & Co. KG
in June 2016.

Directives
This operating manual has been prepared having regard
to Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006
concerning machinery and amending Directive 95/16/EC.

Contact
Please feel free to contact us if you have any questions or suggestions.

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Copyright

Liability
We have compiled all the information in this operating manual with the utmost care and have checked it for consistency with the described hardware and software. Nevertheless we cannot entirely exclude the possibility of deviations. We assume no legal responsibility or liability for damage that may possibly occur due to such deviations.

Note
We reserve the right to make technical changes and add supplementary information.

Table of contents

1. Guarantee declaration

Article 1 Relation to other guarantee rights and national law

1. With this guarantee, the rights of the purchaser against the seller, arising from the concluded purchase contract, are not affected.
2. The guarantee conditions of KABATEC GmbH & Co. KG cited above apply, if nothing to the contrary is specified in national law in this regard.

Article 2 Guarantee coverage

1. KABATEC GmbH & Co. KG grants a guarantee of 12 months, effective from the date the device was acquired by the purchaser, for mechanical and electrical components of the device, under the conditions described here. If within this guarantee period defects occur which is not attributable to one of the causes cited under Article 3, KABATEC GmbH & Co. KG shall, at its discretion, either replace the device or have the device transported to its plant in Burghaun and repair it there.
2. No other circumstances shall be covered by guarantee.

Article 3 Guarantee conditions

1. The guarantee does not entitle the holder to free-of-charge inspection or maintenance/repair of the machine, particularly if the defects are attributable to improper use. Likewise defects of wear parts that are attributable to normal wear are not covered by the guarantee.
2. In addition, no guarantee claims will be accepted for damage to the machine caused by:
    - improper use or use of the machine for a purpose other than its normal purpose (misuse), in disregard of the information in the operating and maintenance manuals provided by KABATEC GmbH & Co. KG;
    - connecting or using the machine in a manner not compliant with the applicable technical or safety-related requirements of the country in which the machine is used;
    - acts of nature, or other causes for which KABATEC GmbH & Co. KG is not responsible.

3. The guarantee becomes null and void if the machine is repaired by the customer itself or by a party other than KABATEC GmbH & Co. KG.
4. If, through an inspection of the device by
   KABATEC GmbH & Co. KG, it is determined that the damage does not warrant the guarantee claims,
   the costs of the inspection by
   KABATEC GmbH & Co. KG will be borne by the customer.

Article 4 Transfer of the guarantee

1. The guarantee is valid only for the original purchaser, which obtained the machine from KABATEC GmbH & Co. KG, and is not transferable.
2. Apart from KABATEC GmbH & Co. KG, no party is entitled to honour the guarantee on behalf of KABATEC GmbH & Co. KG.

Article 5 Claims for damages

1. The purchaser is not entitled to make any claims for damages due to poor performance in respect of the
   guarantee claims, in particular due to consequential damage.
   The liability of KABATEC GmbH & Co. KG is limited in all cases
   to the merchandise value of the machine.

2. For your safety

2.1 General safety information

Please read this operating manual thoroughly prior to using the device, and comply with the information on conduct and safety prior to and following commissioning.
Keep the manual in the vicinity of the device at all times and in a safe and dry location that is protected from direct sunlight. The manual should always be on hand whenever needed.

All persons responsible for setup, start-up, operation or maintenance of the machine must have carefully read and understood this operating manual.
Qualified, specialist personnel, within the context of this basic safety information, are those persons familiar with the setup, assembly, start-up and operation of the winding and taping system and who are appropriately qualified for the work assigned to them.

The winding and taping system has a protective device and has been subjected to safety and quality testing.
Unauthorized removal of required covers or protective devices, or improper use or incorrect operation of the product can result in severe injuries or substantial damage to property.
The specified service and maintenance intervals are to be complied with.

2.2 Types of safety symbols used

Caution

Indicates a hazard with a low-risk factor, which can result in slight or moderate physical injury or damage to property if not avoided.

Warning

Indicates a possible hazard with a medium-risk factor, which can result in death or (severe) physical injury if not avoided.
Never used for damage to property alone.

Danger

Indicates an immediate hazard with a high-risk factor, which can result in death or severe physical injury.
Never used for damage to property.

2.3 Safety and warning signs

Indicates a hazard zone.

Indicates a risk of hand injury.

Indicates a risk of injury from being cut.

Indicates a risk of electric shock.

Indicates required protective equipment → hairnet.

2.4 Intended use

The KTS SpeedTec mini is a compact taping machine with many useful features. A wide variety of taping tasks can be performed quickly and reliably.

A combined length-measurement/feed system ensures a compact design and makes the KTS SpeedTec mini an efficient tool for producing cable sets.

2.5 Application

Taping of cable sets and modules.
Tape lengths and feed distance can be set according to individual winding steps and can be worked through in succession.

This allows a wide variety of cable harness geometries to be generated.

2.6 Note on familiarization and operation

The owner of the winding and taping system must make the operating manual available to operating personnel and also ensure that it has been read and understood by such personnel.
It has to be ensured that only instructed and authorized operating personnel work at the winding and taping system.
Only trained and authorized personnel are to maintain the winding and taping system.

2.7 Safety measures at setup site

The setup surface must be level and suitably stable given the weight of the winding and taping system.
Ensure that the accident prevention regulations are always complied with at the workplace, by means of appropriate internal instructions and checks.

2.8 Description of the workplace

The winding and taping system is operated at the front.

2.9 Required personal protective equipment

Do not work without using the following personal protective equipment:

- Tight-fitting work clothing
- Hair net, to protect long hair
- Closed work shoes or safety boots

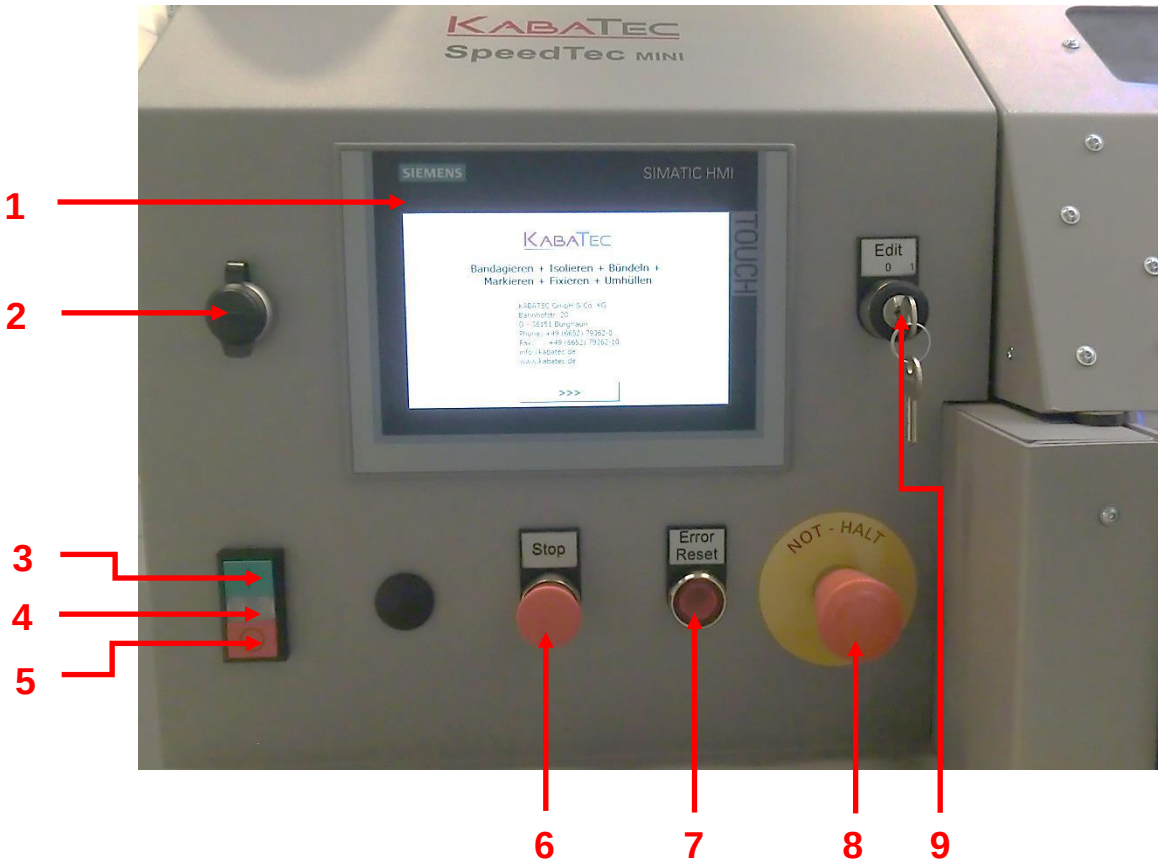
2.10 Emissions

The daily noise exposure level $L_{EX,8h}$ does not exceed the upper action value of 85 dB (A).

The peak sound pressure level $L_{pC,peak}$ does not exceed the upper action value of 137 dB(C).

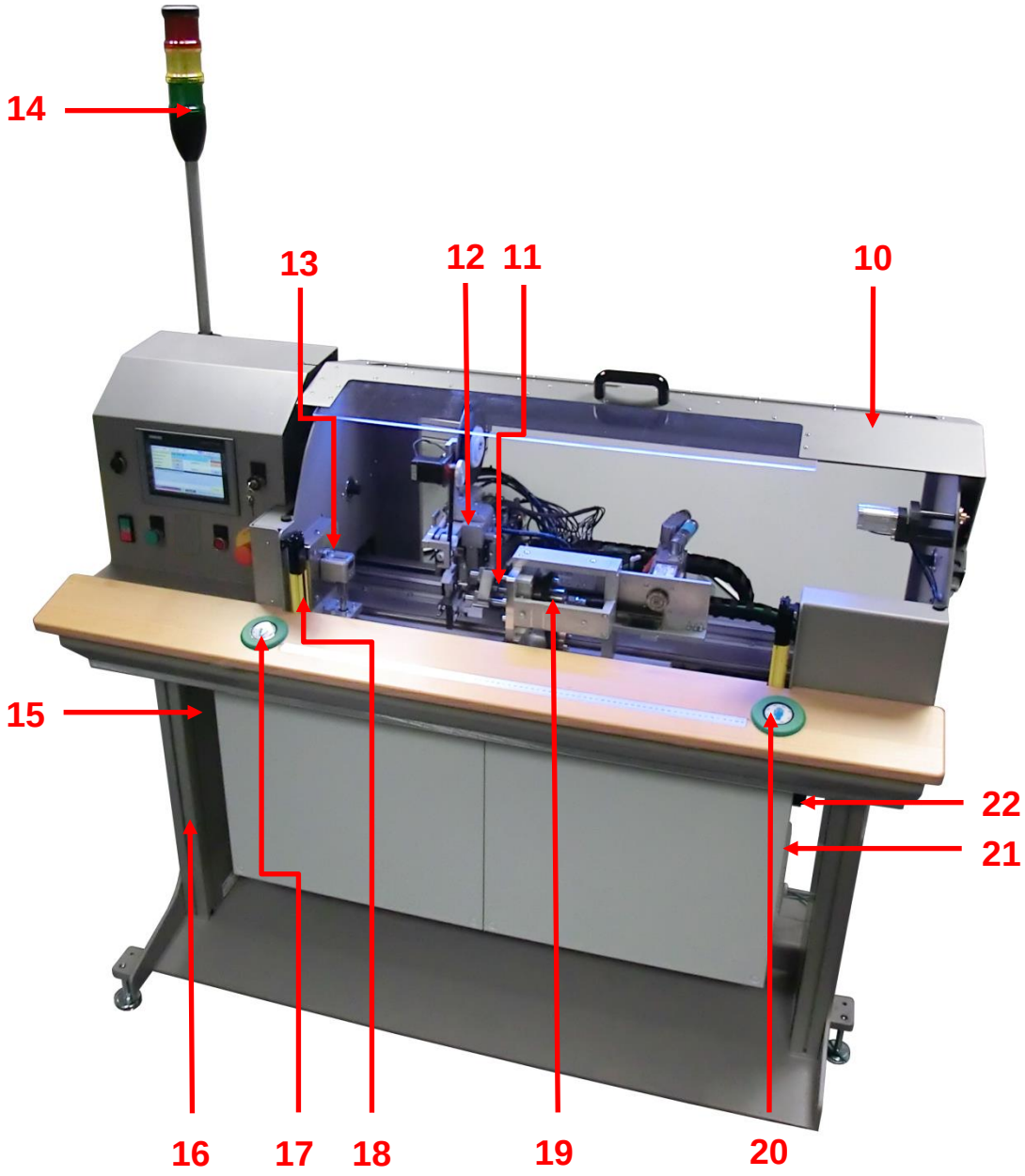
3. Description of the machine

3.1 General information



Identification of individual parts:

1. Touch panel
2. USB port
3. On switch
4. Ready indicator
5. Off switch
6. Stop button
7. “Fault reset” button (“Error Reset” in diagram)
8. Emergency stop button
9. “Edit” switch



Identification of individual parts:

10. Protective hood
11. Line clamp on left side
12. Taping unit
13. Line clamp on right side
14. Signal lamp tower
15. Compressed-air maintenance unit
16. Lifting column
17. “Clamp” button on left side
18. Safety light barrier
19. Clamping unit with tensile force monitor
20. “Clamp” button on right side
21. Main switch
22. Fan

1. **Touch panel**

   All machine programs are edited, saved and brought up at the touch panel. In addition, machine settings can be made there.

2. **USB port**

   This port can be used to connect a USB storage device.

3. **On switch**

   Used to switch on the taping machine. When pressed, the hood is automatically locked.

4. **Ready indicator**

   - Operational readiness is indicated by a flashing signal lamp.
   - The “On” operating state is indicated by a lit signal lamp.

5. **Off switch**

   This switch can be used to deactivate the system. While the system is in a deactivated state, the safety door can be opened.

6. **Stop button**

   Press the stop button to stop the taping process.

7. **Reset button / Fault indicator**

   The fault indicator lights up whenever a fault occurs. After being rectified, an active fault can be cleared by pressing the “Reset” button.

8. **Emergency stop button**

   Pressing the emergency stop button causes the taping machine to be stopped and switched off immediately.

9. **“Edit” switch**

   Set-up mode is activated via the “Edit” switch. Programs can be changed, deleted or copied, and machine settings made, only with an active “Edit” switch setting.

10. **Protective hood**

    The protective hood is automatically locked when the machine is switched on and serves to protect the operator from moving parts during machine operation.

11. **Line clamp on left side**

    The line connectors of the items for taping are inserted in the line clamp. The line clamp is also used to clamp the lines.

12. **Taping unit**

    The taping unit is used to wind adhesive tape around the items for taping.

13. **Line clamp on right side**

The line connectors of the items for taping are inserted in the line clamp. The line clamp is also used to clamp the lines.

14. Signal lamp tower

This indicates the status of the machine.

15. Compressed-air maintenance unit

At the compressed-air maintenance unit, there is a connection point for the compressed-air supply for the machine. Also the compressed-air setting can be adjusted there.

16. Lifting column

Used for electrically-controlled height adjustment of the taping machine.

17. “Clamp” button on left side

This button is used to activate the line clamp.

18. Safety light barrier

The safety light barrier prevents persons reaching into the machine while it is running.

19. Clamping unit with tensile force monitor

The clamping unit is used to set up the machine according to the length of the line sets to be processed. Tensile force monitoring prevents the lines and conductors sustaining damage during the clamping and taping processes.

20. “Clamp” button on right side

This button is used to activate the line clamp.

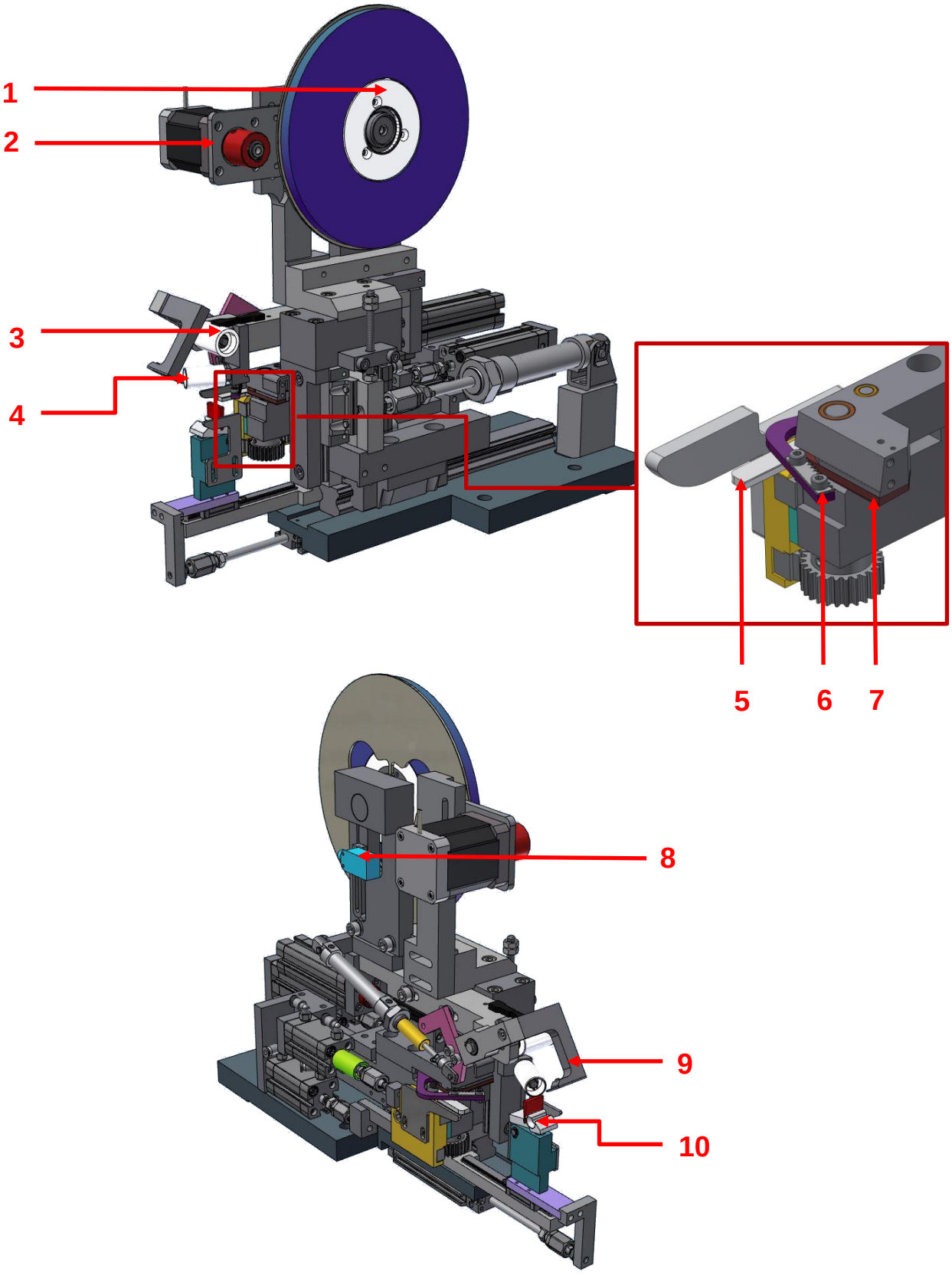
21. Main switch

The main switch is used to switch on and switch off the power supply to the machine.

22. Fan

The fan serves to cool and ventilate the electronics section of the control cabinet.

3.2 Taping unit



1. **Tape take-up mandrel with tape brake**
   The roll of adhesive tape is attached to the tape take-up mandrel by sliding it on laterally. The tape pulling force can be adjusted via the tape brake.
2. **Electronic winding aid**
   This serves to reduce the tape pulling force during the taping process.
3. **Guide roller**
   The guide roller guides the adhesive tape.
4. **Guide roller (offset)**
   The guide roller guides the adhesive tape.
5. **Lower blade**
   This is used for the cutting of the tape upon completion of the taping process.
6. **Hold-down device (retaining blade)**
   The tape holder fixes the adhesive tape in place during the cutting process
7. **Upper blade**
   This is used for the cutting of the tape upon completion of the taping process.
8. **End-of-tape sensor**
   This sensor detects when the roll of tape has been used up and a new roll of tape has to be fitted.
9. **Hold-down device (positioning mechanism)**
   The tape holder fixes the adhesive tape in place.
10. **Positioning finger**
    This is used to set the adhesive tape in the correct position.

3.3 Technical data for the KTS SpeedTec mini

Application	Taping of simple and small cable sets
Mains voltage	3-phase, 230V/400V (50Hz)
Power input	2100 W
Fuse protection rating	16 A max.
Control voltage	24 VDC
Pneumatic connection pressure	5,5-6 bar
Speed	100 -2000 rpm, settable via touch panel
Feed distance	0-40 mm/rev.
Tape end detection	Contactless (using optical sensor)
Cable diameter	Up to 10 mm
Adhesive tape width	9mm
Material	Any commercially-available adhesive tape
Dimensions (H/W/D)	1700 mm / 1500 mm / 850mm
Weight	400 kg

4. Commissioning

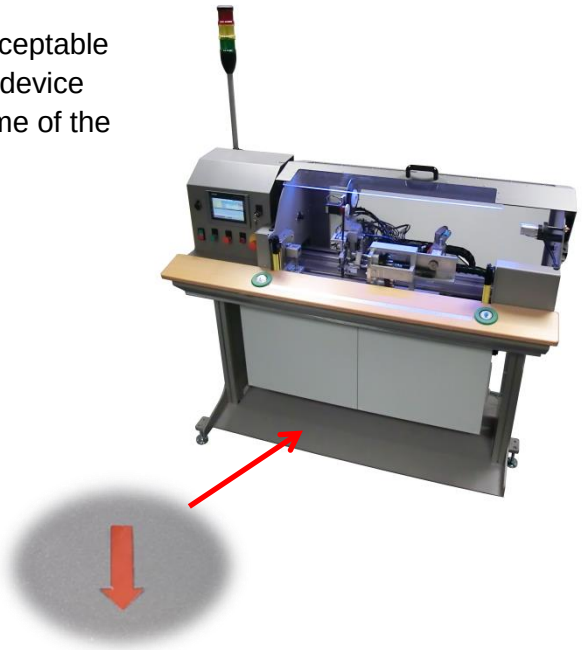
The winding and taping system should not be put into operation until this operating manual, particularly the safety information, has been read and understood.

4.1 Unpacking

The winding and taping system is delivered in disposable packaging. The packaging should not be returned to the manufacturer. The packaging used for shipping the device must be disposed of in accordance with the applicable national statutory regulations. When receiving the goods, check whether the device has any visible or concealed damage. Any damage must be reported to KABATEC GmbH & Co KG without delay.

4.2 Transportation

In order to be able to transport the machine without disposable packaging, use a lifting device that is acceptable given the weight of the machine. Position the lifting device centrally to the bonded arrow beneath the base frame of the KTS SpeedTec Mini.



4.3 Setup

The setup surface must be level and suitably stable given the weight of the winding and taping system.

The accident prevention regulations must be complied with.

4.4 Connection

The taping machine must be connected to the mains. Also the system must be supplied with compressed air (pressure: 6 bar).

Danger

The winding and taping system is to be connected to the mains by a qualified electrician only. Here, local regulations, as well as VDE 0100, must be complied with.

Danger

Ensure that the voltage, frequency and electrical fuse protection rating of the mains system are consistent with the information on the type plate.

4.5 Possible hazards

Warning

Operating personnel must be made aware of possible accident risks and be instructed about appropriate safety precautions.

Warning

Do not reach into the operating area of the cutter.

Risk of being cut!

Danger

Do not perform maintenance and repair tasks until the device has been switched off and the supply of power has been interrupted.

Danger

Repair work is to be carried out only by qualified personnel.

Danger

Unauthorized removal of required covers or protective devices, or improper use or incorrect operation of the product can result in severe injuries or substantial damage to property.

5. Use

5.1 Establishing readiness for operation

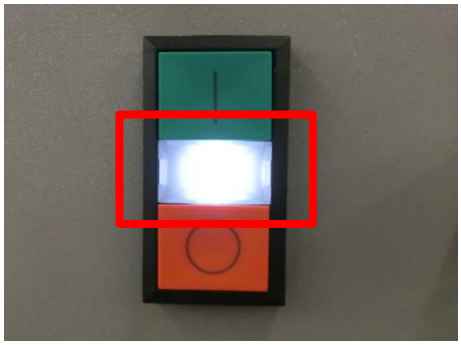
Connect the machine to the compressed-air supply system.

A pressure lying in the range 0.5 - 0.6 MPa must be set at the manometer of the compressed-air unit.

Use the main switch at the control panel to activate the power supply.

Release the emergency stop button.

Operational readiness is indicated by a flashing signal lamp.

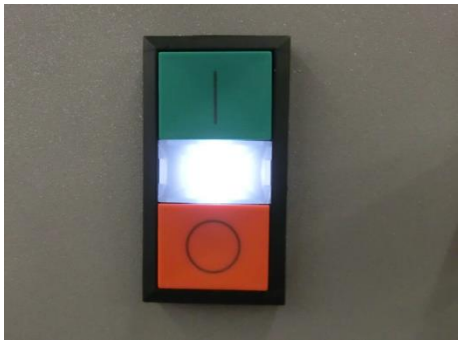


5.2 Activation/Deactivation

To switch on the machine, use the On switch. The “On” operating state is indicated by a steadily-lit signal lamp.

The closed hood is automatically locked when the machine is on.

To switch off the machine, use the Off switch. This will also result in the hood being unlocked.



5.3 Faults

The occurrence of a fault is indicated by the lighting up of the red signal lamp at the control panel and the red signal lamp of the signal lamp tower at the machine.

Clearing a fault

After pressing the “Fault / Reset” button the fault will be cleared and all motors and cylinders reactivated.

5.4 Start screen of touch panel

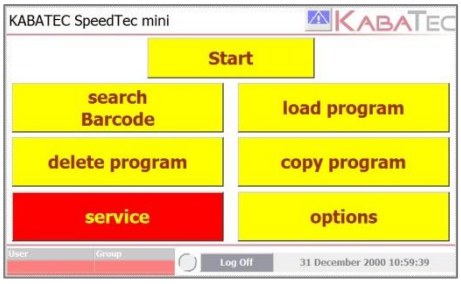
After switching on the machine, the start screen will appear on the touch panel display.

Press the “>>>” button to reach the main menu for the taping machine.

5.5 Main menu at touch panel

The following program screens can be selected from the main menu. All program screens are password-protected.

All or only some of the program screens are accessible, depending on the type of password and permissions.



- Start (operation)
- Search for barcode
- Load program
- Delete program
- Copy program
- Service
- Options

The <<Service>> program screen is exclusively reserved for the manufacturer (Kabatec).

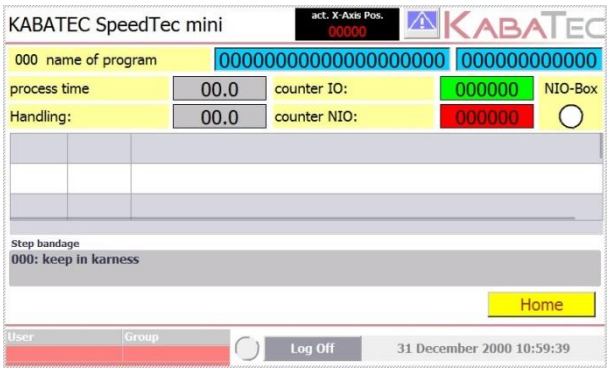
The “Home” button is used to return to the main menu from individual program screens.

5.6 Start (operation)

Use the “Start” button (see 5.5) in the main menu to bring up the “Operation” interface (Image 1). The yellow arrow keys can be used to navigate through the steps. On the first line, the program name can be entered and the program number read. The current step is indicated on the line below. A green background is used for the current step. Programs can only be edited with the “Edit” switch set to position 1 (see 5.7).

Actual length:

Here, the current winding position for the taping unit is displayed.



Taping parameters:

- Start position
  Distance [in mm] from left-hand connector to point where taping process is started
- Initial layers
  Number of tape layers (non-angled windings) at beginning of taping process
- Length
  Overall length of tape
- Speed
  Speed [in %] at which the taping process is performed
- Feed distance
  Traversing distance [in mm] of the taping unit per line-set revolution
- Final layers
  Number of tape layers (non-angled windings) at end of taping process
- Overrun position
  Point beyond end position for overrun, allowing tape to be properly aligned and correctly cut at end of taping process.
- Final speed
  Speed at which overrun position is approached and final layers are applied
- Tensile force
  Tensile force (in N) with which the line set is tensioned in the right-hand clamp
- Winding aid
  Speed of winding aid as fraction of speed of winding head, expressed in %

Number of pieces:

Here the number of line sets which have already been taped is displayed.

The piece counter is visible only when the “Edit” switch is set to 0.

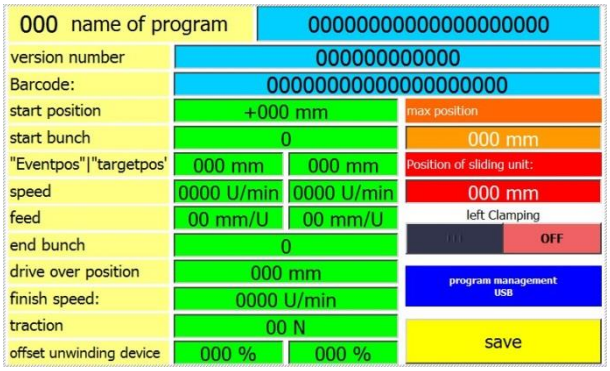
To reset the piece counter, press the button for the piece counter and hold for 1 s.

Date and time:

To make this setting, tap on the display field and then enter the date and time using the keypad.

The “Home” button is used to return to the main menu.

5.7 Editing programs



With the active setting for the “Edit” switch (position 1), the settings for the parameters listed in Section 5.6 can be adjusted.

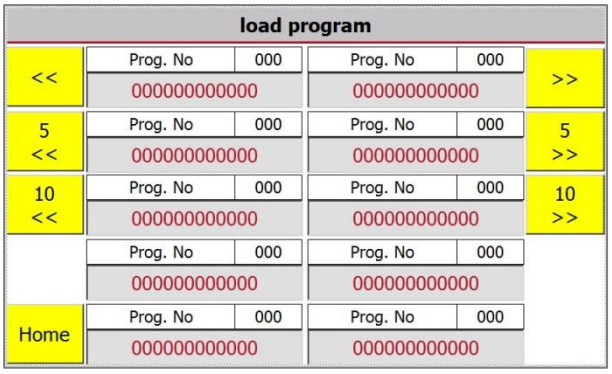
For each parameter, tap on the respective input field (green background) and enter the required value using the keypad.

As well as the taping parameter settings, the program name and version number can also be modified.

Press the “Save” button to save any modified entries. Unsaved entries will be lost and not adopted in the program.

Parameter	Description	Unit	Value range / status	
			min.	max.
Start position	Start point of winding path	mm	-15	800
Initial layers	Number of tape layers (non-angled windings) at beginning of taping process	---	0	9
Event pos.		mm	0	800
Target pos.		mm	0	800
Speed		rpm	0	2000
Feed distance	Traversing distance of linear arm per winding head revolution	mm/rev.	0	25
Final layers	Number of tape layers (non-angled windings) at end of taping process	---	0	9
Overrun position	Point beyond end position for overrun, allowing tape to be properly aligned and correctly cut at end of taping process.	mm	0	50
Final speed		rpm	100	2000
Tensile force	Tensile force of line clamp	N	10	50
Offset, winding aid	Speed of winding aid as fraction of speed of winding head, expressed in %	%	0	100

5.8 Loading programs



Use the “Load program” button in the main menu to bring up the “Load program” interface (see 5.5).

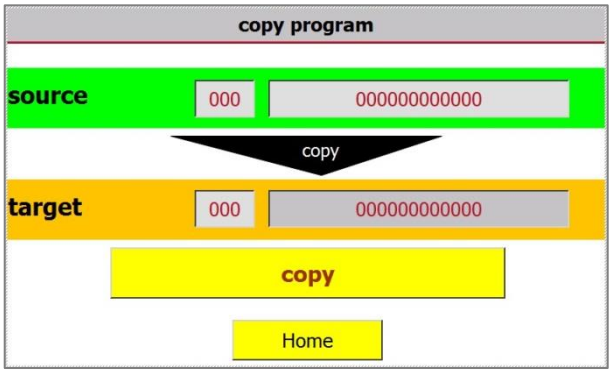
The yellow arrow keys at the interface screen can be used for navigation purposes.

The “Home” button is used to return to the main menu.

A saved program can be loaded by tapping on the respective button.

The program is opened and can be worked through.

5.9 Copying programs



With the “Edit” switch in position 1, the “Copy program” button in the main menu is used to bring up the “Copy program” interface (see 5.5).

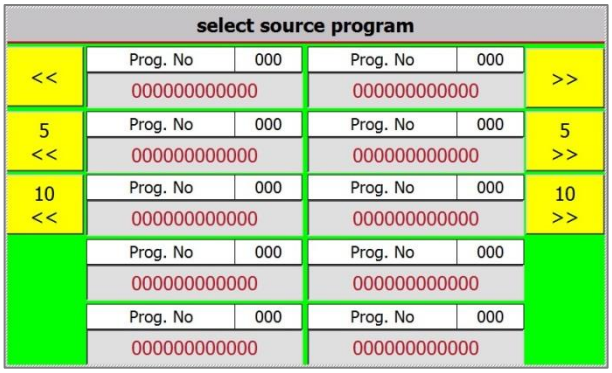
The “Home” button is used to return to the main menu.

Tap on the “Source” button to bring up a list of all the source programs in a window.

Tap on the “Target” button to bring up a list of all the target programs in a window.

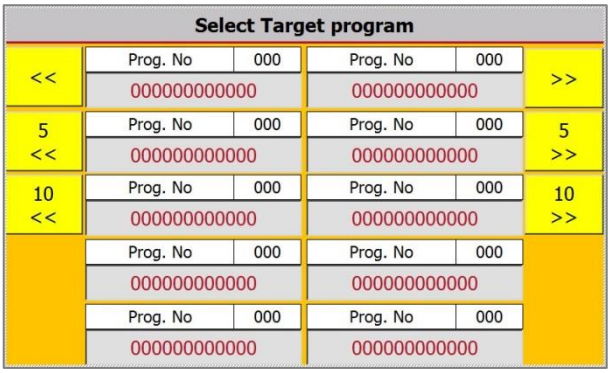
A source program can be selected by tapping on the respective button.

The yellow arrow keys at the interface screen can be used for navigation purposes.

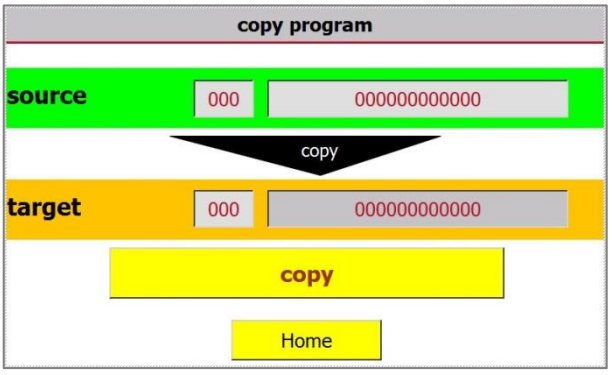


A target program can be selected by tapping on the respective button.

The yellow arrow keys at the interface screen can be used for navigation purposes.



The selected source program can now be copied to the selected target program by tapping on the “Copy to” button (see 5.9).



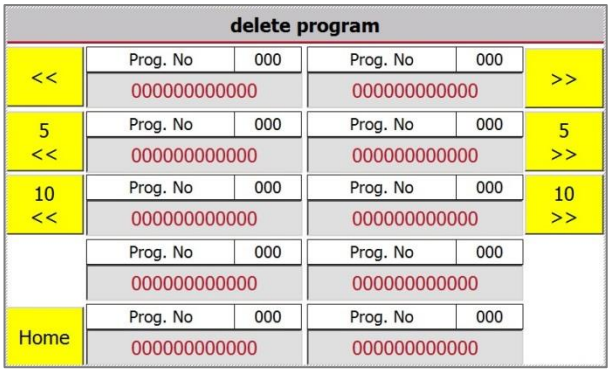
5.10 Deleting programs

With the “Edit” switch in position 1, the “Delete program” button in the main menu is used to bring up the “Delete program” interface (see 5.5).

The yellow arrow keys at the interface screen can be used for navigation purposes.

The “Home” button is used to return to the main menu.

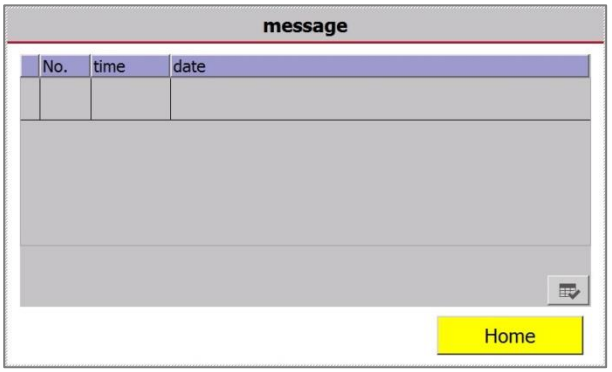
A program can be deleted by pressing the respective button and holding for 1 s.



5.11 Messages

Active messages are displayed in chronological order in the message box.

Messages can be cleared and the start screen brought up again via the “Home” button.



5.12 Options

Use the “Options” button in the main menu to bring up the “Options” interface (see 5.5).

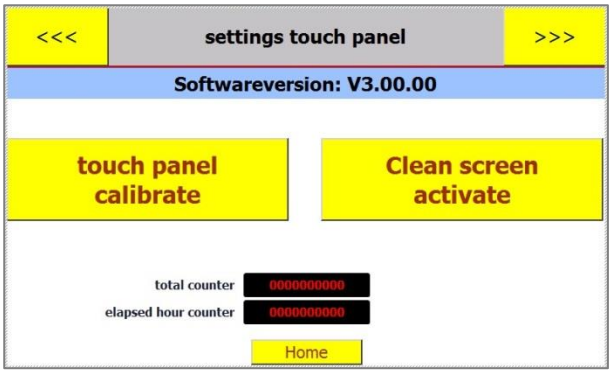
The “Home” button is used to return to the main menu.

Use the “<<” and “>>” buttons to switch between the individual menu pages.

5.12.1 Touch panel settings

Software version:

The info panel with the blue background shows the current status of the machine software.



Touch panel calibration:

Tapping on the <Calibrate touch panel> button takes you to the “Calibration” menu. Now follow the instructions on the screen.

“Clean screen” activation:

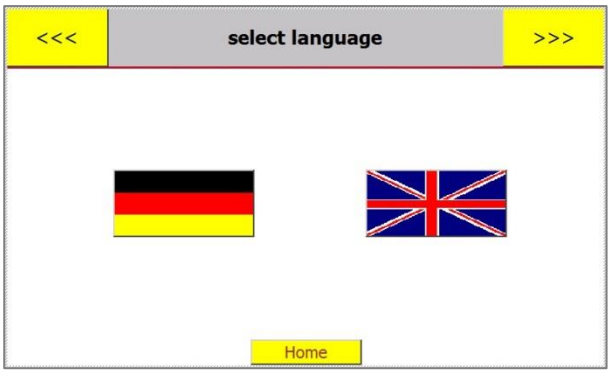
The “clean display” function is activated by tapping this button and remains active for about 30 seconds. During this period, the display does not respond to any contact and can thus be cleaned without any problem.

5.12.2 Language setting

The menu language can be set by tapping on the respective country flag symbol.

Available languages:

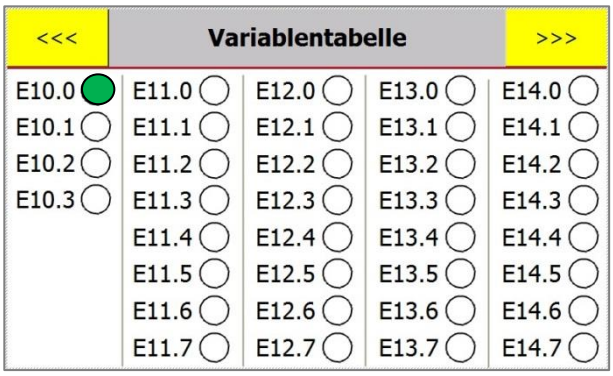
- ✓ German
- ✓ English



5.12.3 Table of input variables

This table indicates which inputs are active and which are inactive.

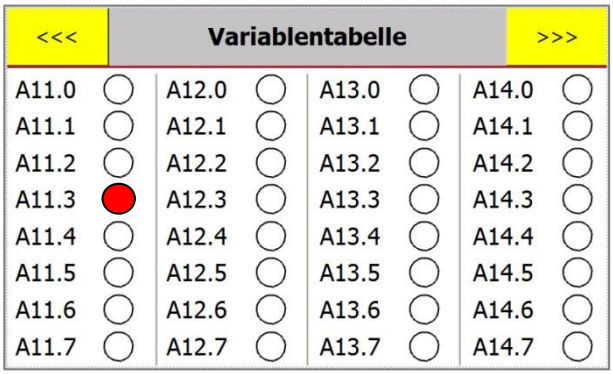
Active inputs are represented by a green dot.



5.12.4 Table of output variables

This table indicates which outputs are active and which are inactive.

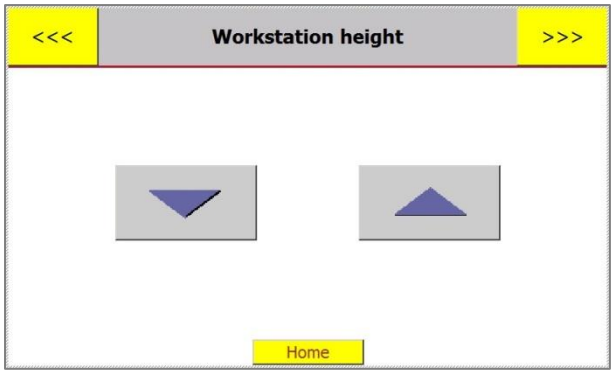
Active outputs are represented by a red dot.



5.12.5 Workplace height setting

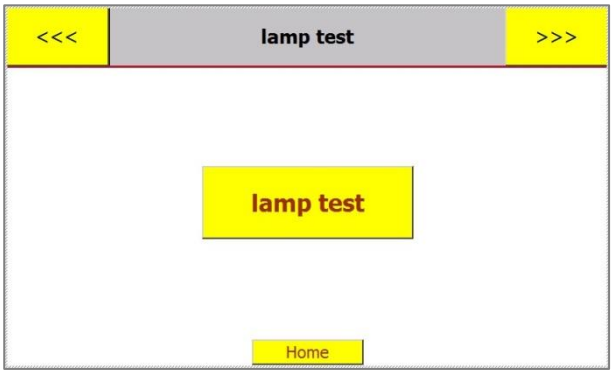
Regarding the workplace height, the blue arrow buttons can be used for navigation purposes.

If, during height adjustment, the upper or lower stop is reached, wait for 2 min. before activating the height adjustment equipment again.



5.12.6 Lamp test

The <Lamp test> button can be used to test the functioning of the signal lamp tower.



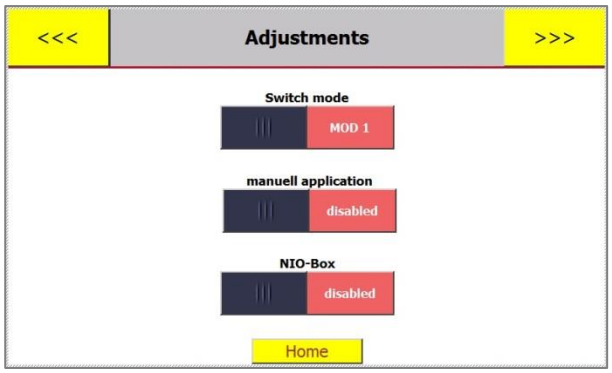
5.12.7 Archive

The <Copy archive to USB> button can be used to copy program data to an external storage device (USB stick), so that it is backed up.

Connect a suitable storage device to the USB port at the control panel beforehand.

This program screens also provides an overview of active messages.

5.12.8 Functions



Button mode:

Use the shift control to switch between modes 1 and 2 for the start button.

MODE 1

Start button on left → clamp on left
The left-hand clamp is closed using the start button on the left.

Start button on right → clamp on right
The right-hand clamp is closed using the start button on the right.

The order is not important.

MODE 2

In this mode, the left-hand clamp is first closed by pressing one of the two start buttons. After pressing the button a second time, the right-hand clamp is closed.

Clamping sequence → first right-hand clamp closes, then left-hand clamp

Manual placement:

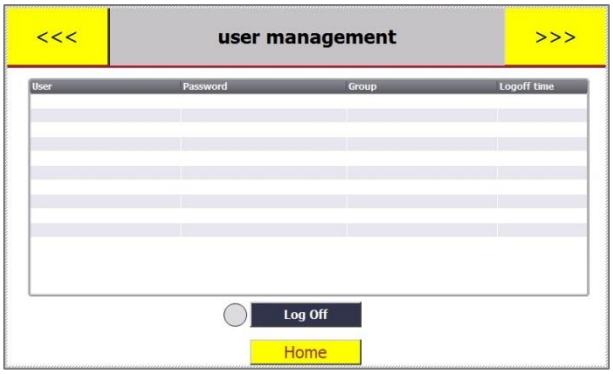
The slider can be used to switch between the options of manual and automatic placement of the adhesive tape at the line set.

NOK bin:

The slider can be used to activate or deactivate the “NOK bin” function.

5.12.9 User management

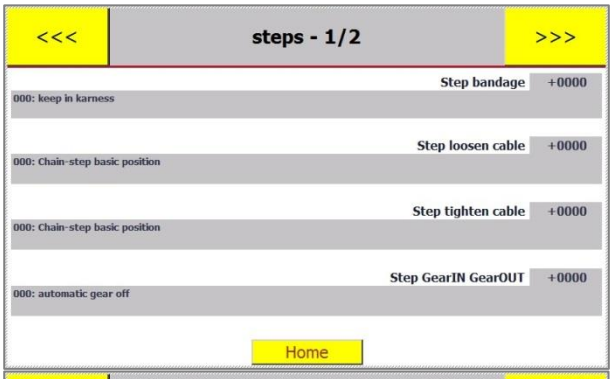
In the user management area, the information concerning the individual user groups and the set passwords can be edited.

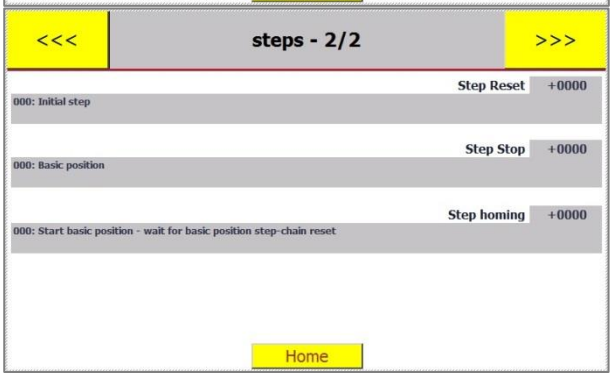


5.12.10 Processes

This program screen indicates the machine status. It reveals the current process of the machine.

In addition, the machine counter and the operating hours counter are indicated in the bottom part of the screen.

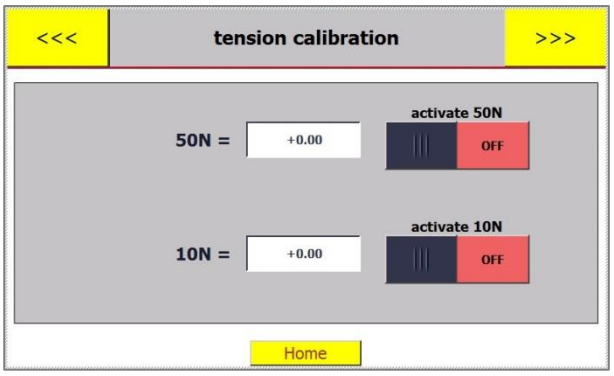




5.12.11 Tensile force calibration

This program screen can be used to activate or deactivate the tensile force calibration function for the right-hand clamping device via the two sliders.

Moreover, the white input field can be used to adjust or correct the tensile forces.



Standard values:

50N => + 1.07

10N => + 0.35

For information on calibration process, see 5.16.

5.13 Service

Use the “Service” button in the main menu to bring up the service menu program screens (see 5.5). These program screens are password-protected and only intended for authorized personnel.

The “Home” button is used to return to the main menu.

Use the “<<” and “>>” buttons to switch between the individual menu pages.

5.13.1 W-axis

ACC: Drive-unit acceleration at W-axis

DEC: Drive-unit deceleration at W-axis

Ref. pos: Reference point displacement (adjustment) at W-axis

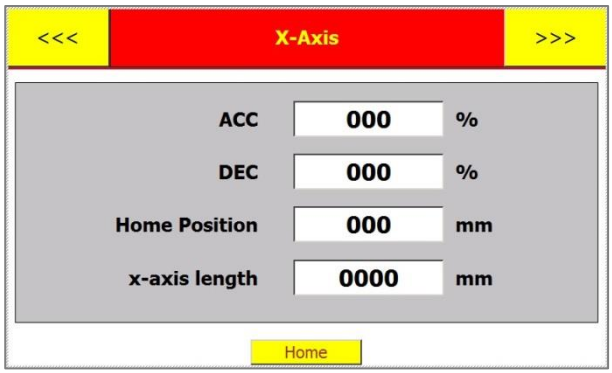
5.13.2 X-axis

ACC: Drive-unit acceleration at X-axis

DEC: Drive-unit deceleration at X-axis

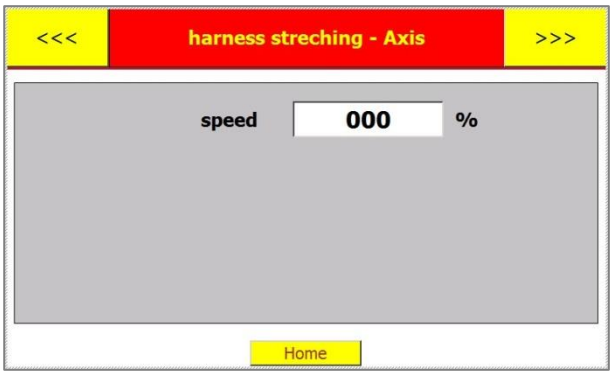
Ref. pos: Reference point displacement (adjustment) at X-axis

Guide length: Maximum traversing length



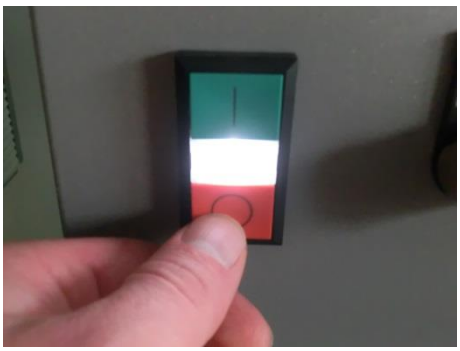
5.13.3 Cable clamping axis

Speed of clamping process in %.



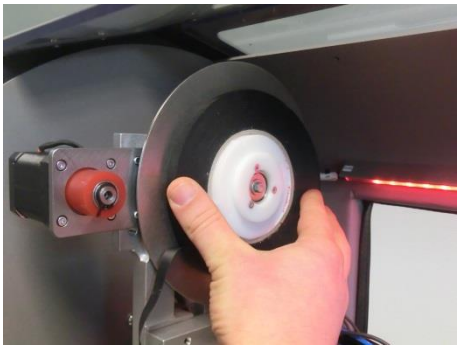
5.14 Inserting adhesive tape

Switch off the machine via the Off switch.



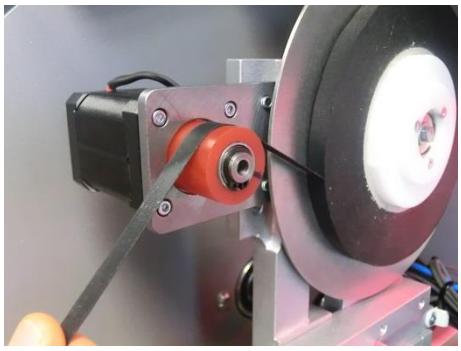
Open the protective hood.

Attach the roll of adhesive tape to the take-up mandrel by sliding it on laterally up to the stop. (If present, remove empty tape roll beforehand.)



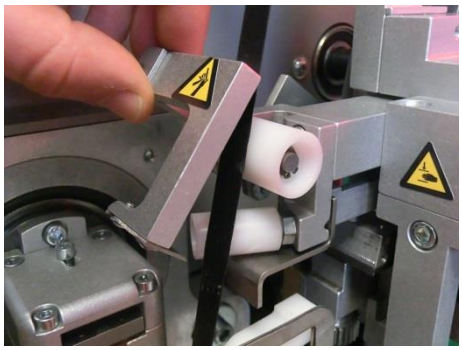
Pull off approx. 30 cm of the adhesive tape and guide it over the Eladur roller of the electronic winding aid.

Make sure the sticky side of the tape faces upwards.

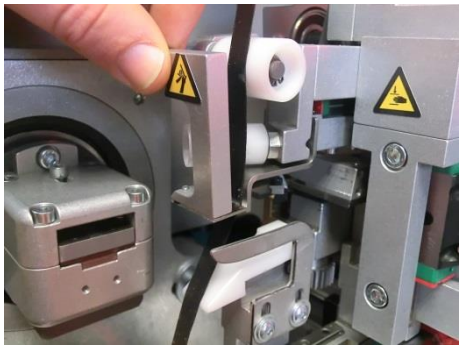


Flip up the hold-down device.

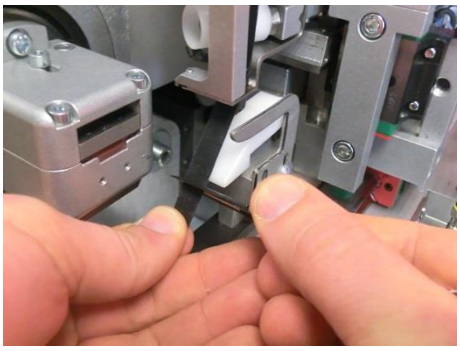
Pass the adhesive tape around the two guide rollers (with the non-adhesive side facing down) and then insert it in the hold-down device.



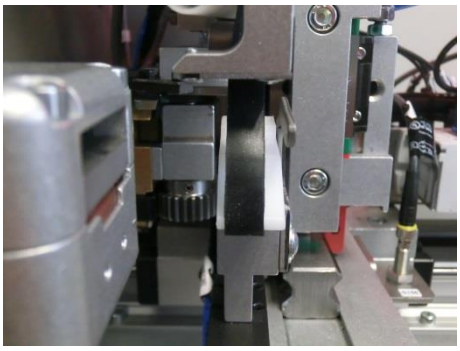
Place the tape between the hold-down device and the counter-holder. (The images serve as examples only and there may be differences in comparison to your machine, depending on the cable receptacles used.)



Cut the adhesive tape flush with the positioning finger.



Make sure that the adhesive tape is positioned centrally on the positioning finger.



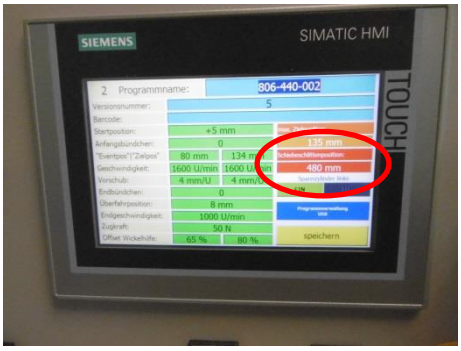
Close the protective hood.

Switch on the system via the green On switch.

5.15 Positioning the clamping unit and safety stop

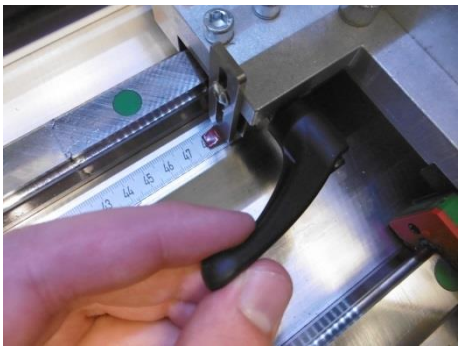
Each time the receptacles are changed, the clamping unit and the safety stop have to be positioned.

In the editing area of your program, there is a numerical value entered for “Sliding carriage position”. In our example, this is 480 mm.

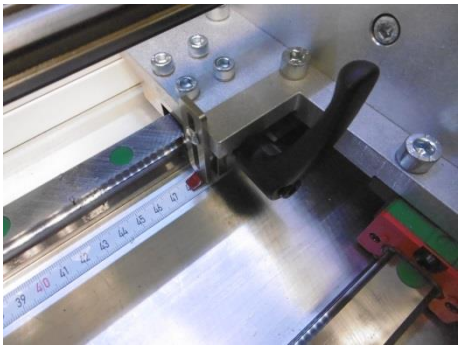


Release the locking lever…

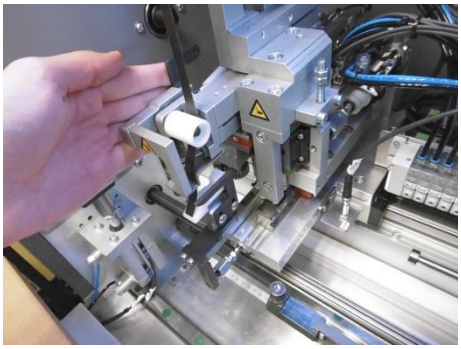
and move the carriage to the correct position (the “480 mm” mark).



Once the carriage is correctly positioned, apply the locking lever fully.

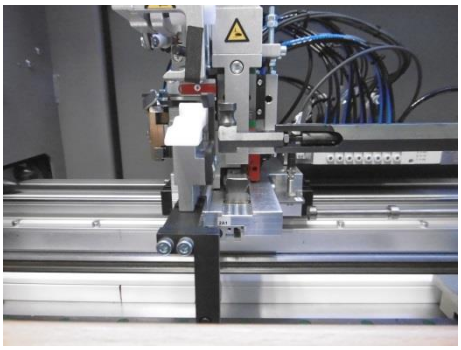


Move the taping unit towards the sliding carriage.

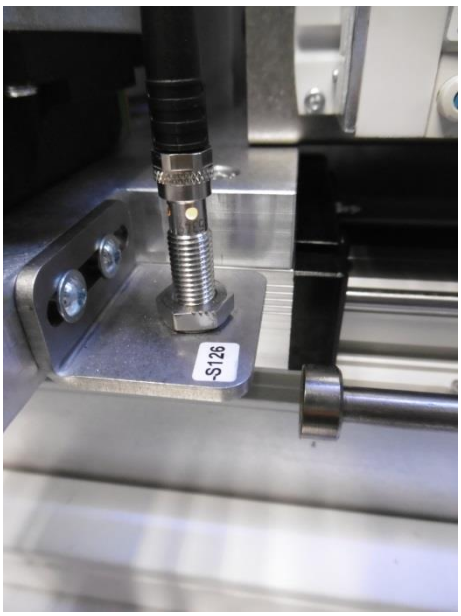


Now pull the positioning finger towards you.

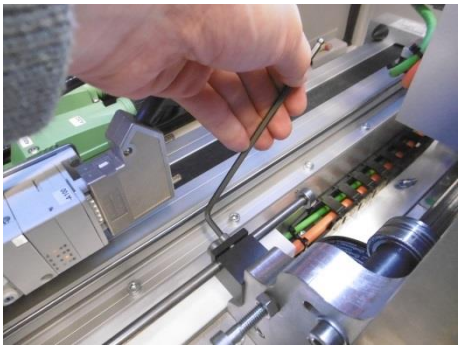
There should be a small gap (5-10 mm in width) between the right-hand cable receptacle and the positioning finger (it being important that the two component assemblies do not come into contact). The cable receptacle shown in the image is just one example and varies in appearance and position compared to other cable receptacles.



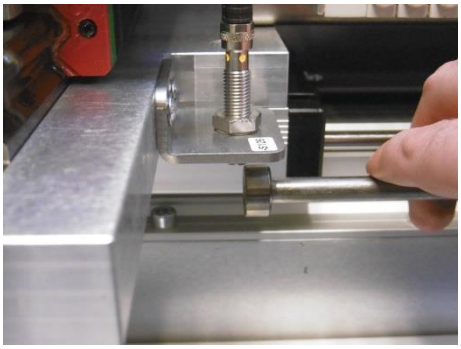
The sensor on the right at the taping unit lights up yellow if the ram is not within its measuring range.



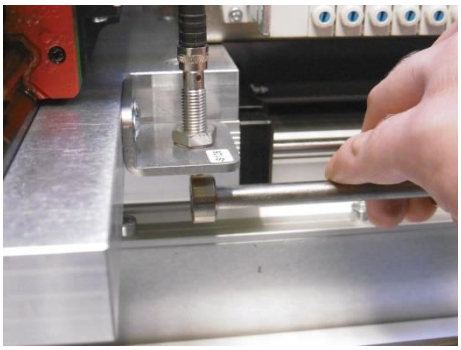
Loosen the cylinder head screw, so that the position of the ram can be adjusted.



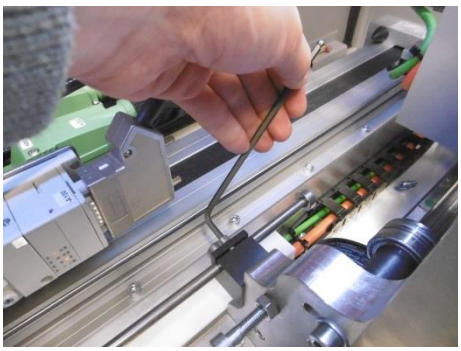
Move the ram towards the sensor.



If the yellow lamp goes out, hold the ram in position...

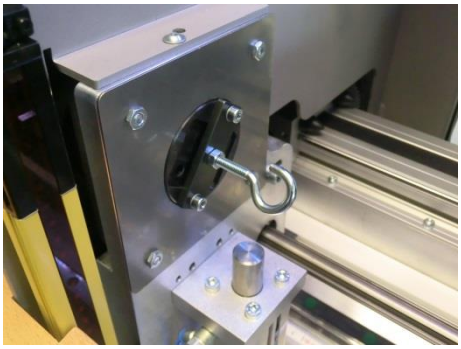


…and tighten the cylinder screw firmly.

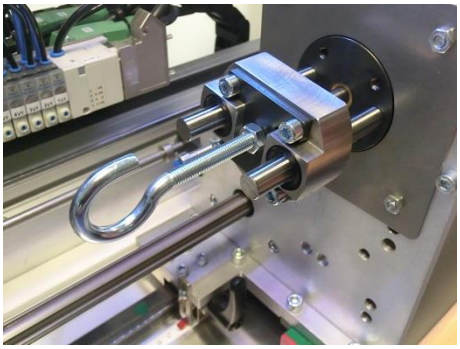


5.16 Tensile force calibration

Fit the left-hand...

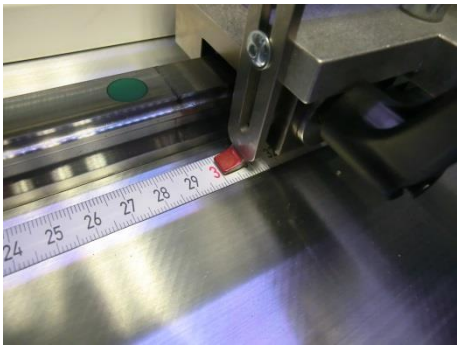


…and the right-hand calibration holders.

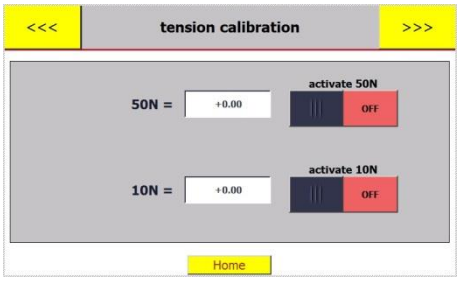


Attach a hanging scale to the holders. The hanging scale shown in the image is an example only and may differ in appearance to your scale.

Move the clamping device to the 300mm position.



Bring up the <<Options>> submenu from the <<Tensile force calibration>> program screen and activate the required calibration function (see 5.12.11).



Activate the hanging scale and zero it.

Close the protective hood and switch on the machine.

Start the clamping process by pressing the start button.

Make sure that you are within the operating range of the safety light barrier when doing this.

Afterwards, you can read off the tensile force value at the display of the hanging scale.

5.17 Inserting items to be taped

The insertion process varies according to the line receptacles used and cannot therefore be described exactly. The insertion process described below is therefore an example only. A detailed description of your line receptacle can be found in the appendix.

Before being able to insert items for taping, the machine must be switched on (see 5.2) and the clamping device positioned (see 5.15).

Guide the first line connector into the left-hand receptacle pocket. Push the line connector in the receptacle up to the stop and clamp the connector. Make sure that you are within the operating range of the safety light barrier when doing this.

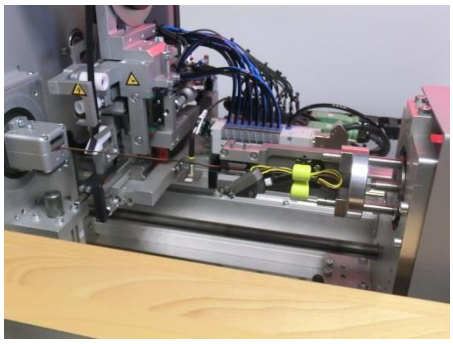
Insert the lines in the right-hand receptacle and fix these in place. Now press the start button on the right. The cable set is now tensioned axially with the tensile force set in the program. You also need to be within the operating range of the safety light barriers when pressing the button on the right.

The line can subsequently be relieved of tension, if necessary, by placing a hand inside the operating range of a light barrier and pressing the respective start button.

5.18 Starting the taping process

After correctly inserting the cable set (see 5.17), the taping process can be started.

➔ Image serves as example only



Make sure that you are positioned outside the operating range of the safety light barrier. If both start buttons are lit green, this means the machine is on standby.

Press one of the two start buttons to start taping.

5.19 Ending the taping process

Once taping has finished, the two clamps open up allowing you to remove the taped item(s).

5.20 What to do in an emergency

In an emergency, press the emergency stop button.

The machine stops immediately and the protective hood is unlocked.

After resolving the emergency stop situation, release the emergency stop button.

The flashing of the signal lamp indicates that the machine is ready for operation.

5.21 End of tape

An “End of tape” message at a message display indicates when the end of the tape has been reached.

Use the Off switch to clear the message and unlock the hood.

The hood can subsequently be opened and the adhesive tape roll replaced (see 5.14).

6. Maintenance and servicing

Danger

Do not perform maintenance and servicing tasks until the device has been switched off and the supply of power and the supply of compressed air have been interrupted.

6.1 Maintenance schedule for three-shift operation

The maintenance and servicing schedule specified below should be complied with. The schedule is geared towards 7-day, three-shift operation. If there is a different work arrangement, the maintenance and servicing schedule may have to be adapted accordingly.

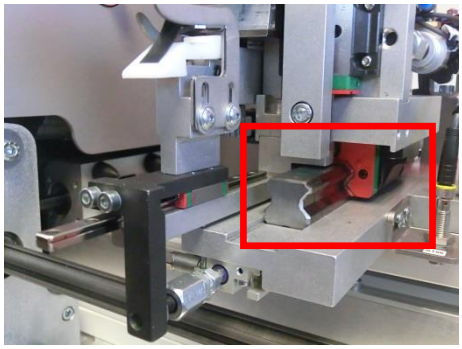
	Daily	Weekly	monthly	Half-yearly	As needed
6.2 Check guides/carriages			X		
6.2 Lubricate guides/carriages					X
6.3 Cleaning the cutter and hold-down device	X				
6.5 Oiling the cutter	X				
6.6 Checking/Cleaning the safety light barriers	According to manufacturer's specifications				
6.7 Cleaning the air filter					X
6.8 Cleaning the Makrolon discs					X
6.9 Setting the end-of-tape sensor					X
6.10 Check/Cleaning the guide rollers	X				
6.11 Cleaning the taping-unit carriage guide		X			
6.12 Greasing the bearings					X
6.13 Cleaning the positioning finger	X				
6.14 Checking/Changing the belts				X	X
6.14 Perform tensile force calibration				X	

6.2 Checking/Cleaning/Lubricating the guides and carriages

Clean all linear guides and guide carriages using a dry cloth, making sure that dust and other contaminants are removed.

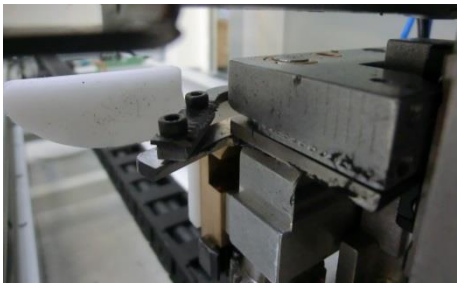
For the lubrication of the guide rails and guide carriages, we recommend using K2K or KP2N grease in accordance with DIN 51825.

Some guide carriages are fitted with grease nipples for lubricating purposes.



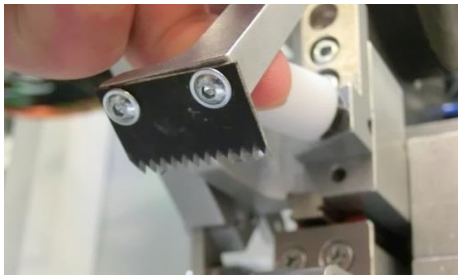
6.3 Cleaning the cutter and hold-down device

Clean the cutter using a cloth moistened with benzene (or a comparable cleaning agent such as brake cleaner), making sure that adhesive residue and other contaminants are removed.



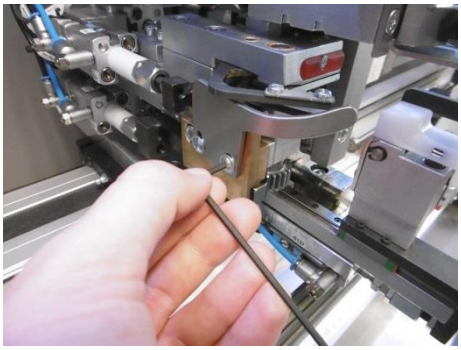
Warning!

There is a risk of being cut when working near the cutter and hold-down device.

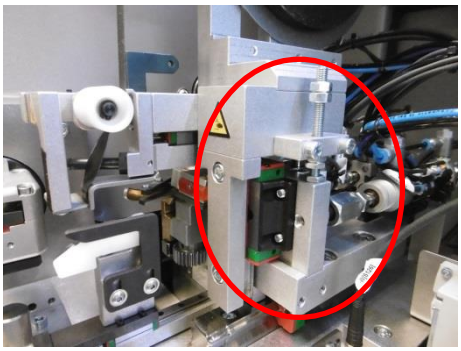


6.4 Replacing and setting the cutter

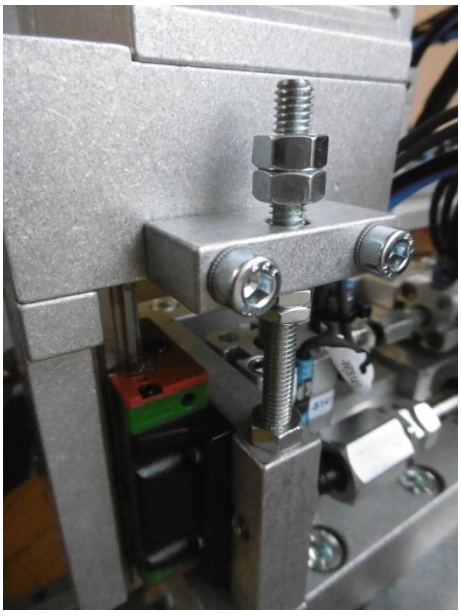
First remove the side guard of the cutter unit.



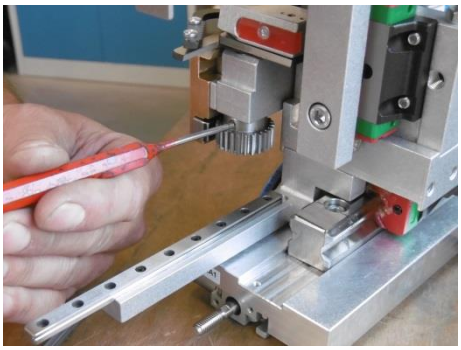
The height limiter of the tape pre puller is on the right side of the taping unit.



Push the tape pre puller up and fix it.

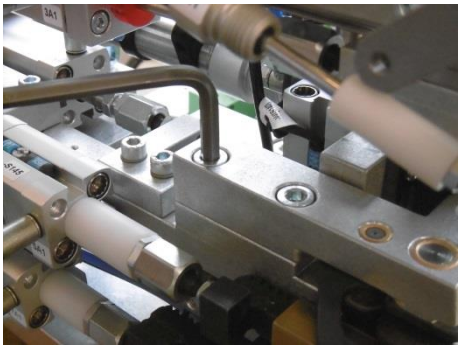


Now remove the pin of the pinion…

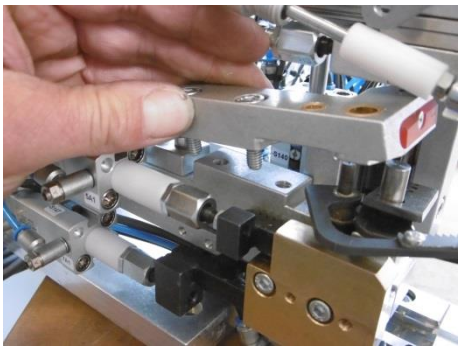


…and then remove the pinion from the shaft.

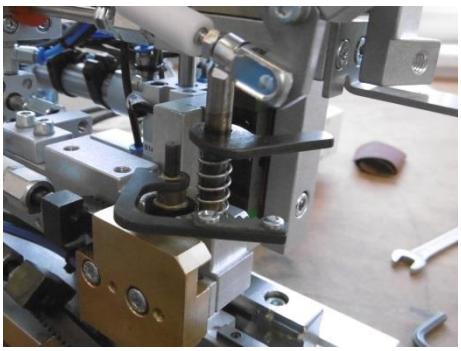
Screw off the retaining device of the upper blade...



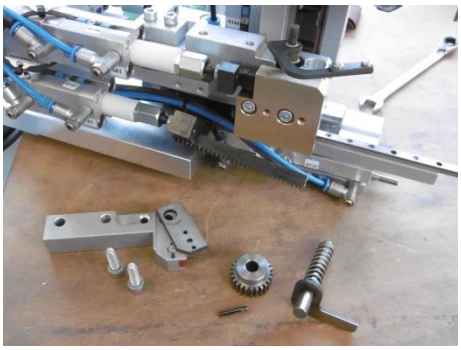
…and remove it completely. Pay attention to the upper blade while doing this, as this can easily fall off.



The lower blade can now also be removed. It might move towards you slightly due to the spring.

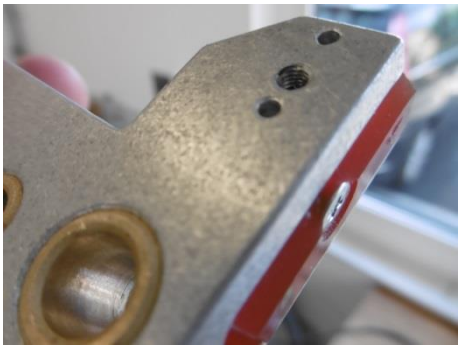


If the blades need to be replaced please do so (applying the dismantling sequence in reverse order for this purpose).



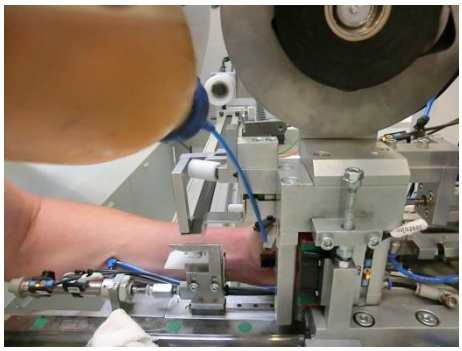
The retaining device for the upper blade has a cross-head screw, which allows the blades to be positioned relative to one another.

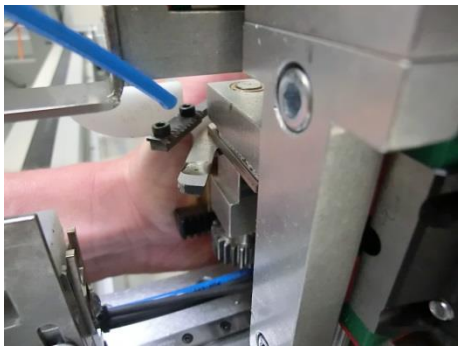
The cross-head screw is fixed in place by a grub screw.



6.5 Oiling the cutter

Apply a few drops of “Opda 2000” special oil (material no. 13254) to the mandrels and pocket clamps.



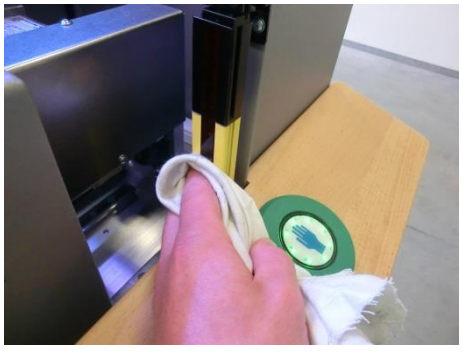


6.6 Checking/Cleaning the safety light barriers

Use the standardized test rod supplied to check the safety light barriers.

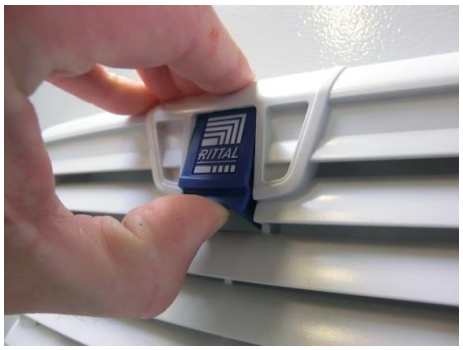
Ensure that the safety light barrier is active and check the functioning of the barrier. Further information can be found in the operating manual of the manufacturer (see “SO” [Other info] tab in documentation folder).

Clean the safety light barriers according to the manufacturer’s instructions (see “SO” [Other info] tab in documentation folder).



6.7 Cleaning the air filter

To unlock the filter grille, pull the blue marker (with the logo) upwards slightly. The grille can now tilt up by approx. 70°, thereby allowing easy access to the filter mat. The appropriate cleaning frequency is strongly dependent on the degree of contamination of the ambient air and cannot therefore be stated precisely.

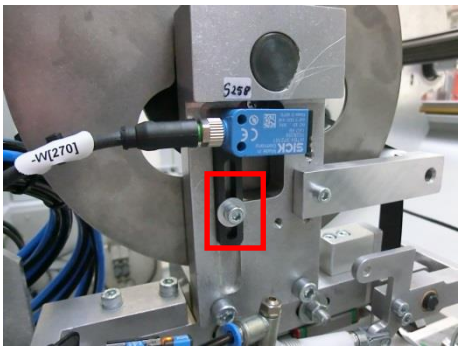


6.8 Cleaning the Makrolon discs

Clean the Makrolon safety discs using a commercially-available disc cleaner. The cleaning interval is dependent on the place of installation of the machine and cannot therefore be stated precisely.

6.9 Setting the end-of-tape sensor

Place the sensor so that the red dot from the light of the sensor is close to the core of the adhesive tape roll.



1. Loosen the fastening screw for the sensor using a suitable tool.
2. Move the sensor to the required position.
3. Tighten the fastening screws for the sensor using a suitable tool.

The position of the sensor must be such that, when the end of the tape is indicated, there are still enough layers of tape around the core for the active taping process to be ended and the cable set to be completely taped.

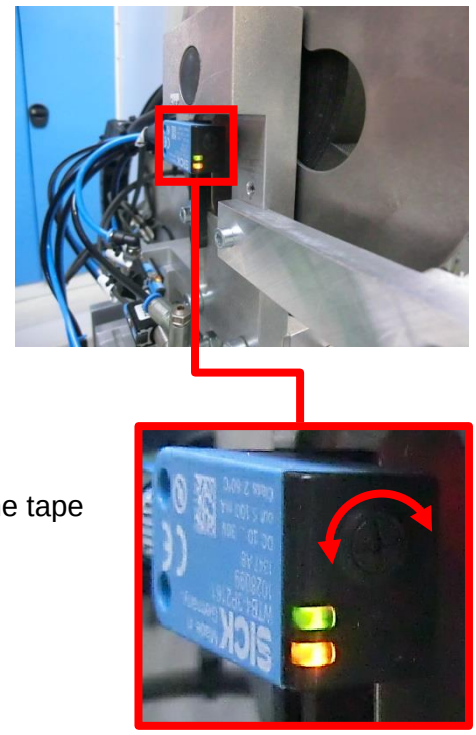
The setting of the sensor is thus critically dependent on the length of the cable set being taped.

Setting the tape width

It is also necessary to adapt the setup of the end-of-tape sensor according to its operating distance.

The operating distance of the sensor can be adjusted using the cross-head screw:

- Anticlockwise turning - operating distance decreases
- Clockwise turning - operating distance increases



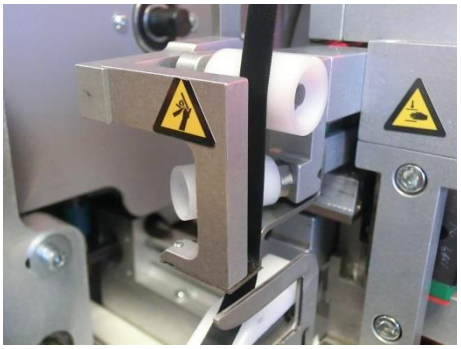
The green lamp indicates that the sensor is ready for use.

The orange lamp will light up whenever the sensor responds to the presence of an object.

Set the sensor so that the orange lamp is active only when the tape is in the vicinity of the red dot of light.

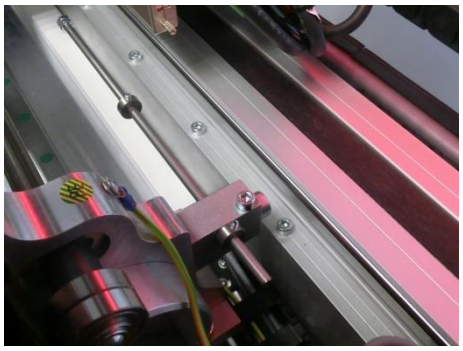
6.10 Cleaning the guide rollers

Clean the guide rollers using a cloth moistened with benzene (or a comparable cleaning agent such as brake cleaner), making sure that contaminants are removed.



6.11 Cleaning the taping-unit carriage guide

Clean the carriage guide using a cloth moistened with benzene (or a comparable cleaning agent such as brake cleaner), making sure that contaminants are removed.



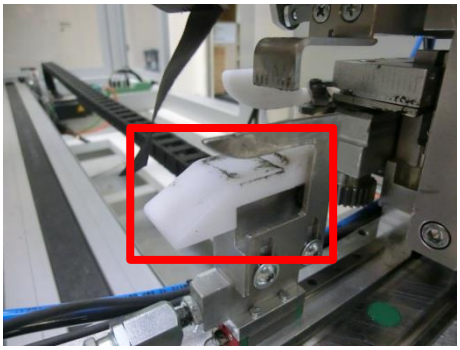
6.12 Greasing the bearings

For the lubrication of the bearings, we recommend using K2K or KP2N grease in accordance with DIN 51825.

The grease nipples can in part be used to lubricate the carriages.

6.13 Cleaning the positioning finger

Clean the test contacts using a cloth moistened with benzene (or a comparable cleaning agent such as brake cleaner), making sure that contaminants are removed.

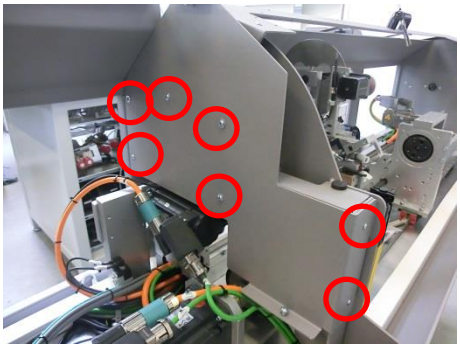


6.14 Changing the belts

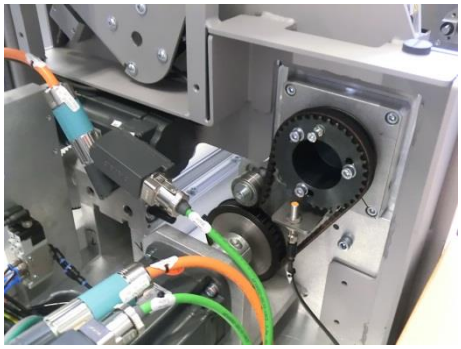
6.14.1 Belt for drive unit (part no. 15764)

Loosen the four fastening screws and remove the machine cover on the left side.

Loosen all fastening screws of the middle cover…

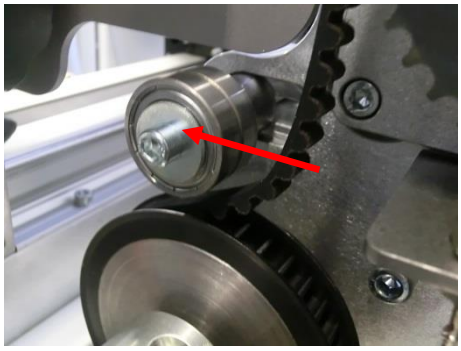


…and remove the cover.

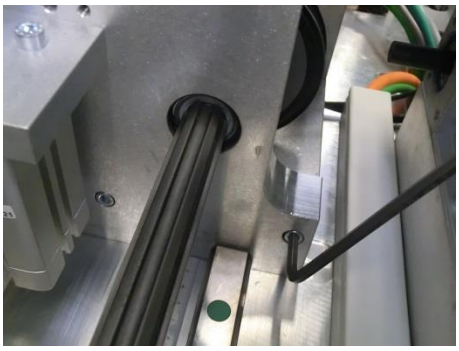


Loosen the fastening screw of the belt tensioning roll.

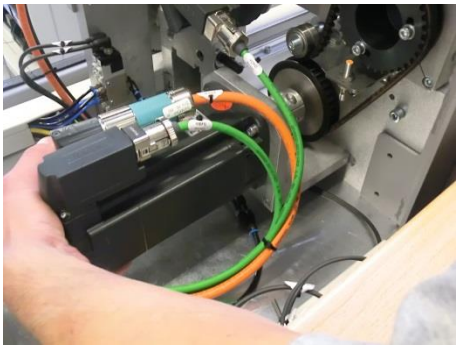
Displace the belt tensioning roll and remove the belt.



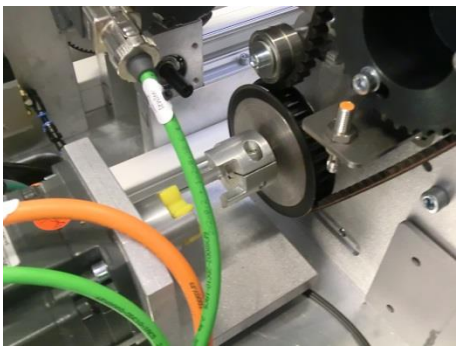
Now loosen the two screws of the motor bracket.



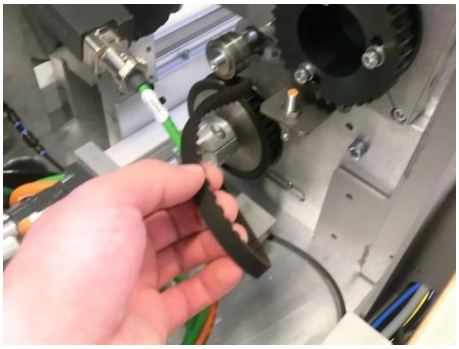
Support the motor with one hand while doing this.



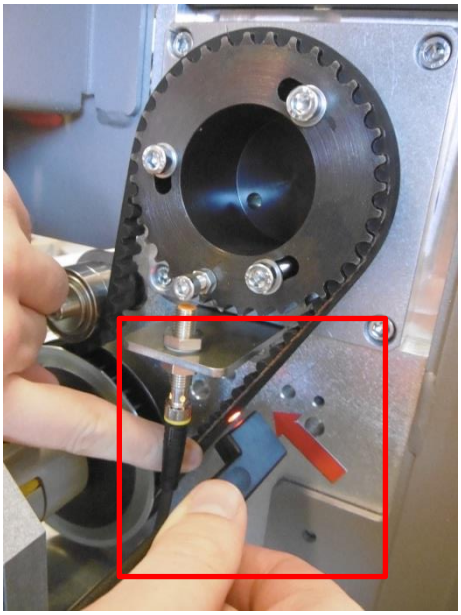
Detach the motor from the coupling by pulling it to the left.



The belt can now be removed and replaced.



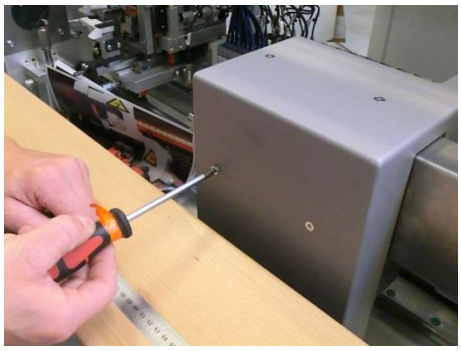
To measure the belt tension, use an acceptable measuring instrument (e.g. Tummeter from Hilger & Kern) at the arrow marked position.
Stretch the belt until the measuring instrument displays a value of 135 Hz ± 10Hz.



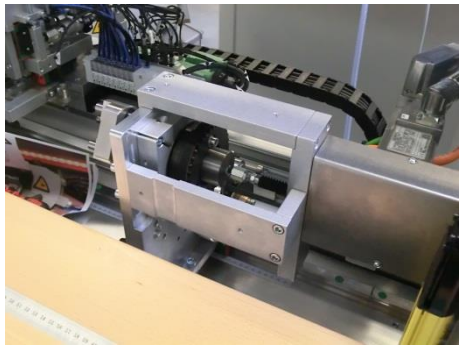
After attaching the new belt, fit all parts previously removed.

6.14.2 Belt for clamping device on right (part no. 15764)

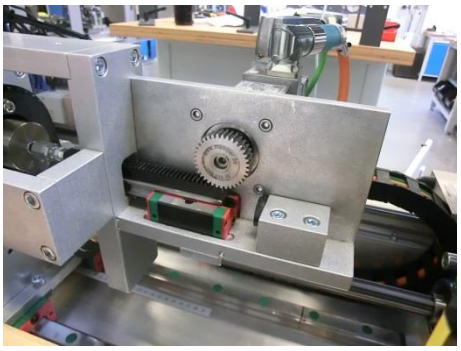
Loosen the four fastening screws of the front cover….



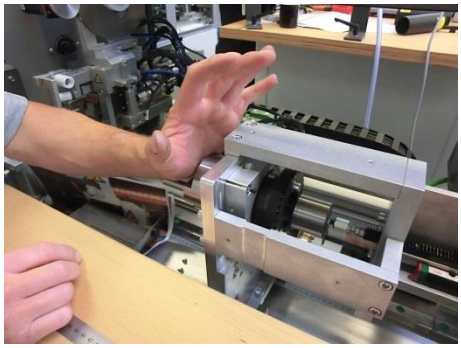
…and remove the cover.



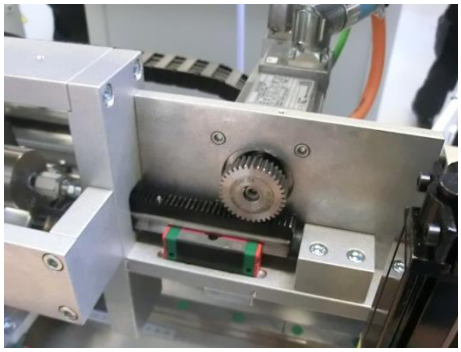
Afterwards, remove the rear protective cover too.



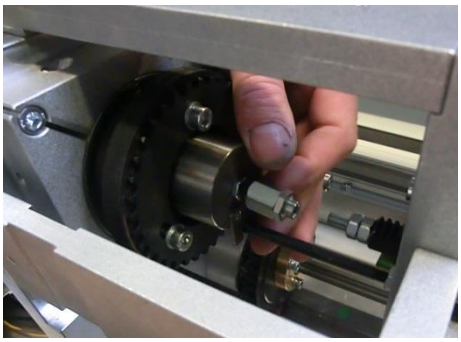
Push back the clamp receptacle with one hand,...



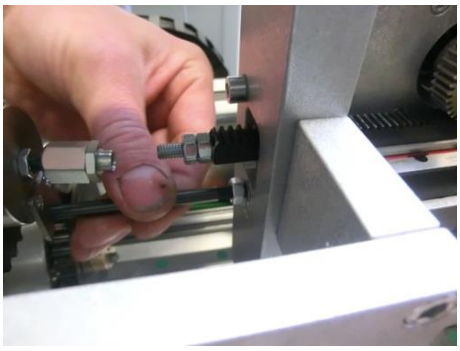
…until the gear rack is at the rear limit stop.

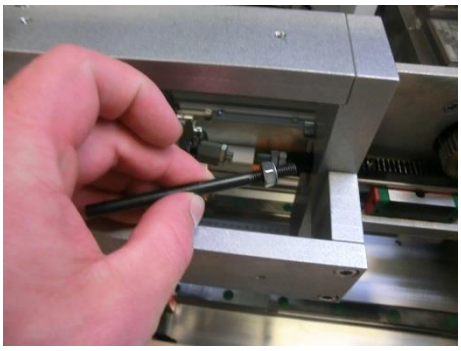


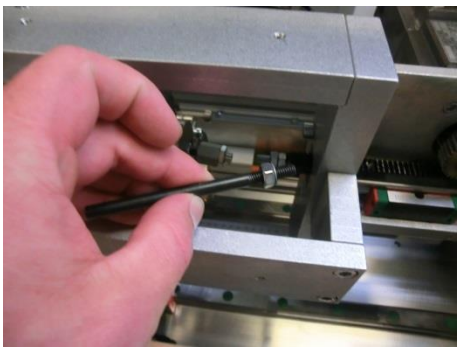
Loosen the coupling and screw this off the gear rack.



Loosen and remove the anti-rotation safety mechanism.

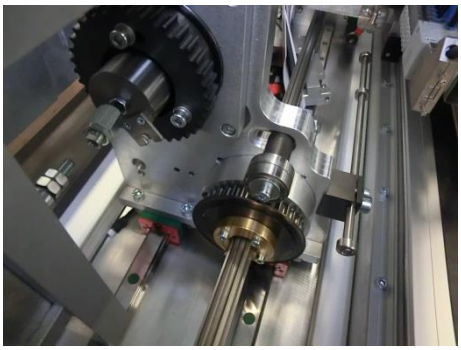






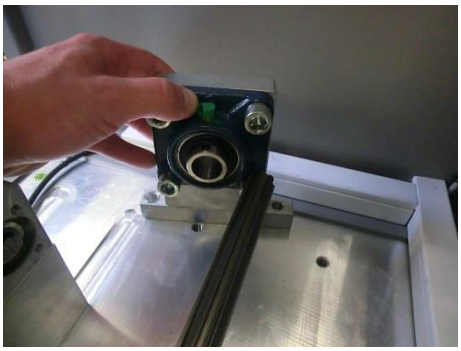
Loosen the fastening screw of the belt tensioning roll.

Take off the belt.



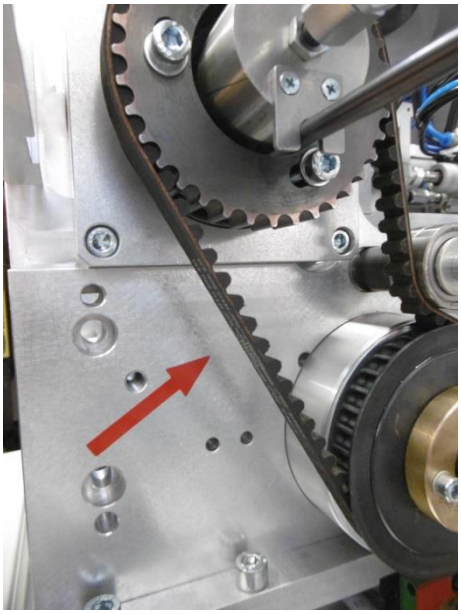
Loosen the two grub screws at the tension ring of the flanged ball bearing.

Next remove the flanged ball bearing...

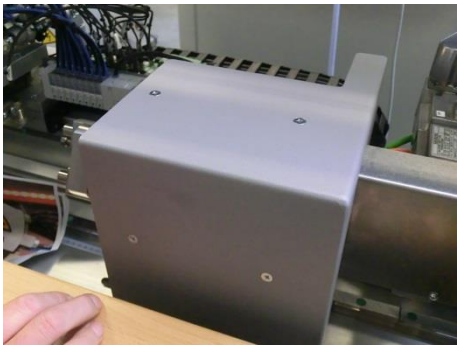


…and replace the belt.

To measure the belt tension, use an acceptable measuring instrument (e.g. Tummeter from Hilger & Kern) at the arrow marked position.
Stretch the belt until the measuring instrument displays a value of 135 Hz ± 10Hz.



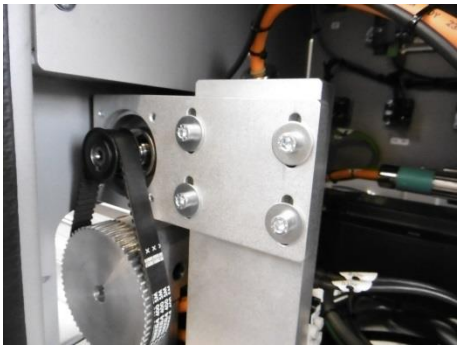
After attaching the new belt, fit all parts previously removed.



6.14.3 Belt for linear unit (part no. 12817)

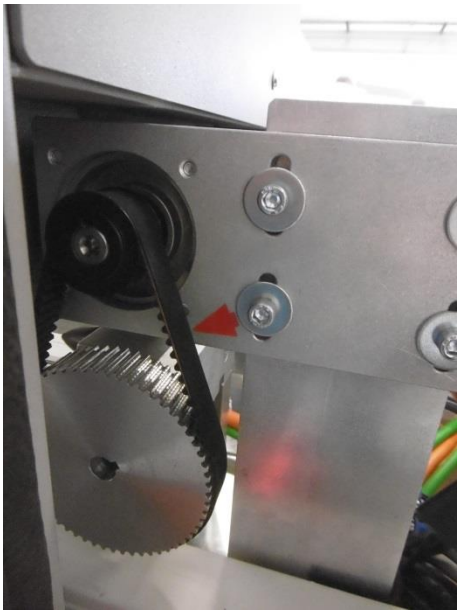
Remove the rear machine panel on the right.

Loosen the four fastening screws and slacken the belt.



Replace the belt.

To measure the belt tension, use an acceptable measuring instrument (e.g. Tummeter from Hilger & Kern) at the arrow marked position.
Stretch the belt until the measuring instrument displays a value of 238 Hz ± 20Hz.



Finally re-fit the rear panel.

6.15 Fault list

Fault	*Possible cause*	*Remedy*
Operational readiness cannot be established	Main switch is in “off” position	Set main switch to “on” position
	Mains plug not inserted	Insert mains plug
Machine cannot be switched on	No connection for compressed-air supply system	Make connection for compressed-air supply system
	Compressed-air supply specifications do not match rating plate specifications	Set the compressed-air supply pressure to no more than 6 bar
	Emergency stop button engaged	Release the emergency stop button
	Protective hood open	Close the protective hood
Cable set taping too loose	Winding aid value set too high	Reduce the value
Cable set taping too tight	Winding aid value set too low	Increase the value

7. Scope of delivery

7.1 Items included in the scope of delivery

The complete KTS SpeedTec mini machine is included in the scope of delivery, along with an English-language translation of the original operating manual.

7.2 Optionally available items

Signal lamp

NOK box connection components

Lockable compressed-air maintenance unit

7.3 Contact details

Please feel free to contact us if you have any questions or suggestions.

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