



Perforation Cutter

PCU Series

Edition: 01/2010 - Part No. 9008905

Copyright

This documentation as well as translation hereof are property of cab Produkttechnik GmbH & Co. KG.

The replication, conversion, duplication or divulgement of the whole manual or parts of it for other intentions than its original intended purpose demand the previous written authorization by cab.

Editor

Regarding questions or comments please contact cab Produkttechnik GmbH & Co. KG.

Topicality

Due to the constant further development of our products discrepancies between documentation and product can occur.

Please check www.cab.de for the latest update.

Terms and conditions

Deliveries and performances are effected under the General conditions of sale of cab.

Germany

cab Produkttechnik
GmbH & Co KG

Postfach 1904
D-76007 Karlsruhe
Wilhelm-Schickard-Str. 14
D-76131 Karlsruhe

Telefon +49 721 6626-0
Telefax +49 721 6626-249
www.cab.de
info@cab.de

France

cab technologies s.a.r.l.
F-67350 Niedermodern
Téléphone +33 388 722 501

www.cab.de
info@cab-technologies.fr

Spain

cab España S.L.
E-08304 Montaró (Barcelona)
Teléfono +34 937 414 605

www.cab.de
info@cabsl.com

USA

cab Technology Inc.
Tyngsboro MA, 01879
Phone +1 978 649 0293

www.cabtechn.com
info@cabtechn.com

South Africa

cab Technology (Pty.) Ltd.
2125 Randburg
Phone +27 11-886-3580

www.cab.de
info@cabtechn.co.za

Asia 亞洲分公司

希愛比科技股份有限公司
cab Technology Co, Ltd.
台灣台北縣板橋市民生路一段
Panchiao 220, Taipei, Taiwan
電話 Phone +886 2 2950-9185
網址 www.cabasia.net
詢問 cabasia@cab.de

China 中国

铠博(上海)贸易有限公司
cab (Shanghai) Trading Co.,Ltd
上海市延安西路2299号11C60室
电话 Phone +86 21 6236-3161
询问 cabasia@cab.de

Representatives in other countries on request.

1	Introduction	4
1.1	Instructions	4
1.2	Intended Use	4
1.3	Safety Instructions	5
1.4	Environment.....	6
1.5	Technical Data	6
2	Mounting	7
3	Printer Configuration	8
4	Loading Material	10
5	Operation	10
5.1	Printer Settings	10
5.2	Operation Without Cover Plates	11
6	Maintenance	13
6.1	Cleaning	13
6.2	Changing the Blades	15
6.3	Setting the Initial State of the Cutter	17
7	EU Conformity Declaration	19

1.1 Instructions

Important information and instructions in this documentation are designated as follows:



Danger!

Draws your attention to an exceptionally grave, impending danger to your health or life.



Warning!

Indicates a hazardous situation that could lead to injuries or material damage.



Attention!

Draws attention to possible dangers, material damage or loss of quality.



Notice!

Gives you tips. They make a working sequence easier or draw attention to important working processes.



Environment!

Gives you tips on protecting the environment.



Handling instruction



Reference to section, position, illustration number or document.



Option (accessories, peripheral equipment, special fittings).

Time Information in the display.

1.2 Intended Use

- The device is intended exclusively as an option for the printers of the A+ and XD series for perforating and cutting suitable materials that have been approved by the manufacturer. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.
- Usage for the intended purpose also includes complying with the operating manual, including the manufacturer's maintenance recommendations and specifications.

- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to the life and limb of the user or third parties and/or damage to the device and other tangible assets can arise during use.
- The device may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in the operating manual.



Notice!

All documentations can also currently be found in the Internet.

1.3 Safety Instructions

- Disconnect the printer from the electrical outlet before mounting or removing the cutter.
- The cutter may only be operated when it is mounted on the printer.
- Risk of injury, particularly during maintenance, the cutter blades are sharp.



- Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions. Other unauthorized work on or modifications to the device can also endanger operational safety.
- Always have service work done in a qualified workshop, where the personnel have the technical knowledge and tools required to do the necessary work.
- Warning stickers must not be removed, as then you and other people cannot be aware of dangers and may be injured.

1.4 Environment



Obsolete devices contain valuable recyclable materials that should be sent for recycling.

- ▶ Send to suitable collection points, separately from residual waste.

The modular construction of the printer enables it to be easily disassembled into its component parts.

- ▶ Send the parts for recycling.
- ▶ Take the electronic circuit boards to public waste disposal centers or to the distributor.

1.5 Technical Data

Part No.	5960100.351	5960050.351	5960050.352
Description	Perforation Cutter		
	PCU2/2.5	PCU4/2.5	PCU4/10
Perforation distance	2.5 mm	2.5 mm	10 mm
Off-cut width	0.5 mm		
Perforation length min.	2 mm		
Cut length min.	12 mm		
Material width	up to 65 mm	up to 120 mm	
Passage height	4.5 mm		
Power supply	peripheral connector of the printer		



Attention!

To operate the Perforation Cutter the printer firmware version 3.13 or higher is needed !



Attention!

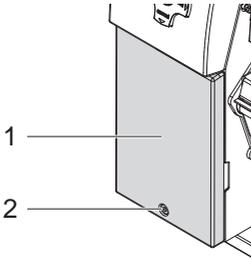
For very thin, very hard or very flexible materials preliminary tests are recommended.

The cutters have a durability of more than 500,000 cuts. Depending on the type of the cut material the blades could wear earlier and have to be replaced. Used blades are not designed to be grinded again.



Attention!

- ▶ Disconnect the printer from the electrical outlet before mounting or removing the cutter.

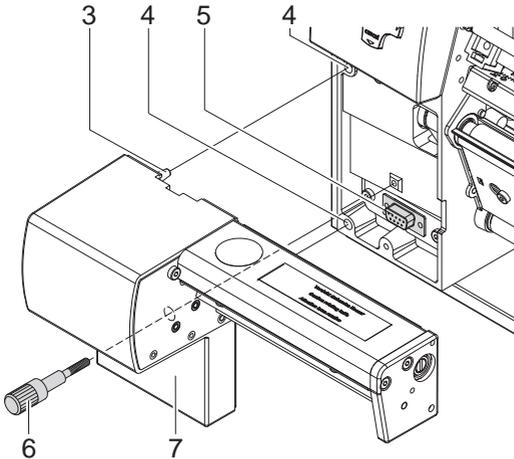


1. Loosen the screw (2).
2. Remove the front cover (1).



Attention!

For cutter operation with A+ printer there has to be mounted a tear-off plate or a dispense plate on the printer, to lead the material through the blades of the cutter.



3. Insert the pins (3) of the cutter (7) into the holes (4) of the printer.
4. Press the cutter against the printer. That way the plug of the cutter will be connected to the peripheral port (5) of the printer.
5. Secure the cutter (7) with the screw (6).

Once the cutter is connected to the printer, the printer will automatically recognize it on turn on.

The printer can be configured to suit the individual requirements of cut mode in the „Setup“ menu. When the cutter is installed, the „Cutter“ menu will appear.



Notice!

For detailed instructions for configuration ▷ **Configuration Manual of the printer.**

For setting the cutter parameters select

Setup  -> Machine param.  -> Cutter .

Parameter	Meaning	Default
 Cutter	Configuration of the perforation cutter	
 > Cut position	Offset of the cut position relative to the printed image	0
 > Cutting depth	Setting of the perforation depth	0



Notice!

The values of the setup are basic settings for the actual combination printer/cutter. After changing the cutter or printer a re-adjustment may be necessary.

Changes required for processing different print jobs should be implemented additional offsets available in the software.

The offset values from setup and software are added together for execution.

Under Setup  -> Print parameters  the method for recognizing the material and the method of backfeed when using cut mode can be selected.

Parameter	Meaning	Default
 Label sensor	<p>Method for detecting the starting end of the label.</p> <p>► To operate the perforation cutter typically choose the setting <code>Continuous media</code>.</p> <p><code>Gap Sensor</code>: Detection using changes in the transparency between the label and label gap.</p> <p><code>Bottom-Reflect</code>: Detection using reflex marks on the bottom of the medium.</p> <p><code>Continuous media</code>: Synchronization of the paper feed when using endless media in cutting mode.</p> <p>► After loading media press the feed key. That way a short feed and a synchronization cut are realized.</p>	Gap sensor
 Backfeed	<p>Method for backfeeding the material.</p> <p>Backfeeding is necessary in the cutting mode since the front edge of a second section already passes the print line when the first label is moved to the cut position.</p> <p><code>always</code>: Backfeeding occurs independently of print contents.</p> <p><code>smart</code>: Backfeeding only occurs when the print contents of the next section is not yet fully prepared when cutting the current section. Otherwise, the second section is pushed on and completed after removal of the first section without backfeeding.</p>	smart

- ▶ Load transfer ribbon and endless material as described in the Operator's Manual of the printer.
Use the tear-off mode information for loading endless material for cut mode.
- ▶ Place the media strip between the printhead and the drive roller, so that the front edge of the strip reaches through the cutter.

5 Operation

The printer is ready for operation when all connections have been made and all materials are loaded correctly.

5.1 Printer Settings



Notice!

Select in the printer configuration under Setup -> Print parameters -> Label sensor the setting Continuous media. Otherwise no synchronization cut is carried out.

- ▶ Switch on the printer.
The cutter performs a complete cut-off.
- ▶ Press the **feed** key. For synchronization the media will be moved forward and cut off.
Synchronization is not necessary when the printhead was not opened between print jobs, even if the printer was powered off between print jobs.
- ▶ Activate the commands for perforation or cut-off in the software.
For direct programming use the following commands:

C p Perforation command

C Cut-off command

(▷ Programming Manual)

Both commands may be combined, but C p has a lower priority.
Using the sequence :

C 3

C p

the material will be perforated two times and afterwards cut off.

**Attention!**

In several label software solutions the perforation command **C p** is not implemented. Perforating material via such a software is not possible.

- ▶ For direct programming use the following command :

O Cn n...Value between 0.0 and 10.0

**Notice!**

If the label software has no setting for the cutting depth, i.e. **O Cn** is not implemented, the adjustment also may be done using the printer setup ▶ chapter 3.

All labels in a print job will be printed without stopping and be perforated or cut as chosen in the software : after each label, after a specific quantity of labels, or at the end of a print job.

5.2 Operation Without Cover Plates

Due to the most varied materials it can come in rare cases to transportation problems of the material depend of the cover plates.

It's possible to clear this problem with dismantling the cover plates.

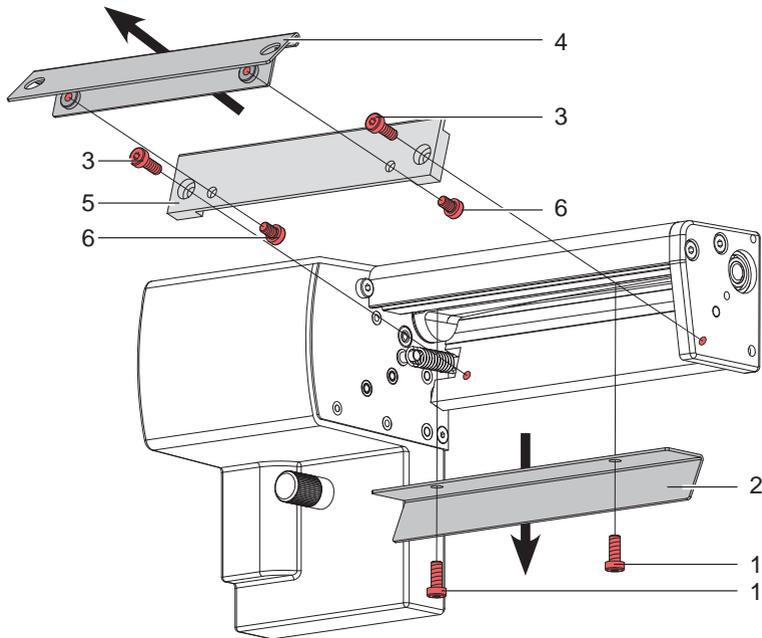
**Warning!**

Risk of injury!

- ▶ If the cover plates for a better performance should be removed, appropriate compensating measures are to be arranged for the guarantee of security!

**Notice!**

In case the material do adhere in follow of electrostatic charge it's possible to use a discharge brush for the printer by **cab**.



Warning!

Risk of injury! The cutter blades are sharp!

► Disconnect printer from electrical outlet .

1. Switch off the printer and demount the cutter.
2. Loosen screws (1) and detach cover plate (2).
3. Loosen screws (3) and detach support (5) with attached over plate (4).
4. Loosen screws (6) and detach cover plate (4) from support (5).
5. Mount support (5) again.

Mounting in converse order.

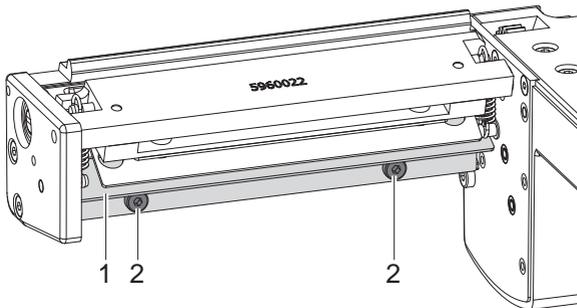
6.1 Cleaning

**Warning!**

- ▶ Disconnect the printer from the electrical outlet.

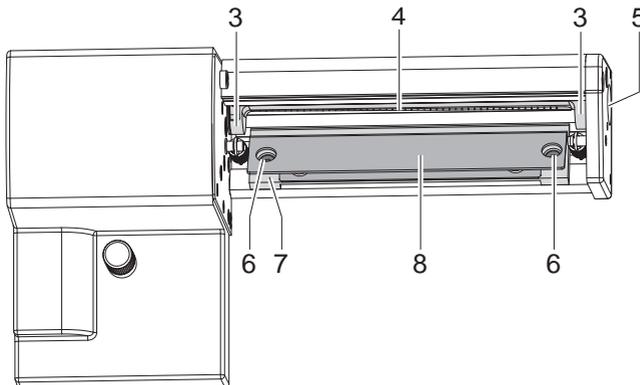
**Attention!**

Risk of injury. The cutter blades are sharp.



1. Remove the cutter from the printer.
2. Loosen the screws (2) and remove the upper cover sheet (1).
3. Remove dust and paper particles with a soft brush or a vacuum.
4. For cleaning the circular blade it is possible to turn the axle (3) with a screwdriver for slotted head screws (slot width 7 mm). The turn angle is limited by the support (7).

If it is necessary to turn the circular blade further, loosen the screws (6) and remove the support (7) incl the lower cover sheet (8). Now the circular blade can be turned completely.



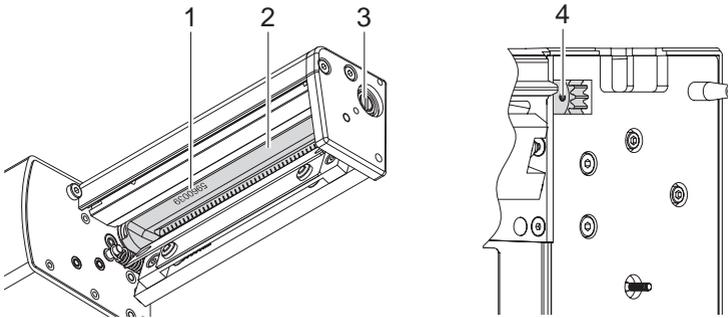
5. Remove all deposits at the cutter blades with isopropyl alcohol and a soft cloth.
6. Grease the cylindrical areas (4) at both ends of the circular blade (5) with an All round-High quality Grease. For that hold a greased brush on the cylindrical areas and turn the axle (3) with a screwdriver for slotted head screws (slot width 7 mm).
During the turning the areas are all-around greased.
7. If the support was removed during cleaning, adjust the initial state of the cutter ▷ chapter 6.3 .
8. Mount the upper cover sheet (1) with the screws (2) and the support (7) incl. the lower cover sheet (8) with the screws (6).

6.2 Changing the Blades

**Warning!**

- ▶ Disconnect the printer from the electrical outlet.

1. Remove the cutter from the printer.
2. Remove the upper cover sheet ▷ chapter 6.1.
3. Turn the axle (3) of the circular blade (2) with a screwdriver for slotted head screws (slot width 7 mm) so that the inscription (1) of the blade points downward. In this position the set screw (4) on the gear wheel can be achieved from the rear of the cutter.
4. Loosen the set screw (4) a few turns.

**▶ Notice!**

Save the washers (A, B, C) for the circular blade (2) and the lineal blade (12) when dismantling the cutter.

**Attention!**

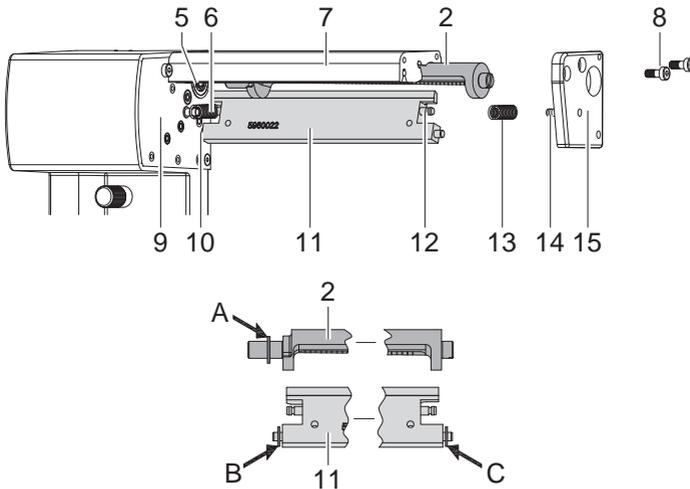
The springs (6, 13) are tense.

- ▶ Always hold tight lineal blade (11) in its position and push its axle slightly to the mounting plate (9) of the cutter.

4. Loosen the screws (8) and remove the bearing plate (15). The spring (13) becomes slack.
5. Remove spring (13) from the lineal blade.
6. Pull the circular blade (2) out of the bearing (5). The spring (6) at the lineal blade becomes slack.

If the lineal blade should not be changed skip to step 13.

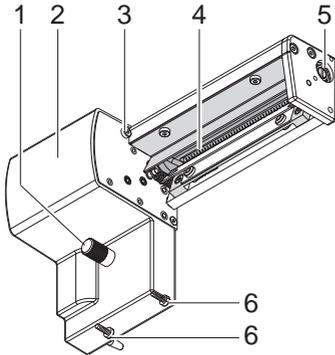
8. Remove the support incl. the lower cover sheet ▷ chapter 6.1.
9. Remove spring (6) and lineal blade (11).
10. Insert the axle of the (new) lineal blade with the washer (B) in the bearing (10) of the mounting plate.
11. Hang in the slack spring (6) to the pins of the mounting plate (9) and the lineal blade (11).
12. Re-mount the support incl. the lower cover sheet. ▷ chapter 6.1.



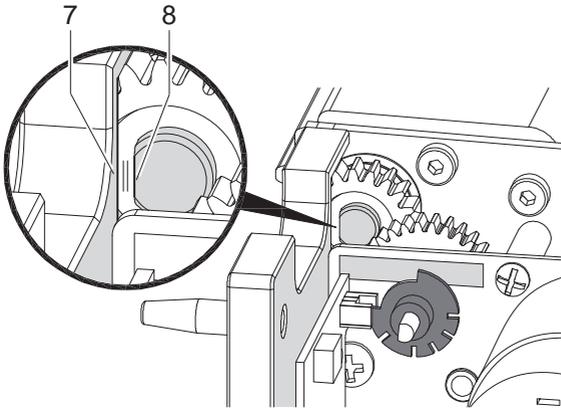
13. Turn the lineal blade (11) backwards. The spring (6) gets tense.
14. Insert the Axle of the (new) circular blade (2) with the washer (A) in the bearing (5) of the mounting plate.
15. Place the washer (C) on the axle of the lineal blade.
16. Hang in the slack spring (13) to the pins (12,14) of the lineal blade and the bearing plate.
17. Push the bearing plate (15) onto the blade axles (2, 11). The spring (13) gets tense.
18. Append the bearing plate (15) to the profile (7) using the screws (8).
19. Tighten the set screw (4) at the gear wheel.
20. Turn the circular blade (2) in such a position that the edges of the circular and lineal blade touch each other.
21. Tighten the screws (8) and check that circular and lineal blade touch each other. If necessary loosen and tighten the screws (8) again.
22. Lubricate the circular blade ▷ chapter 6.1 and adjust its initial state ▷ chapter 6.3.
23. Re-mount the upper cover sheet ▷ chapter 6.1.

6.3 Setting the Initial State of the Cutter

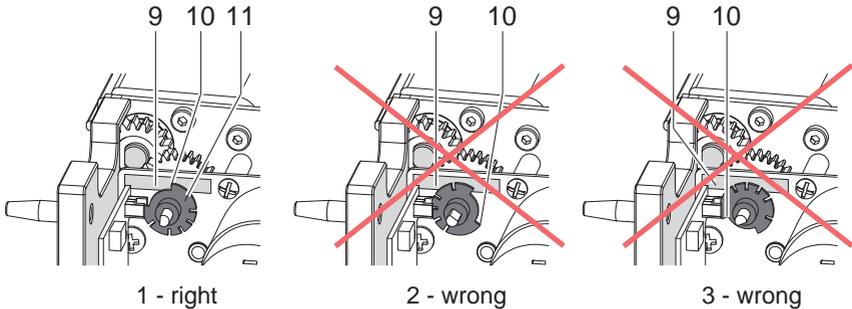
To operate the cutter correctly after cleaning or after changing the blades the circular blade (4) and the clock wheel (11) must be adjusted to each other.



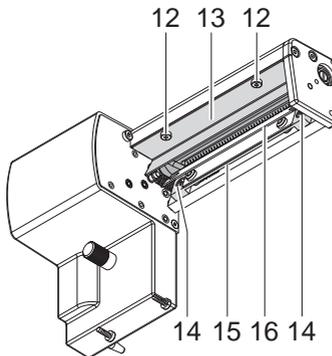
1. Unscrew the screws (1), (3) and (6, at the rear).
2. Remove the cover (2).



3. Turn the axle (5) of the circular blade with a screwdriver for slotted head screws (slot width 7 mm) so that the planar area (8) of the blade axle becomes parallel to the base plate (7).



4. Check the position of the clock wheel (11).
 - If the clock wheel is in the right position 1, the edge (10) of the clock wheel (11) is located in the area of the marking (9).
 - If the clock wheel is in position 2 or 3 turn the circular blade to reach the position 1 :



- Loosen screws (12) and remove upper cover sheet (13).
 - Loosen screws (14) and remove support (15) incl. lower cover sheet (16).
 - Turn the circular blade by one or two full turns, until the planar area (8) of the blade axle becomes parallel to the base plate (7) again and the clock wheel reaches the position 1.
 - Re-mount upper cover sheet (13) and support (15) incl. lower cover sheet (16).
5. Mount the cover.



Gesellschaft für Computer-
und Automations-
Bausteine mbH
Wilhelm-Schickard-Str. 14
D-76131 Karlsruhe

EU Conformity Declaration

We declare herewith that as a result of the manner in which the device designated below was designed, the type of construction and the devices which, as a result have been brought on to the general market comply with the relevant fundamental regulations of the EU Rules for Safety and Health. In the event of any alteration which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

This declaration is valid only when the cutter is used together with printers of the A+ or XD series. Manufacturer: cab Karlsruhe

Description:	Perforation Cutter
Device:	PCU2, PCU4
Applied EU Regulations	Applied Norms:
Directive 2004/108/EC relating to electromagnetic compatibility	• EN 55022:2006
	• EN 55024:1998+A1:2001+A2:2003
	• EN 61000-3-2:2006
	• EN 61000-3-3:1995+A1:2001+A2:2005
Signed for, and on behalf of, the Manufacturer :	Sömmerda, 17.09.09
cab Produkttechnik Sömmerda Gesellschaft für Computer- und Automationsbausteine mbH 99610 Sömmerda	 Erwin Fascher Managing Director