Instructions

Label Printer

MACH 4S

MADE IN GERMANY

Instructions
for the following products

Family	Type	
MACH 4S	-	MACH 4.3S/200B
	-	MACH 4.3S/200P
	-	MACH 4.3S/200C
	MACH 4S/300B	MACH 4.3S/300B
	MACH 4S/300P	MACH 4.3S/300P
	MACH 4S/300C	MACH 4.3S/300C
	MACH 4S/600B	-
	MACH 4S/600P	-
	MACH 4S/600C	-

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1 Introduction

1.1 Instructions

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

Danger!
Draws attention to an exceptionally great, imminent danger to your health or life due to hazardous voltages.

Danger!
Draws attention to a danger with high risk which, if not avoided, may result in death or serious injury.

Warning!
Draws attention to a danger with medium risk which, if not avoided, may result in death or serious injury.

Caution!
Draws attention to a danger with low risk which, if not avoided, may result in minor or moderate injury.

Attention!
Draws attention to potential risks of property damage or loss of quality.

Note!
Advice on how to make work easier or an important step to be carried out.

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 manufactured in accordance with the current technological standards 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.
- The device is intended exclusively for printing suitable materials. 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.

1.3 Safety Instructions

- The device is configured for voltages of 100 to 240 V AC. It only has to be plugged into a grounded socket.
- Only connect the device to other devices which have a protective low voltage.
- Switch off all affected devices (computer, printer, accessories) before connecting or disconnecting.
- The device may only be used in a dry environment, do not expose it to moisture (sprays of water, mists, etc.).
- Do not use the device in an explosive atmosphere.
- Do not use the device close to high-voltage power lines.
- If the device is operated with the cover open, ensure that people‘s clothing, hair, jewelry etc. do not come into contact with the exposed rotating parts.
- The device or parts of it can become hot while printing. Do not touch during operation, and allow to cool down before changing material and before disassembly.
- Perform only those actions described in this operating manual.
  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.
- There are various warning stickers on the device. They draw your attention to dangers.
  Warning stickers must therefore not be removed, as then you and other people cannot be aware of dangers and may be injured.
- The maximum sound pressure level is less than 70 dB(A).

Danger!

Danger to life and limb from power supply.

▶ **Do not open the device casing.**

Warning!

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

1.4 Environment

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

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

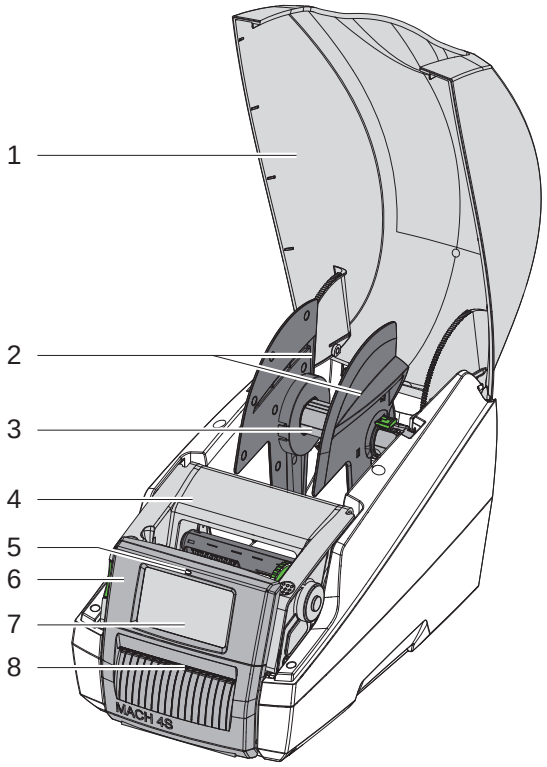
The modular construction of the printer enables it to be easily disassembled into its component parts.

▶ Send the parts for recycling.

The electronic circuit board of the device is equipped with a lithium battery.

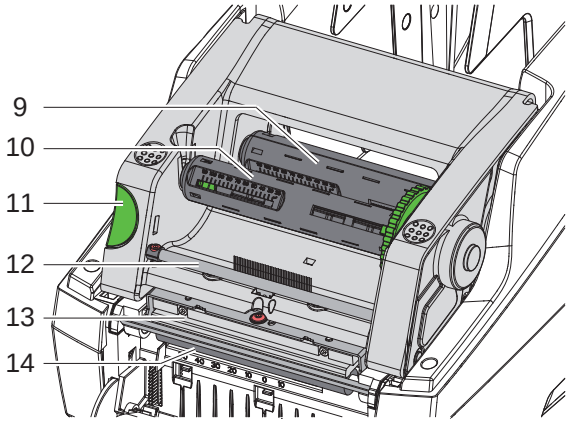
▶ Take old batteries to collection boxes in shops or public waste disposal centers.

2.1 Device Overview



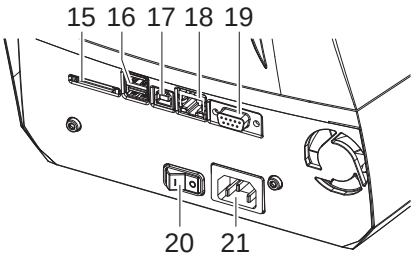
1 Cover
2 Margin stop
3 Roll retainer
4 Print module
5 LED "Power on"
6 Control panel
7 Touchscreen display
8 Label outlet

Figure 1 Overview



9 Ribbon unwinder core
10 Ribbon rewinder core
11 Release button
12 Ribbon deflection
13 Printhead
14 Print roller

Figure 2 Print module



15 Slot for SD card
16 2 USB host ports for keyboard, scanner, USB memory stick or service key
17 USB 2.0 high-speed device port
18 Ethernet 10/100 Base-T
19 Serial RS-232 port
20 Power switch
21 Power connection jack

Figure 3 Connections

2.2 Unpacking and Setting-up the Printer

▶ Lift the label printer out of the box.
▶ Check label printer for damage which may have occurred during transport.
▶ Check delivery for completeness.

Contents of delivery:

- Label printer
- Power cable
- USB cable
- Operator's Manual

Note!
Please keep the original packaging in case the printer must be transported or returned.

Attention!
The device and printing materials will be damaged by moisture.
▶ Only set up label printers in dry locations protected from water and moisture.

▶ Set up printer on a level surface.

2.3 Connecting the Device

The standard available interfaces and connectors are shown in Figure 3.

2.3.1 Connecting to the Power Supply

The printer is equipped with a wide area power unit. The device can be operated with a supply voltage of 230 V~/50 Hz or 115 V~/60 Hz without adjustment.

1. Check that the device is switched off.
2. Plug the power cable into the power connection jack (21).
3. Plug the power cable into a grounded socket.

2.3.2 Connecting to a Computer or Computer Network

Attention!
Inadequate or no grounding can cause malfunctions during operations.
Ensure that all computers and cables connected to the label printer are grounded.

▶ Connect the label printer to a computer or network with a suitable cable.

For details on the configuration of the individual interfaces ▷ Configuration Manual.

2.4 Switching on the Device

When all connections have been established:

▶ Switch the printer on at the power switch (20).
The printer performs a system test, and then shows the system status *Ready* in the display (7).

3 Touchscreen Display

The user can control the operation of the printer with the touchscreen display, for example:

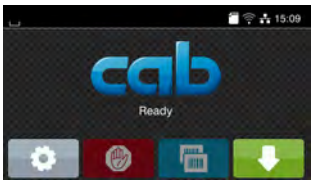
- Issuing, interrupting, continuing and canceling print jobs
- Setting printing parameters, e.g. heat level of the printhead, print speed, interface configuration, language and time of day (▷ Configuration Manual)
- Control stand-alone operations with the memory module (▷ Configuration Manual)
- Update the firmware (▷ Configuration Manual)

Many functions and settings can also be controlled by software applications or by direct programming with a computer using the printer's own commands. ▷ Programming Manual for details.

Settings performed via the touchscreen display adjust the basic settings of the label printer.

Note!
It is advantageous make required adjustments to different print jobs in the software.

3.1 Start Screen



After switching on

During printing

In pause state

After print job

Figure 4 Start screen

The touchscreen display is operated directly by touch:

- To open a menu or select a menu item lightly touch the corresponding symbol.
- To scroll in lists slide finger up or down on the display.

	Open the menu		Repeat the last printed label
	Interrupt the print job		Cancel all print jobs
	Continue the print job		Feed a blank label

Table 1 Symbols on the start screen

Note!
Inactive symbols are dimmer than active symbols.

With special software or hardware configurations additional symbols appear on the start screen:

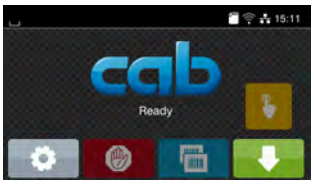
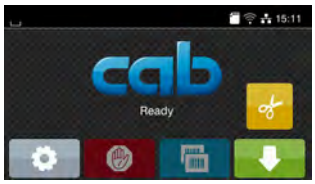
			
Printing on demand without print job	Printing on demand within print job	Direct cut at devices with cutter	Label backfeed in tear-off mode

Figure 5 Optional symbols on the start screen

	Release printing of a single label within a print job including peeling-off, cutting...
	Release a direct cut without media feed
	In tear-off mode, the label material will be fed back from the tear-off edge at the end of the job so that the front edge of the next label is under the print line.

Table 2 Optional symbols on the start screen

In the headline several information are displayed as widgets depending on the configuration:

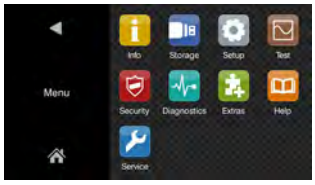
Figure 6 Widgets in the start screen

	Displays the current data transfer in the form of a falling drop.
	The *Save data stream* function is active ▷ Configuration manual All received data are stored in a .lbl file.
	Warning ribbon end ▷ Configuration manual The remaining diameter of the ribbon supply roll undershoots the set value.
	SD card installed
	USB memory installed
	WiFi connection active The WiFi strength is displayed by the number of white arcs.
	Ethernet connection active
	USB connection active
	abc program active
	Clock time

Table 3 Widgets in the start screen

3.2 Navigation in the Menu

Start level



Selection level

Parameter/function level

Figure 7 Menu levels

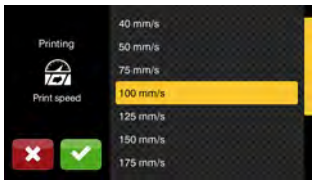
▶ To open the menu select on the start screen.

▶ Select a theme in the selection level.
Several themes have substructures again with selection levels.
To return from the current level to the upper one select . To leave the menu select .

▶ Continue the selection until the parameter/function level is reached.

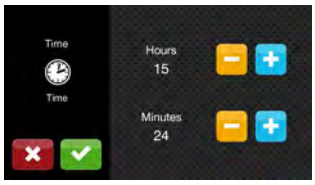
▶ Start a function. The function may only start after a preparatory dialog.
- or -
Select a parameter to set. The setup possibilities are depending from the parameter type.

Logical parameters



Selection parameters

Numerical parameters



Date/time

Figure 8 Samples for parameter setting

	Scroll bar for rough value setting
	Decreasing the value step-by-step
	Increasing the value step-by-step
	Return without saving the setting
	Return with saving the setting
	Parameter is disabled, touching enables the parameter
	Parameter is enabled, touching disables the parameter

Table 4 Buttons for parameter setting

4.1 Loading Label Rolls

4.1.1 Adjusting the Roll Retainer

Label rolls are supplied with different diameters. The roll retainer can hold label rolls with a core diameter of 38 - 75 mm, or 76 mm with the detachable adapters fitted.

Note!

▶ **For rolls with a width up to 25 mm and a core diameter of 38 - 75 mm use the roll retainer with adapters (2) mounted.**

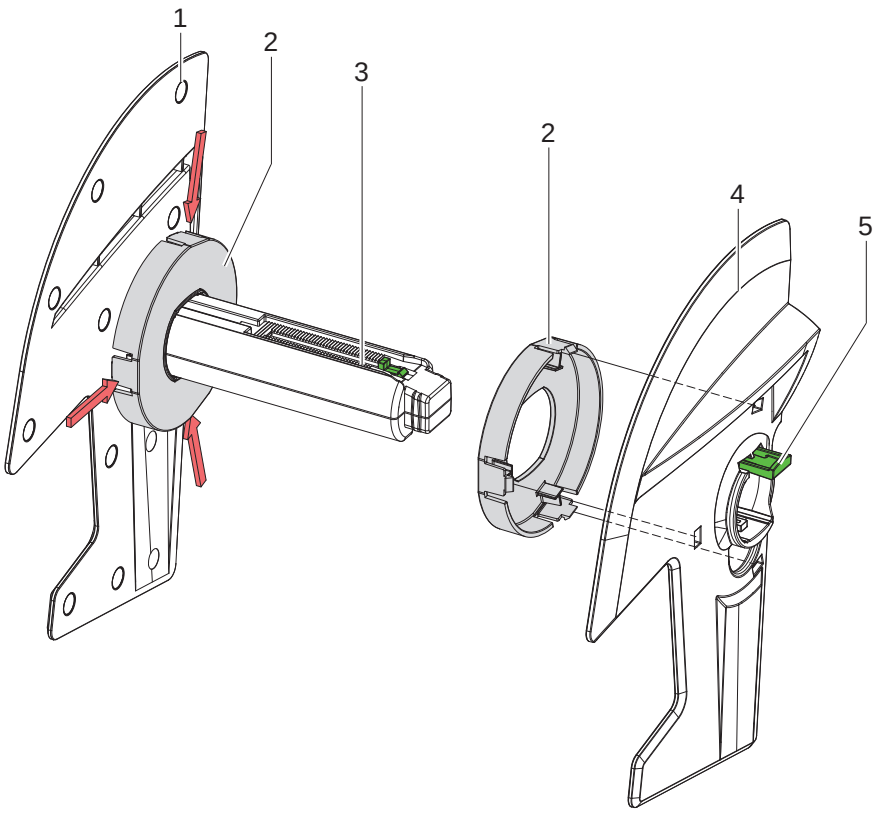


Figure 9 Adapting the roll retainer

Dismounting the adapter

▶ Open the cover and remove the roll retainer (3) with the margin stops (1,4) from the printer.
▶ Press the lever (5) and remove the margin stop (4) from the roll retainer (3).
▶ Press the adapter (2) in at 3 pressure point as shown in the figure, and remove it.

Mounting the adapter

▶ Push the adapter (2) on until it slots into place.

4.1.2 Loading the Label Roll

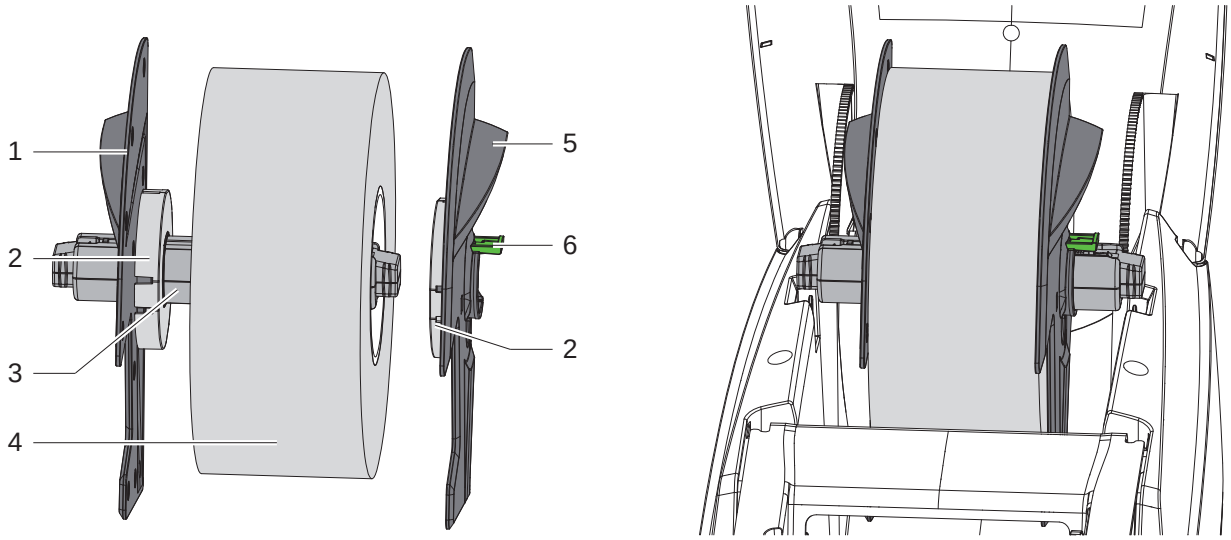


Figure 10 Loading the label roll

- ▶ Open the cover and remove the roll retainer (3) with the margin stops (1,5) from the printer.
- ▶ Press the lever (6) and remove the margin stop (5) from the roll retainer (3).
- ▶ Slide the label roll (4) onto the roll retainer (3) and respectively the adapter (2).
  Ensure that the labels on the unwound strip are facing up irrespective of the wind direction..
- ▶ Put the margin stop (5) onto the roll retainer (3) and slide it with lever (6) pressed against the label roll.
  The label roll is centered automatically.
- ▶ Place the roll retainer into the printer.

4.1.3 Inserting Labels into the Transport Module

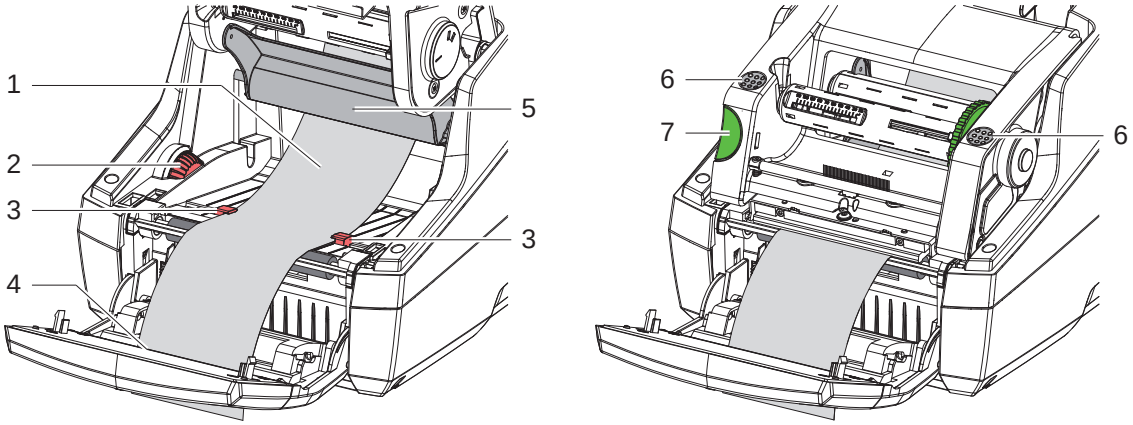


Figure 11 Inserting labels into the transport module

- ▶ Turn aside the control panel.
- ▶ Press the release button (7) to unlatch the print module and lift it up.
- ▶ Feed the labels forwards under the deflector (5) to the label outlet (4) through the control panel.
- ▶ Move the label guides (3) apart with the setting wheel (2) until the labels can pass between them. Press the label strip down, and move the label guides (3) back up against the edges of the label.
- ▶ Move the print module down and press evenly on the two marked surfaces (6) so that the unit snaps into place on both sides.
- ▶ For peel-off mode ▷ 4.3 on page 14.
  For tear-off and cutting mode:
  Lock the control panel and close the cover.

4.2 Loading Fanfold Media

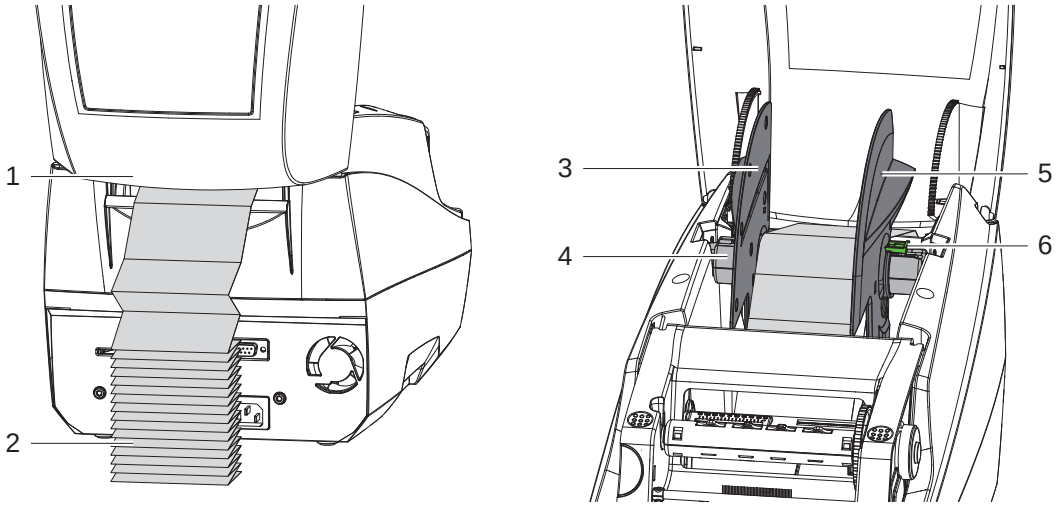
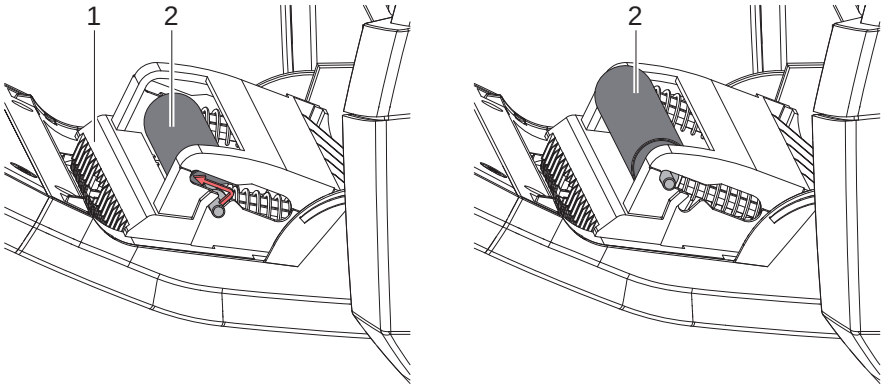


Figure 12 Loading fanfold labels

- ▶ Stack the labels (2) behind the printer. Ensure that the labels on the strip are facing upwards.
- ▶ Open the cover and unlock and lower the control panel.
- ▶ Feed the media underneath the cover (1) into the printer.
- ▶ Remove the adapters from the margin stops ▷ 4.1.1 on page 11 and place the roll retainer with margin stops into the printer.
- ▶ Feed the labels between the margin stops (3, 5) over the roll retainer (4).
- ▶ Push down the lever (6) and slide the margin stops (3,5) against the label edges.
  The labels are centered automatically.
- ▶ Insert the labels into the transport module ▷ 4.1.3 on page 12.

4.3 Loading Labels for Peel-off Mode

Attention!
Place the printer so that the liner can run down without hindrance.
A label jam can cause malfunctions in printing operations.



Pressure roller in parking position Pressure roller in working position

Figure 13 Activation of the pressure roller

▶ Move the pressure roller (2) of the control panel (1) from the parking into the working position.
In order to achieve this use on both ends of the roller and guide it into the working position.

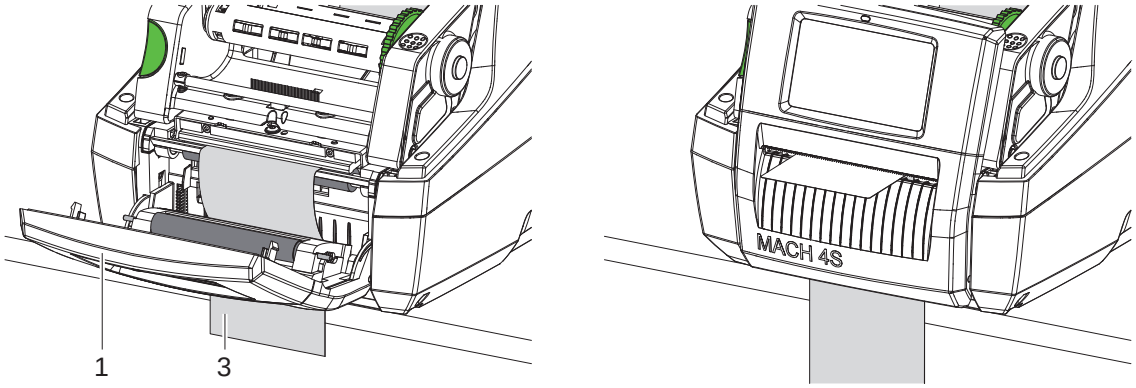


Figure 14 Loading labels for peel-off mode

▶ Load labels ▷ 4.1 on page 11 or 4.2 on page 13.
▶ Remove the labels from the first 15 cm of the material.
▶ Feed the liner (3) out between the control panel (1) and the printer.
▶ Lock the control panel into place and close the cover.
▶ Initiate a synchronization ▷ 5.1 on page 18.

4.4 Selecting and Positioning Label Sensors

4.4.1 Gap Sensors

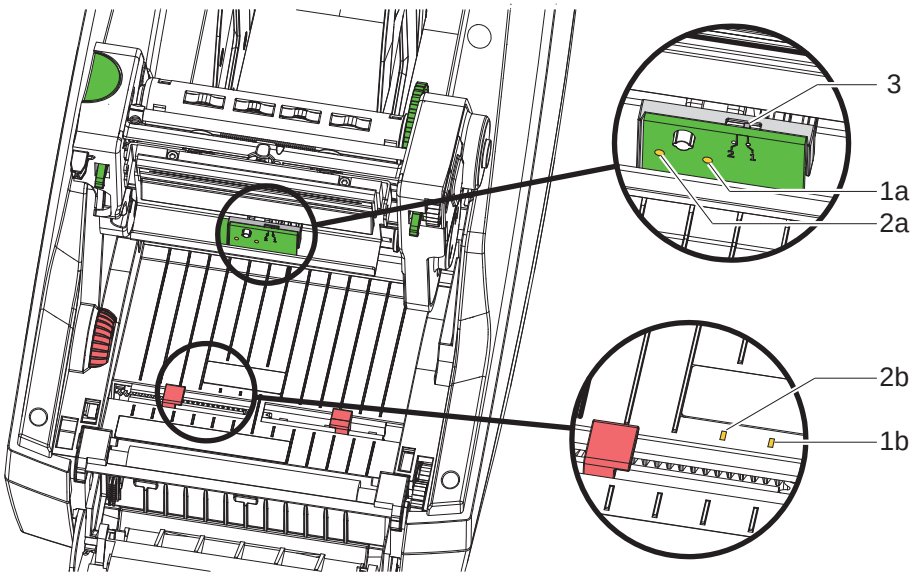


Figure 15 Selecting the gap sensor

The printer has two gap sensors (1, 2) to detect the labels front edge as well as the end of the material, which can be used alternatively. The emitters (1a, 2a) are located in the print module, the detectors (1b, 2b) in the transport module.

The gap sensor (1) is used as default. This is suitable for use with single and multi-lane labels with an odd number of lanes.

When using multi-lane labels with an even number of lanes, e.g. two or four lanes, one has to switch manually to the gap sensor (2).

- ▶ Open the cover, release and lower the control panel, press the release button and raise the print module.
- ▶ Set the switch (3) as required:
  for gap sensor (1) - move switch to setting "1" (default),
  for gap sensor (2) - move switch to setting "2".
- ▶ Lower the print module, locking into place, lift the control panel and close the cover.

Note!
The gap sensors cannot be selected via software.

4.4.2 Reflex Sensor

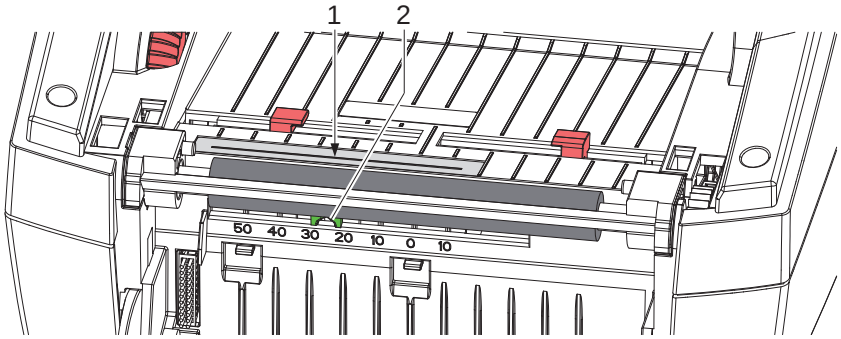


Figure 16 Positioning the reflex sensor

The reflex sensor (1) can detect marks on the back of the label stock. To adapt the sensor to the position of the reflective marks it can be moved perpendicular to the transport direction with the slide (2):

- ▶ Determine the distance of the reflective marks from the center of the material.
- ▶ Move the slider (2) to the desired position with a sharp tool if required.
  The distance of the sensor from the center is shown on the scale.

4.5 Loading Transfer Ribbon

Note!

▶ **Do not insert transfer ribbon for direct thermal printing!**

Attention!

Risk of contamination!

▶ **When inserting the transfer ribbon ensure that the coated side faces the labels, otherwise the printhead will be dirtied.**

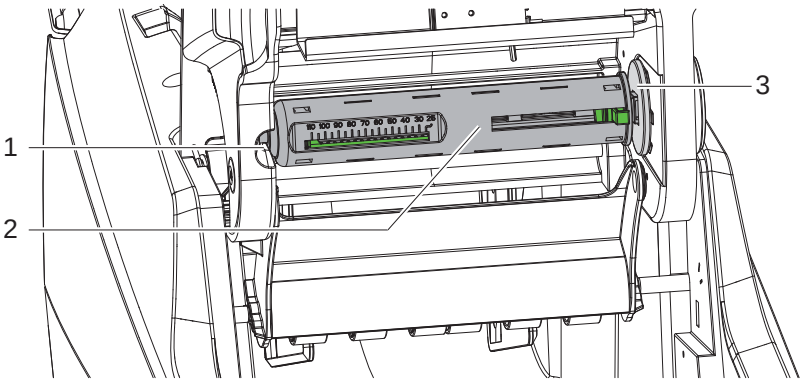


Figure 17 Removing the ribbon unwinder core

▶ Open the cover, unlock and lower the control panel and lift the print module.

▶ Press the core (2) to the right, pull it out of the slot (1) and remove it.

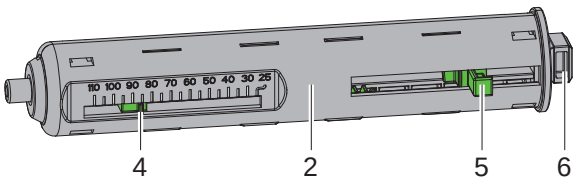


Figure 18 Adapting the core

▶ Adjust the core (2) to the width of the ribbon roll.
For that purpose press the lever (5) and move it in such a position that pointer (4) shows the required roll width on the scale.

▶ Slide the ribbon roll onto the core (2) against the lever (5). Ensure that the coated side of the transfer ribbon (11) is facing to the label stock.

▶ Press the rectangular end (6) of the core against the spring of the retainer (3) and slide the left end into the slot (1) until it snaps in.

▶ Lower the print module (do not slot in).

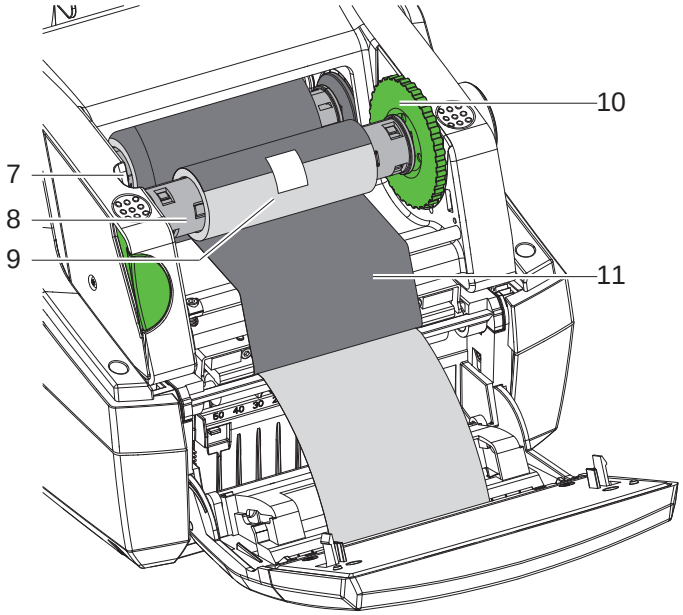


Figure 19 Loading transfer ribbon

- ▶ Remove and adjust the ribbon rewinder core (8) in the same manner.
- ▶ Slide an empty cardboard roll (9) onto the core (8) against the lever.
- ▶ Press the rectangular end of the core against the spring of the tensioning wheel (10) and slide the left end into the slot (7) until it snaps in.
- ▶ Feed the transfer ribbon (11) over the printhead to the ribbon rewinder, and attach the ribbon to the empty roll (9) with adhesive tape.
  Ensure that it is wound as shown in the figure and ensure that the ribbon is not twisted.
- ▶ Turn the tensioning wheel (10) in the winding direction until the ribbon is tightly wound on the roll.
- ▶ Lower and lock the print module, lift the control panel and close the cover.

4.6 Setting the Feed Path of the Transfer Ribbon

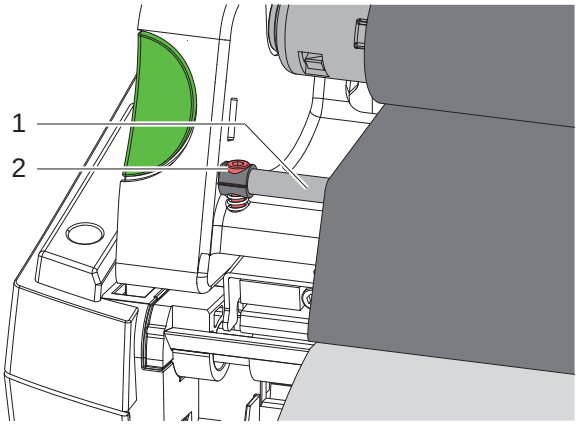


Figure 20 Setting the feed path of the transfer ribbon

Transfer ribbon wrinkling can lead to print image errors. The transfer ribbon deflection (1) can be adjusted to prevent wrinkles.

Note!
The adjustment is best carried out during printing.

- ▶ Turn screw (2) with Allen key and observe the behavior of the ribbon.
  Turning the screw clockwise tightens the right edge of the ribbon and turning the screw counterclockwise will tighten the left edge.

Attention!
Printhead damage caused by improper handling!
- ▶ **Do not touch the underside of the printhead with fingers or sharp objects.**
- ▶ **Ensure that the labels are clean.**
- ▶ **Ensure that the label surfaces are smooth. Rough labels may reduce the service life of the printhead.**
- ▶ **Print with the lowest possible printhead temperature.**

The printer is ready for operation when all connections have been made and labels and, if applicable, the transfer ribbon have been loaded.

5.1 Synchronization of the Paper Feed

After the label stock has been inserted, for peel-off or cutting mode a synchronization of the paper feed is required. That way the first label, which is detected by the label sensor, will be transported to the print position and all labels in front will be fed out of the printer. So the synchronization avoids, that blank labels are peeled-off together with the first printed label or that the first cut label would be too long. Both effects can cause a useless first labels.

- ▶ Select to start the synchronization.
- ▶ Remove the blank labels peeled- or cut-off during the synchronization.

5.2 Tear-off Mode

After printing, the label strip is removed by hand. The label printer is equipped with a tear edge for this purpose.

Loading labels ▷ 4.1 on page 11 or 4.2 on page 13.

5.3 Peel-off Mode

∗ MACH 4.3S/200P, MACH 4.3S/300P, MACH 4S/300P and MACH S4/600P only

In Peel-off mode, the labels are automatically peeled off the liner after printing and presented for removal.
The label in the peel position will be detected by an optical sensor. After the label has been removed the next label will be printed and fed to the peel position.

Loading labels ▷ 4.3 on page 14.

Attention!
Peel-off mode must be activated in the software.
This is done with the "P command" in the direct programming ▷ Programming Manual.

5.4 Cutting Mode

∗ MACH 4.3S/200C, MACH 4.3S/300C, MACH 4S/300C and MACH S4/600C only

The labels or continuous material is cut-off automatically. The relevant cutting position is preferably set in the software.

Loading labels ▷ 4.1 on page 11 oder 4.2 on page 13.

Attention!
Cutting mode must be activated in the software.
This is done with the "C command" in the direct programming, ▷ Programming Manual.

6 Cleaning

6.1 Cleaning Information

Danger!
Risk of death via electrocution!
▶ **Disconnect the printer from the power supply before performing any maintenance tasks.**

The label printer requires very little maintenance.

It is important to clean the thermal printhead regularly. This guarantees a consistently well printed image and plays a major part in preventing premature wear of the printhead.

Otherwise, the maintenance is limited to monthly cleaning of the device.

Attention!
The printer can be damaged by aggressive cleansers.
Do not use abrasive cleaners or solvents for cleaning the external surfaces or modules.

Recommended Cleaners	
Print and rewind guide roller	Roller cleaner W1 (Part No. 9200051)
Printhead and label sensor	Isopropanol > 99,9%
Other surfaces	Isopropanol 70-100%

Table 5 Recommended cleaners

▶ Remove dust and paper fluff from the print area with a soft brush or vacuum cleaner.

6.2 Cleaning the Print Roller

Accumulations of dirt on the print roller may impair the media transport and the print quality. In the case of slight dirt accumulation, it is not necessary to remove the print roller. The roller can be turned incrementally by hand.

▶ Lift the printhead.
▶ Remove labels and transfer ribbon from the printer.
▶ Remove deposits with roller cleaner W1 and a soft cloth.
▶ Wait 2–3 minutes before commissioning the printer.
▶ If the roller appears damaged, replace it ▷ Service Manual.

6.3 Cleaning the Printhead

Cleaning intervals: direct thermal printing - every media roll change
thermal transfer printing - every ribbon roll change

Substances may accumulate on the printhead during printing and adversely affect printing, e.g. differences in contrast or vertical stripes.

Attention!
The printhead can be damaged!
Do not use sharp or hard objects to clean the printhead.
Do not touch the protective glass layer of the printhead.

Attention!
Risk of injury from the hot printhead line.
Ensure that the printhead has cooled down before starting cleaning tasks.

▶ Lift the printhead.
▶ Remove labels and transfer ribbon from the printer.
▶ Clean printhead surface with a cotton swab or a soft cloth soaked in >99% isopropanol.
▶ Allow printhead to dry for 2–3 minutes before resuming printing.

6.4 Cleaning the Label Sensors

Attention!
Do not damage the light barrier!
Do not use sharp objects or solvents when cleaning the light barrier.

The label sensors can be dirtied by paper dust. This can impair the detection of the start of the label or the print marks.

▶ Clean label sensor and the slots with brush or soft cloth soaked in >99% isopropanol.

6.5 Cleaning the Cutter

Note!
When cutting through the label material remains of adhesive may accumulate on the blades. If operating in backfeed mode, such remains of adhesive may be deposited on the drive roller as well.

▶ **Clean the drive roller and the cutter blades often.**

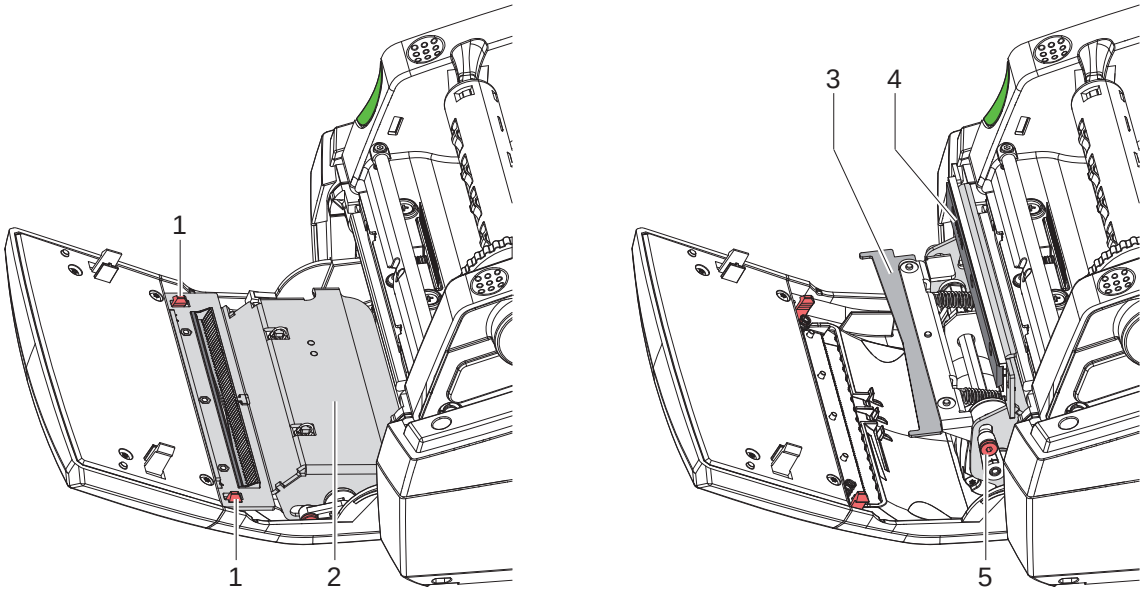


Figure 21 Cleaning the cutter

▶ Lower the control panel
▶ Release the cutting unit (2) via the plastic latches (1) and lift it off.
▶ Turn the screw (5) counterclockwise using a 2.5 mm allen key and swivel the clamp with the lower blade (3) away from the upper blade (4).

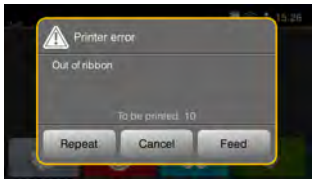
Warning!
Risk of cuts and bruising!
▶ **Do not touch the blade edges with bare hands.**
▶ **Keep hands away from the swivel range of the lower blade.**

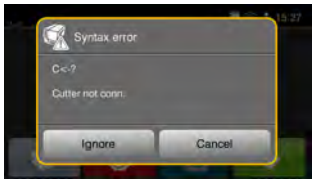
▶ Remove particles of dust and paper with a soft brush or a vacuum.
▶ Remove remains of adhesive with isopropyl alcohol.
▶ Remount in reverse order.

7 Fault Correction

7.1 Error Display

The appearance of an error will be shown on the display:





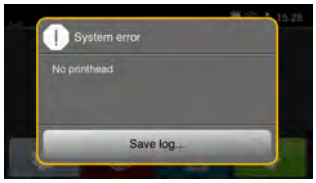


Figure 22 Error display

The error correction depends on the error type ▷ 7.2 on page 21.

The display offers the following possibilities to continue after an error occurred:

Repeat	The print job will be continued after clearing the error cause.
Cancel	The print job will be cancelled.
Feed	The paper feed will be synchronized. Then the print job can be continued.
Ignore	The error message will be ignored. The print job will be continued, possibly with limited performance.
Save log	The error does not allow print operation. For detailed analysis several system files can be saved on an external memory.

Table 6 Buttons in the error display

7.2 Error Messages and Fault Correction

Error message	Cause	Remedy
Barcode error	Invalid barcode content, e.g. alphanumeric characters in a numerical barcode	Correct the barcode content.
Barcode too big	The barcode is too big for the allocated area of the label	Reduce the size of the barcode or move it.
Buffer overflow	The input buffer memory is full and the computer is still transmitting data.	Use data transmission via protocol (preferably RTS/CTS).
Cutter blocked	Cutter cannot return into its home position and stays in an undefined position	Switch off the printer. Remove material. Switch on the printer. Restart print job. Change material
	No cutter function	Switch the printer off and then on. If error recurs call service.
Device not conn.	Programming addresses a non-existent device	Either connect this device or correct the programming.
File not found	Requested file is not on the card	Check the contents of the card.
Font not found	Error with the selected download font	Cancel current print job, change font.
Media too thick	The cutter is unable to cut the labels but is able to return into its home position	Press *Cancel* Change material.
Memory overflow	Current print job contains too much information, e.g. selected font, large graphics	Cancel current print job. Reduce amount of data to be printed.
Name exists	Duplicate usage of field name in the direct programming	Correct programming
No label found	There are labels missing on the label material	Press *Repeat* repeatedly until printer recognizes the next label on the material.
	The label format as set in the software does not correspond with the real label format	Cancel current print job. Change the label format set in the software. Restart print job.
	Printer is loaded with continuous material, but the software is set on labels	Cancel current print job. Change the label format set in the software. Restart the print job.

Error message	Cause	Remedy
No label size	The size of the label is not defined in the programming.	Check programming.
Out of paper	Out of label roll	Load labels.
	Error in the paper feed	Check paper feed.
Out of ribbon	Out of transfer ribbon	Insert new transfer ribbon.
	Transfer ribbon melted during printing	Cancel current print job. Change the heat level via software. Clean the printhead ▷ 6.3 on page 19 Load transfer ribbon. Restart print job.
	The printer is loaded with direct thermal label material, but the software is set to transfer printing	Cancel current print job. Set software to direct thermal printing. Restart print job.
Printhead open	Printhead not locked	Lock printhead.
Printhead too hot	Printhead is overheated	After pausing, the print job will be continued automatically. If the fault recurs repeatedly, reduce the heat level or the print speed via software.
Read error	Read error when reading from the memory card	Check data of the card. Backup data, reformat card.
Remove ribbon	Transfer ribbon is loaded although the printer is set to direct thermal printing	for direct thermal printing remove ribbon
		for thermal transfer printing set the printer in the configuration or in the software to transfer printing
Ribbon ink side	Identified ribbon unwinding direction does not match to the setup setting	Ribbon loaded incorrectly. Clean the printhead ▷ 6.3 on page 19. Load the ribbon correctly.
		Setting does not match to the used ribbon. Correct the setting.
Syntax error	Printer has received an unknown or invalid command from the computer.	Press *Ignore* to skip the command or press *Cancel* to cancel the print job.
Unknown card	Card not formatted, Type of card not supported	Format card, use different type of card.
Voltage error	Hardware error	Switch the printer off and then on. If error recurs call service. It is shown which voltage has failed. Please note.
Write error	Hardware error	Repeat the write process, reformat card.

Table 7 Error Messages and Fault Correction

7.3 Problem Solution

Problem	Cause	Remedy
Transfer ribbon creases	Transfer ribbon deflection not adjusted	Adjust the transfer ribbon deflection. ▷ 4.6 on page 17
	Transfer ribbon too wide	Use a transfer ribbon slightly wider than the width of label.
Print image has smears or voids	Printhead is dirty	Clean the printhead ▷ 6.3 on page 19.
	Temperature too high	Decrease temperature via software.
	Unsuitable combination of labels and transfer ribbon	Use different type of ribbon.
Printer does not stop after transfer ribbon runs out	Thermal printing is chosen in the software	Change to thermal transfer printing.
Printer prints a sequence of characters instead of the label format	Printer is in ASCII dump mode	Cancel the ASCII dump mode.
Printer transports label media, but transfer ribbon does not move	Transfer ribbon incorrectly inserted.	Check and, if necessary, correct the transfer ribbon web and the orientation of the label side.
	Unsuitable combination of labels and transfer ribbon	Use different type of ribbon.
Printer only prints each second label	Setting of the size in the software is too large.	Change the size in the software.
Vertical white lines in the print image	Printhead is dirty	Clean the printhead ▷ 6.3 on page 19.
	Printhead is defective (failure of heat elements)	Change the printhead. ▷ Service Manual.
Horizontal white lines in the print image	Printer is used with the *backfeed* > *smart* in the cut or peel-off mode	Set the *backfeed* > *always* in the setup. ▷ Configuration Manual.
Print image is irregular, one side is lighter	Printhead is dirty	Clean the printhead ▷ 6.3 on page 19.

Table 8 Problem solution

8.1 Media Dimensions

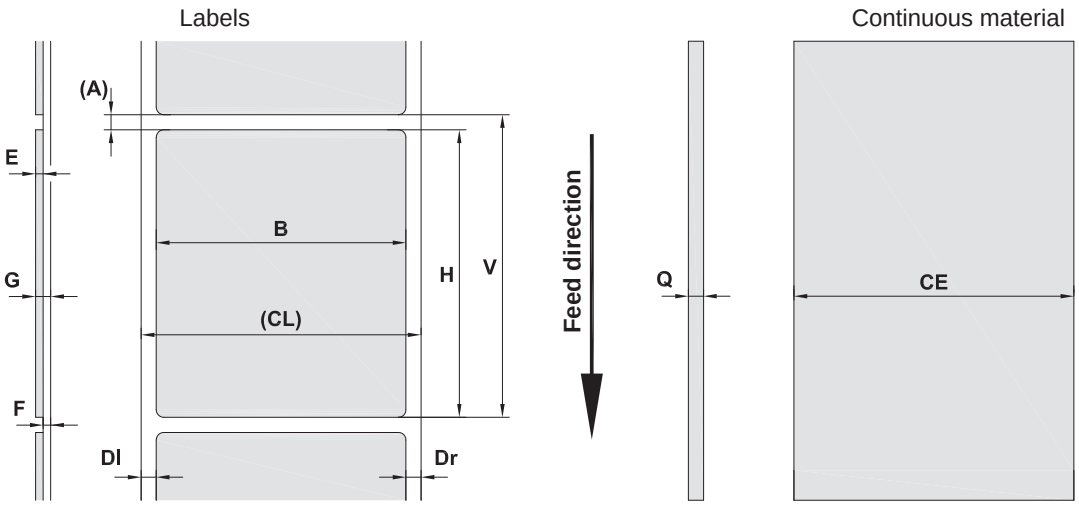


Figure 23 Label / continuous material dimensions

Dim.	Designation	Dim. in mm
B	Label width	5 - 116
H	Label height	≥ 5
	in peel-off mode	≥ 20
-	Cut length	≥ 12
A	Label distance	> 2
CL	Width of liner	
	with core diameter 38 mm	9 - 120
	with core diameter 76 mm	25 - 120
CE	Width of continuous material	
	with core diameter 38 mm	5 - 120
	with core diameter 76 mm	25 - 120
Dl	Left margin	≥ 0
Dr	Right margin	≥ 0
E	Label thickness	0.03 - 0.6
F	Liner thickness	0.03 - 0.16
G	Thickness label with liner	0.06 - 0.76
Q	Thickness continuous material	0.03 - 0.5
V	Label feed	> 7
	• Small label sizes, thin materials or strong glue can lead to limitations. Critical applications need to be tested and cleared. • Note the bending stiffness ! Material must be flexible to follow the radius of the print roller !	

Table 9 Label / continuous material dimensions

8.2 Device Dimensions

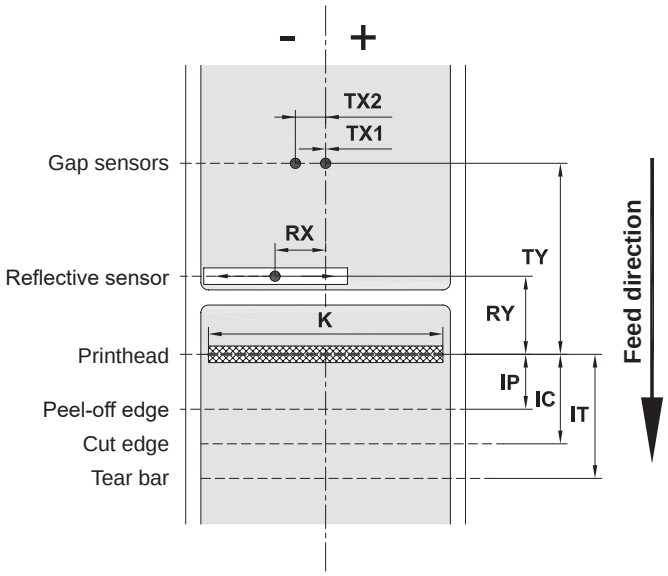


Figure 24 Device dimensions

Dim.	Designation	Dim. in mm
IP	Distance printhead - peel-off edge	13,2
IC	Distance printhead - cut edge	17,5
IT	Distance printhead - tear bar	24,0
K	Print width with printhead 4.3/200 with printhead 4.3/300 with printhead 4/300 with printhead 4/600	104,0 108,4 105,7 105,7
RX	Distance reflective sensor - middle of paper track i.e. permissible distance of reflex or cut-out marks from the middle of the material	-56 - +10
RY	Distance reflective sensor - printhead	16,0
TX	Distance gap sensor - middle of paper track TX1 : Sensor for single and multi-lane labels with an odd number of lanes. TX2 : Sensor for multi-lane labels with an even number of lanes.	 0 -10
TY	Distance gap sensor - printhead	56,5

Table 10 Device dimensions

8.3 Reflex Mark Dimensions

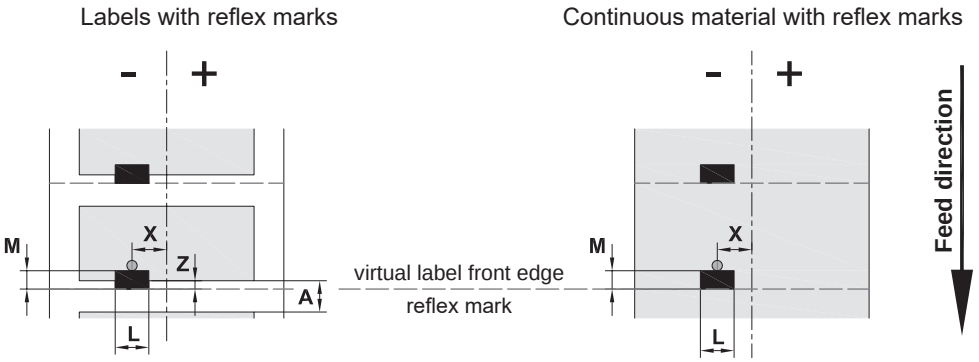
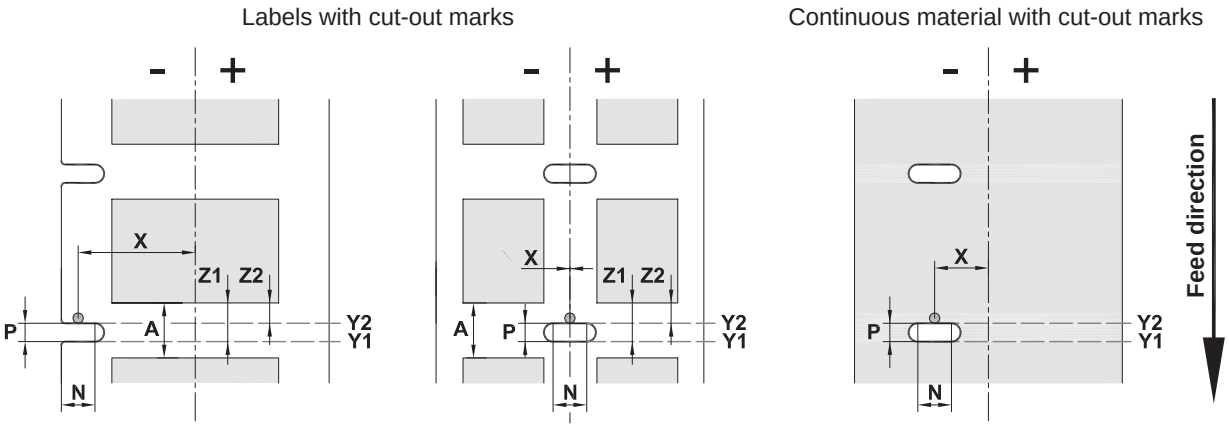


Figure 25 Reflex mark dimensions

Dim.	Designation	Dim. in mm
A	Label distance	> 2
L	Width of reflex mark	> 5
M	Height of reflex mark	3 - 10
X	Distance mark - middle of paper track for reflective sensor recognition	-56 up to +10
Z	Distance virtual label front edge - actual label front edge ▶ Adjust software settings	0 up to A / recomm.: 0
	• Reflex marks must be on the back side of the material (liner). • Specification is valid for black marks. • Recognition of colored marks may fail. ▶ Preliminary tests are needed.	

Table 11 Reflex mark dimensions

8.4 Cut-out Mark Dimensions



for marginal cut-out marks
minimum liner thickness 0,06 mm

Figure 26 Cut-out mark dimensions

Dim.	Designation	Dim. in mm
A	Label distance	> 2
N	Width of cut-out mark	> 5
P	Height of cut-out mark	2 - 10
X	Distance mark - middle of paper track for gap sensor recognition for reflective sensor recognition	 -10 or 0 -56 up to +10
 Y1 Y2	Sensor recognized virtual label front edge with reflective sensor recognition [1)] with gap sensor recognition	 Front edge cut-out Rear edge cut-out
 Z1 Z2	Distance recognized front edge - actual label front edge with reflective sensor recognition with gap sensor recognition using transparent labels ▶ Adjust software settings	 P up to A 0 up to A-P
	[1)] Backside of the material must be sufficiently reflective.	

Table 12 Cut-out mark dimensions

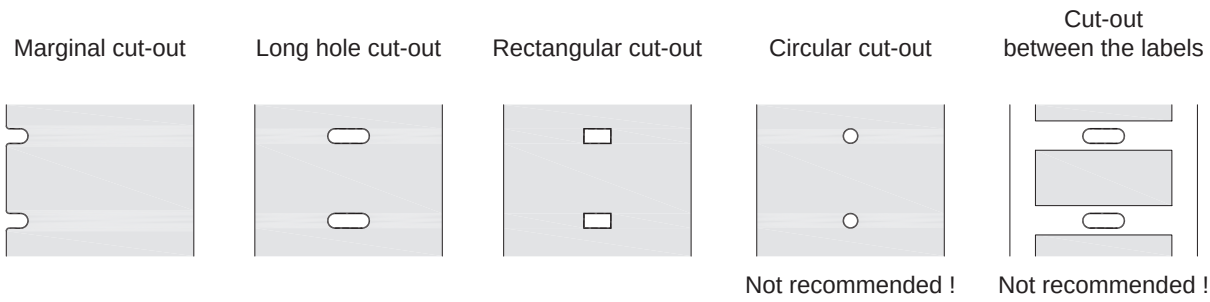


Figure 27 Samples for cut-out marks

9 Licenses

9.1 Reference to the EU Declaration of Conformity

The printers of the MACH 4S series comply with the relevant fundamental regulations of the EU Rules for Safety and Health:

- Directive 2014/35/EU relating to electrical equipment designed for use within certain voltage limits
- Directive 2014/30/EU relating to electromagnetic compatibility
- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment

EU Declaration of Conformity

▷ https://www.cab.de/media/pushfile.cfm?file=2980

9.2 FCC

NOTE : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user may be required to correct the interference at his own expense.

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