



Wiper II

Operating manual

V 2.11 original

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2 Safety information in this document

This symbol indicates a possible risk of injury or fatal injury, with the following signal words signaling the specific risk:

DANGER

Imminent, high-risk hazard which, if ignored, will result in death or serious injury.



WARNING

Possible, medium-risk hazard which, if ignored, can result in death or serious injury.

CAUTION

Low-risk hazard which, if ignored, can result in moderate injury or damage to property.



This symbol indicates a possible risk of damage to property or the environment.

Caution

3 Preliminary remarks

This operating manual describes the function and operation of Wiper II and the relevant firmware.

Pictures show *Wiper II Direct*, with potential insignificant deviations to *Wiper II Standard*.

This operating manual is part of the scope of delivery.

It must be kept close at hand and also remain with the device should this be sold.

We reserve the right to make any modifications to the data and images in this operating manual as a result of further technical development.

Any form of reproduction, translation or duplication of this manual, whether completely or in part, must have the written approval of the publisher.

This operating manual is not subject to revision.

Current versions are available on request from

Vieweg GmbH
Gewerbepark 13
85402 Kranzberg
Germany

www.dosieren.de

3.1 Target group

This operating manual is addressed to:

Operating personnel. These persons are instructed in the use of the device and as to the possible hazards which may result from improper behavior.

Qualified personnel. These persons have suitable specialist training and additional knowledge and experience. They are able to assess the work they are entrusted with and recognize potential hazards.

Previous experience

Persons working with the device must be regularly instructed as to the hazards entailed in operating the device.

Operating and qualified personnel must have read and understood the operating manual and the applicable regulations before starting work.

This operating manual and all applicable regulations must be stored so that they are accessible to operating and qualified personnel.

3.2 Information for operators

This system is state of the art and meets basic safety requirements according to EU directives.

The declaration of conformity is part of this operating manual.

The operator is responsible for adhering to all safety information and using this device for its intended purpose.

The operator shall ensure that every user can handle this device correctly and operate it safely.

Only use devices that are in proper working order.

Store this operating manual so that it is accessible to the user.

Please observe any supplementary legislation which is generally applicable or other binding regulations and ensure that these are heeded.

If additional internal company regulations exist, also publicize these rules. Such regulations may apply to the following, for example: duty of supervision; obligation to report; organization of work; work processes; assigned personnel.

It is imperative that before starting work each person who is charged with working on the device has read and understood the operating manual and in particular the safety instructions. This especially applies to personnel who work only occasionally with the device, such as during setup or maintenance.

Check that work on the device is performed in a safety and hazard-conscious manner. Where necessary, provide personal protective equipment according to instructions.

Do not make any changes, amendments or modifications to the device without the written permission of the manufacturer.

Provide suitable workshop equipment for maintenance work.

Publicize the location and instruct personnel in the use of fire extinguishers.

3.3 Information for operators

Read this operating manual and in particular the safety instructions prior to the initial use of the device.

Refrain from any type of work which jeopardizes safety.

Do not wear long hair loose, loose clothing or jewelry. There is risk of injury if these items become caught on or pulled into the device.

Only remove covers if work instructions in the operating manual instruct you to do so.

With safety-relevant changes in operational behavior: Shutdown the device immediately and report the disruption.

Observe your obligation to report fire and firefighting procedures.

3.4 Selecting personnel and qualifications

Only personnel authorized to work on the device may do so.

Observe the legal minimum age of personnel.

Only assign reliable and trained or instructed personnel to work on the device.

Clearly stipulate personnel responsibilities regarding the operation, setup, maintenance and servicing of the device.

Establish responsibility. The operator must be allowed to overrule instructions from third parties which may impair safety.

Personnel who are being trained, taught and/or instructed or who are participating in a general program of training may only work on the device under the permanent supervision of an experienced person.

Work on the electrical equipment of the device may only be performed by a trained electrician or by instructed personnel working under the guidance and supervision of a trained electrician according to electro technical regulations.

3.5 Directives, laws and standards

The contents of and information included in various directives and sets of regulations have been observed in the design and construction of Wiper II. These are listed in the declaration of conformity.

3.6 Warranty scheme

The valid warranty scheme is stipulated in our terms of delivery.

Claims under warranty cease to be valid when

- Damage is caused by a malfunction due to incorrect use and improper operation, or
- The device is repaired or manipulated by persons who are neither authorized nor trained to do so, or
- Equipment or spare parts are used which cause the damage and have not been approved by Vieweg GmbH.

4 General safety information

4.1 Information on risks



CAUTION

If the machine is operated properly and for its intended purpose, there is no danger.

If handled incorrectly, there is a risk of injury through crushing.



Caution

Do not position the *Wiper II Standard* onto its base plate because this might damage the air connector.



4.2 Safety at the installation site

The stability of the wiper must be ensured.

Choose an installation site where

- The length of the connecting cables is sufficient and
- Any loose connecting cables do not hinder the work process.

4.3 Emissions

There are no emissions in the form of dust, high temperatures or strong vibrations.

5 Product description

5.1 Proper use

The wiper is only to be used for the intended purpose described herein.

Wiper II has been designed for the automatic cleaning of dispensing needles.

Any further use must be approved in writing by Vieweg GmbH.

5.2 Improper use

Any other or additional use of the device is considered improper.

Vieweg GmbH shall not be held liable for damages as a result. The operator shall assume sole responsibility.



DANGER

Danger through unspecified use of the wiper.

Improper operation of the device may result in bodily harm and damage to the hardware.

Do not operate the device in an explosive environment.

Misuse of the device

- With power sources, products, packing materials, packaging, etc., which are subject to regulations governing hazardous substances or which affect the health and safety of operating personnel in one form or another.
- With hardware modified by the operator.
- In an explosive atmosphere.
- Use outdoors.

5.3 Ambient conditions

The wiper is designed for use in normal production conditions (room temperature, low to average humidity).

5.4 Position and content of the ID plate

The ID plate is located at the bottom of the base plate.

5.5 Brief description

Wiper II automatically cleans soiled needles on dispensing equipment.

On the top of the cleaning device there is a gripper mechanism with flexible gripper jaws which are covered by a cleaning tape. The soiled needle is inserted into the space between the jaws and the gripper closes and presses the tape around the needle. When this exits the grippers, any residue on the needle is wiped clean.

As there are two sizes of gripper jaw available, even the shortest needles can be effectively cleaned. The maximum needle length that can be cleaned is 7 mm.

The tape reel is changed without the need for tools. To this end the entire module is removed from its base plate and the magnetic side cover removed. Both the empty tape reel and the soiled tape on its center ring can be removed from their take-up spools and replaced with new ones.

Depending on the needle size, one reel of tape can perform 500 to 3,000 cleaning processes.

5.6 Features

- Cleaning of needles from a length of 2 mm possible (0.3 to 2 mm diameter)
- Tape consumption can be adapted to suit needle length
- LED lights up and signal output before and on tape end and failure
- Remaining tape slit
- Fast reel change without the need for tools
- Compact design, mounted on a base plate with a 50-mm grid
- Configuration using dipswitches
- D-sub connection for voltage supply and signal transmission.
9-pole for *Wiper II Direct* or 15-pole for *Wiper II Standard*
- Firmware update through internal USB interface

6 Declaration of conformity



CE declaration of conformity

Vieweg GmbH declares that the design and construction of the product described in the following and in the version we have placed on the market meets the applicable basic health and safety requirements stipulated in the 2006/42/EC directive on machinery.

This declaration will cease to be valid if any change is made to the product without the approval of Vieweg GmbH.

Product:	Cleaning station
Product type:	Wiper II
Applicable requirement:	Machinery directive 2006/42/EC RoHS Directive 2011/65/EC REACH Regulation (EC) No 1907/2006
Applied standards:	DIN EN 60204-1 DIN EN ISO 12100 (2011-03)
Hersteller:	VIEWEG Dosier- und Mischtechnik Gewerbepark 13 85402 Kranzberg Tel.: 08166-6784-0 Fax: 08166-6784-20

7 Scope of delivery



Wiper II cleaning station



Mounting plate including mounting material
(*Wiper Direct* only)



Cleaning tape



Center ring



2-meter connecting cable
D-sub 9F or 15F with unwired end



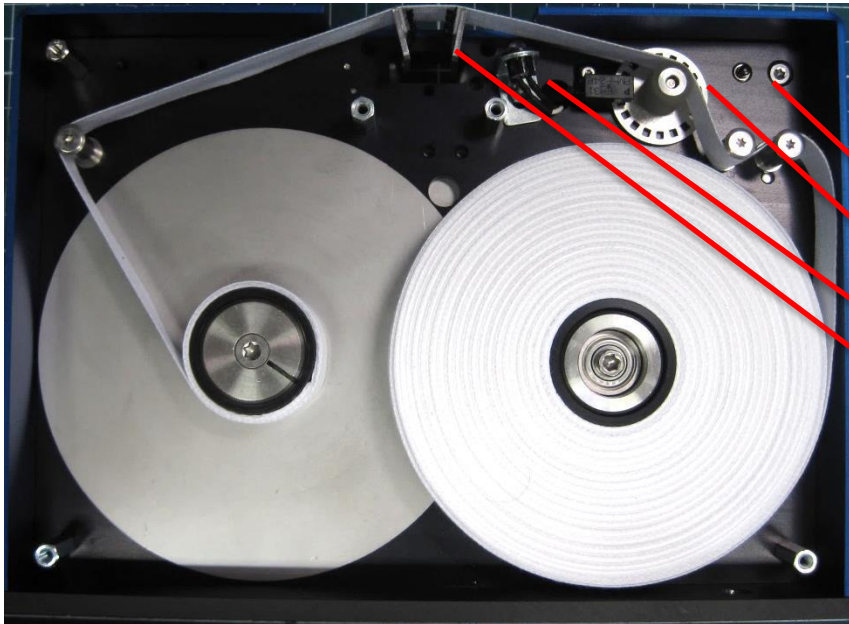
Kit for sensitive needles



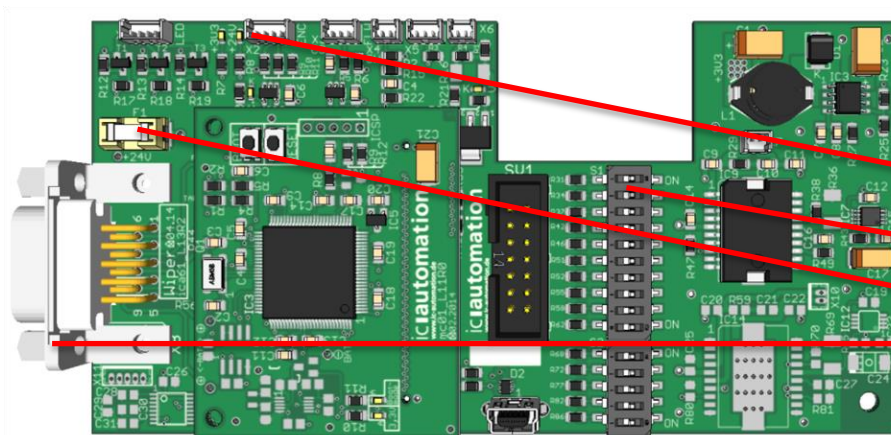
Operating manual

Assembly tools

8 Diagrams

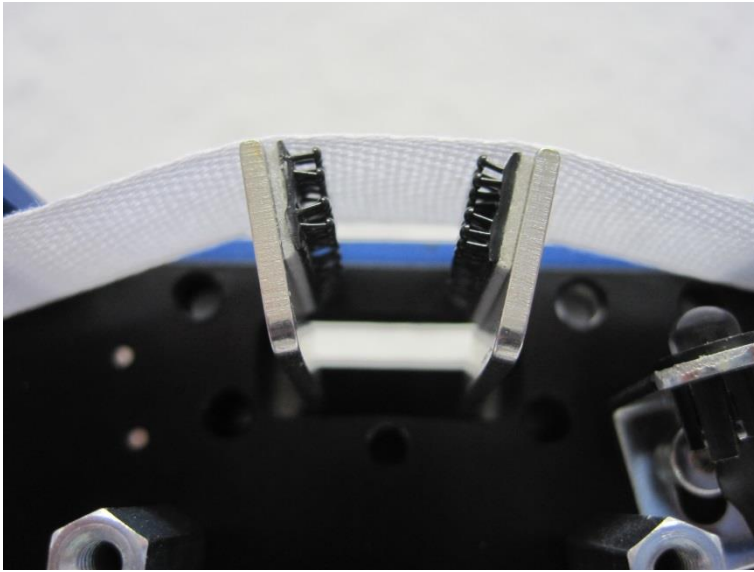


- A** Manual switch
- B** Encoder
- C** Status LED
- D** Gripper



- E** Status LEDs (3.3 V and 24 V)
- S1** Dipswitch
- F** Fuse
- G** D-sub plug

9 Initial operation

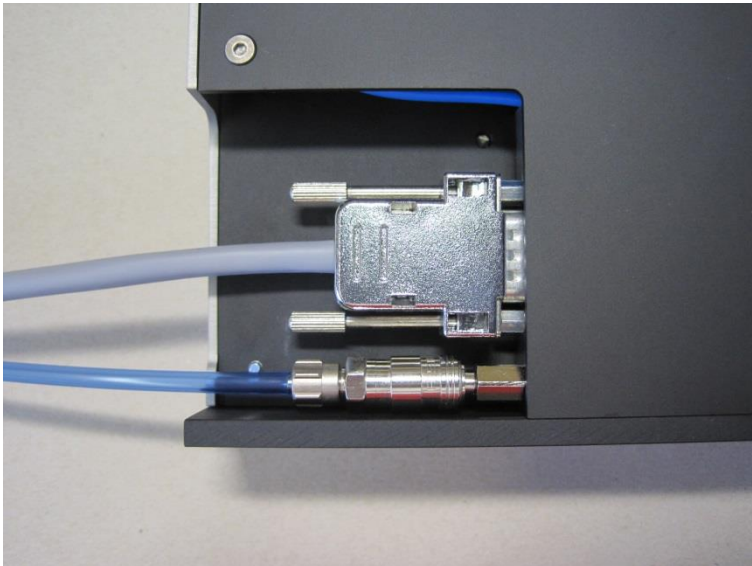


Setting the mode (chapter 12)

Factory setting

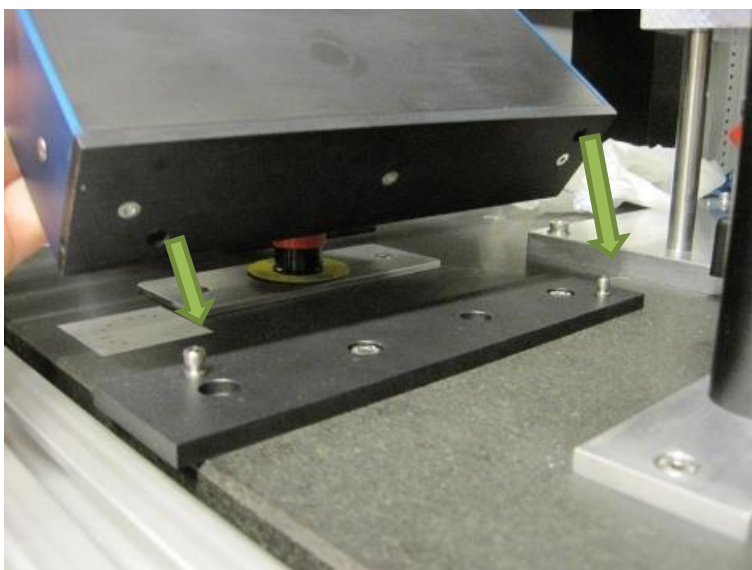
Mode:
standard needle

Failures:
hold on error



Wiper Standard:
see chapter 17

Wiper Direct:
Connect compressed air supply using
supplied coupling (exterior hose
diameter: 4 mm).
Connect the D-sub cable (G).
For pinout, see chapter 10.

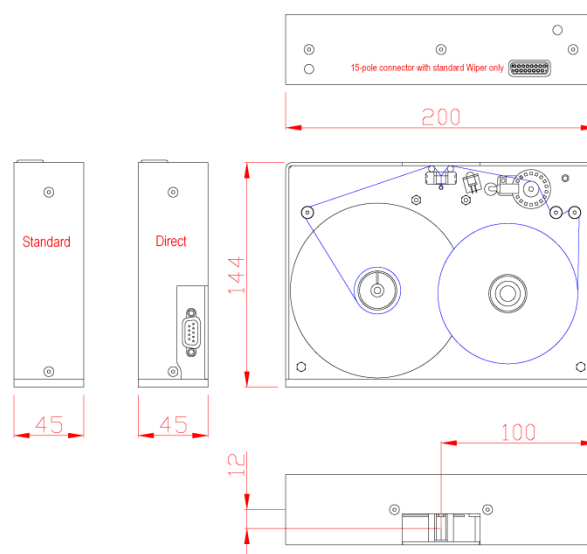


Mount base plate with supplied screws.

Position wiper on pins and click into
place, aligning carefully.

10 Technical data

Supply voltage	24 VDC
Signal voltage	+24 V
Current consumption	max. 500mA
Main fuse	1 A slow-blow
Connector plug	Standard: 15-pole Direct: 9-pole
	D-sub-male
Compressed air	0,4-0,6 MPa (oil and water free / ISO 8573-1 class 4)
Cleaning tape (WxL)	15 mm x ca. 15 – 50 m reel
Dimensions (LxWxH)	200 x 45 x 144 mm
Weight	1,3 kg
Mount	Standard: on quick-change plate Direct: on mounting plate
ID	Wiper - <serial number>



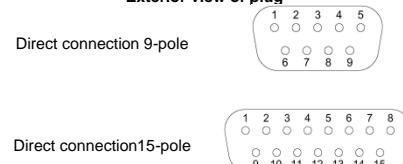
Pin assignment:

Pin	Color	Function
1	WH	Supply voltage
2	BN	Ground
3	GN	I/O 1 Start/Stop-Signal
4	YE	I/O 2 End of tape/failure
5	GY	I/O 3 Ready for cleaning
6	PK	I/O 4
7	BU	I/O 5 End-of-tape warning
8	RD	I/O 6
9	BK	I/O 7

Signal	Pin	Color	Function
+24V	10	VT	I/O 8
GND	11	GY	PK
+24V in	12	BU	RD
+24V out	13	WH	GN
+24V out	14	BN	GN
+24V out	15	WH	YE
NC			%
NC			%

Signal
NC
NC
NC
NC
NC
NC

Exterior view of plug



11 External inputs/outputs

I/O 1: Start signal

The external start signal triggers cleaning by an overriding control unit and must be applied until the needle has been removed. The tape starts to feed automatically as soon as the start signal has been switched off.

I/O 2: End of tape/failure

This output is set simultaneously with the status LED indicating an end-of-tape or failure state.

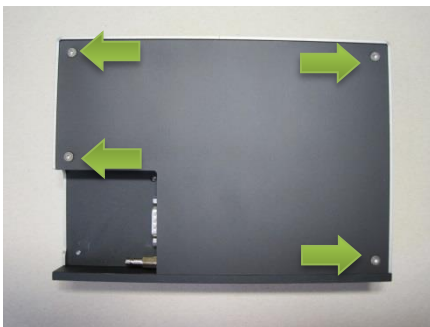
I/O 3: Ready for cleaning

As soon as the cleaning device has finished one process, this output signals that the device is ready for a new cleaning sequence.

I/O 5: End-of-tape warning

Once the advance warning *End-of-tape* has been set, this output is active until the warning has been reset (cf. chapter 15).

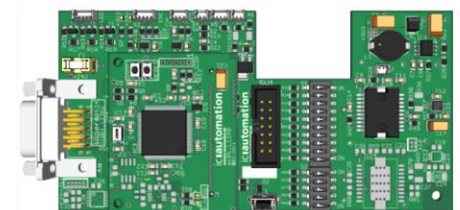
12 Changing settings



Loosen the four screws.

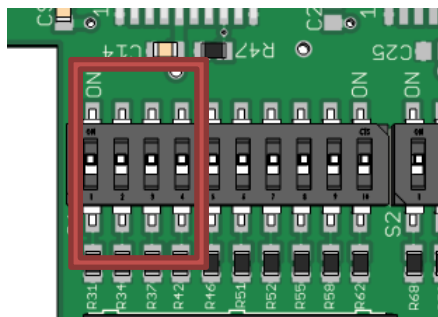


Remove the cover.



For a larger image, see chapter 8.

12.1 Setting the tape length



Dipswitches **S1-1/2/3/4** set the feed length of the tape.

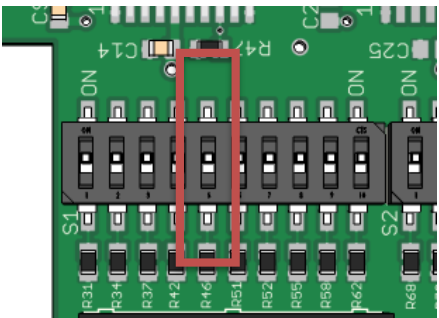

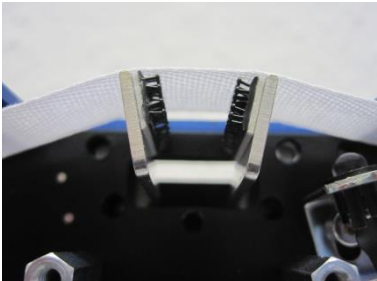


Depending on the operating mode the minimum feed length is 1.5 mm or 3.5 mm (sensitive needle kit) and is multiplied by the binary multiplier.

Switch position								
Operating mode: standard needles	1.5 mm	3.5 mm	5.3 mm	7 mm	8.8 mm	10.5 mm	12.3 mm	
Operating mode: sensitive needles	3.5 mm	7 mm	10.5 mm	14 mm	17.5 mm	21 mm	24.5 mm	

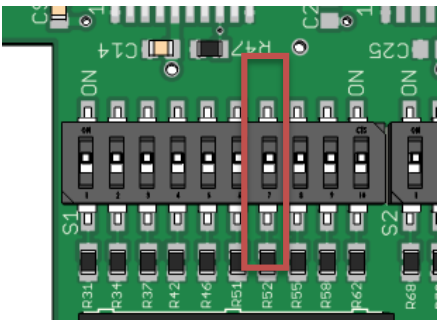


Switch position								
Operating mode: standard needles	14 mm	16.8 mm	17.5 mm	19.8 mm	21 mm	22.8 mm	24.5 mm	
Operating mode: sensitive needles	28 mm	31.5 mm	35 mm	38.5 mm	42 mm	45.5 mm	49 mm	

Factory settings are marked in **green** and can be adjusted to suit the application in use.

12.2 Operating mode

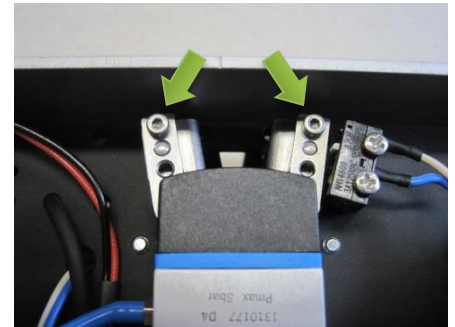
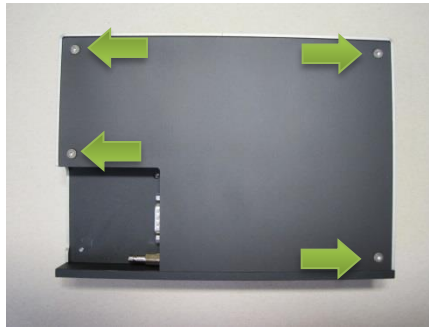
	<p>The operating mode is selected using dipswitch S1-5.</p>
<p>Standard needles</p>  <p>S1-5 on</p>	<p>Cleans needles from 0.5 mm in diameter.</p> <p>The wipe length of the needle can be selected by the depth of needle insertion (up to a maximum of 6 mm).</p>
	<p>Gripper (D): Tape depressed by the needle</p>
<p>Sensitive needles</p>  <p>S1-5 off</p>	<p>The tape must be diverted when cleaning very fine, sensitive needles (chapter 12.4).</p> <p>To this end the needle must be inserted 5 mm deeper into the device than in the standard configuration.</p> <p>The tape length is adjusted automatically.</p>
	<p>Gripper (D): Tape diverted by the pin</p>

12.3 Failures

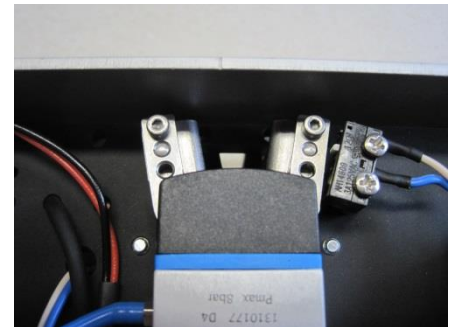
	<p>The hold-on-error function is switched on and off by dipswitch S1-7.</p>
<p>Hold-on-error function activated</p>  <p>S1-7 on</p>	<p>When an error occurs, the status LED is constantly on and cleaning is interrupted.</p> <p>Cleaning can only restart once the failure LED has been reset. The error is reset by pressing switch A.</p>
<p>Hold-on-error function deactivated</p>  <p>S1-7 off</p>	<p>When an error occurs, the status LED is constantly on and cleaning is interrupted.</p> <p>Cleaning can continue. The failure LED is automatically reset when the error no longer occurs.</p> <p>If errors frequently recur, the tape should be checked to prevent any damage.</p>

12.4 Converting the gripper jaws (D) for sensitive needles (optional)

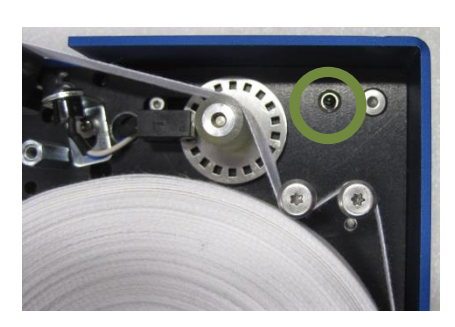
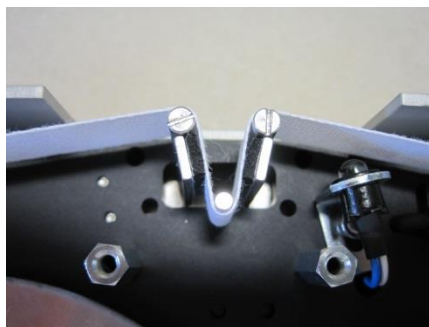
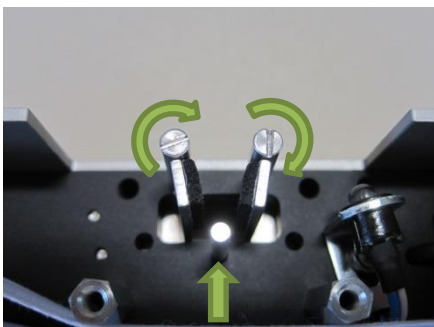
The tape has to be fed over a fixed guide with very fine and/or sensitive needles to avoid damaging the needles. The gripper jaws have to be converted as described below and the operating mode changed (see chapter 12.2).



1. Remove the tape.
2. Loosen the four screws and remove the cover.
3. Remove the high gripper jaws.



4. Pull these out to the front.
5. Insert the new gripper jaws in the same way.
6. Tighten these using the same screws.



7. Screw in (2) and slot in (1) the guide.
8. Insert the tape.
9. Pull the tape taut over switch A, and close the cover again.

13 Positioning

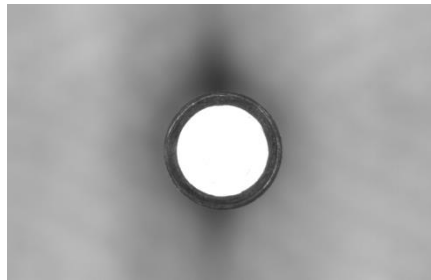
It is especially important to stipulate the cleaning position with the utmost precision when cleaning sensitive needles.

One simple method is to clamp a cylindrical object into the grippers (such as the guide pin from the sensitive needle kit) and to depress this with the tip of the needle.

To accurately determine the position, the clamped pin can be located by a digital camera, for example.



Push the pin between the grippers, trigger the start signal and then hold.



Picture of the pin, taken with the alignment camera.

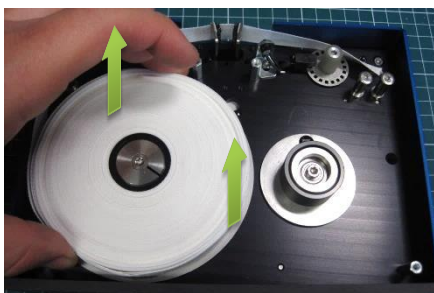


Switch off the start signal, remove the pin and tighten the tape over switch **A**.

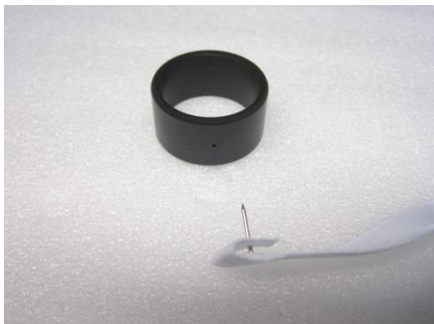
14 Changing the tape



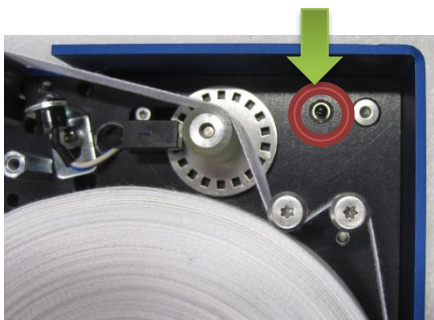
1. At the end of the tape reel the status LED lights up (C).
2. Remove the magnetic side cover.
3. Remove the empty center reel.



4. Remove the soiled tape.
5. Remove the Center ring for reuse or order a new center. Center rings must possess a hole for the pin.
6. If applicable unpin the end of the new reel.



7. Pin the tape into the hole in the Center ring.
8. Place the center on the take-up spool so that the pin fits into the slot.
9. Thread the tape through the device and place the reel on the take-up spool.

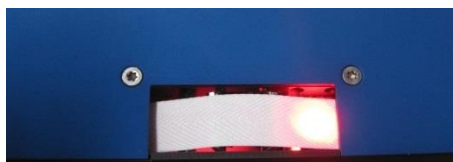


10. Pull the tape tight by pressing switch **A**, or by manually reversing the reel, and put the cover back on.

15 Status LED

15.1 LED is on

Failure/end of tape: the status LED (C) is permanently on when the drive is active but no pulse from the encoder has been registered for longer than a stipulated period. Possible causes are:



Tape end
See chapter 14



Tape incorrectly threaded or
blocked
See chapter 14, step 8

The error is reset by pressing switch A.

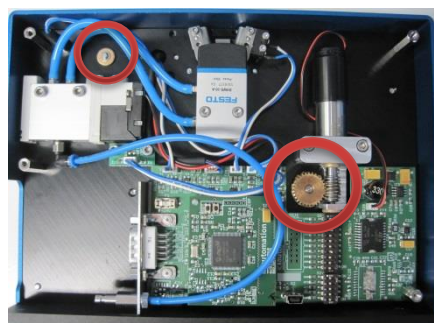
Compressed air failure: the status LED (C) is permanently on when the gripper is not in the expected position. This error is considered critical as it could damage the needle. The supply of compressed air must be checked. The error is reset by pressing switch A.

15.2 LED flashes slowly

End-of-tape warning: when the amount of remaining tape undershoots the threshold of approximately 5%, this is signaled by slow flashes from the LED (500 msec on, 2,500 msec off). This gives advance warning of a pending change of tape reel.

15.3 LED flashes quickly

Constant motor current exceeded: if the motor is run at overload for longer than 30 seconds, the control unit shuts down and sends an error message to the user via quick flashes of the status LED (500 msec on, 1,000 msec off). Possible causes are:



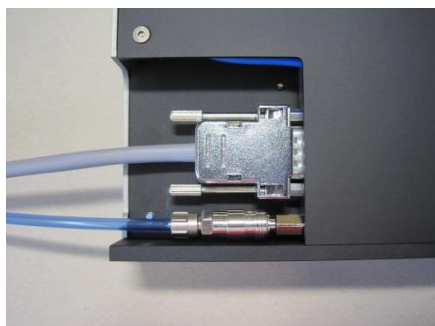
Mechanical defect
e.g. bearing failure

The error is reset by pressing switch A.

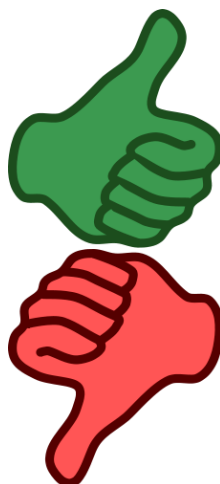
15.4 LED flashes very quickly

Valid motor current exceeded: if the motor current exceeds the valid maximum for even a brief period, the control unit shuts down and sends an error message to the user via very fast flashes of the status LED (250 msec on, 250 msec off). This suggests that the drive is blocked. The error is reset by pressing switch **A**.

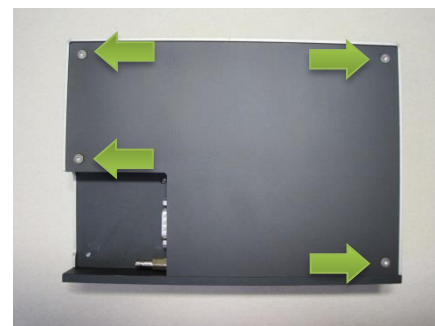
16 Troubleshooting



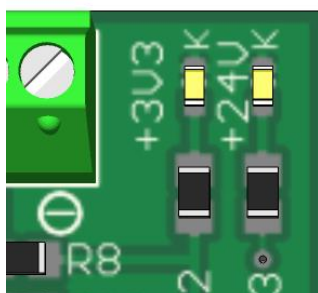
Check that the connecting cable is properly inserted (**G**).



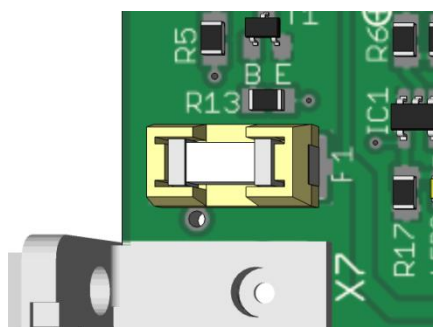
Problem solved?
Yes: you're done!



No: open the cover (see chapter 12).



Is the 24 V status LED on (**E**)? -



No:
check the fuse (**F**)
and replace if necessary.

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Yes:
contact support.

17 Quick-change plate for *Wiper II Standard*

17.1 Compressed-air supply

Connect compressed air using pressure hose with exterior diameter of 4 mm.

17.2 Check O-ring seal

Before inserting *Wiper II Standard* onto the quick-change plate check if the O-ring is undamaged. If damaged, remove the O-ring with tweezers and put on a new O-ring.



17.3 Compressed-air valve

The quick-release plate is equipped with a manual valve (rocker switch) to disrupt the compressed-air supply before *Wiper II* is taken off.



CAUTION

Insertion and take-off of *Wiper II* only when unpressurized

The position of the rocker switch may be rotated freely to arbitrarily alter the position.

Delivery state of the rocker switch:

Valve closed



Valve opened

