Service Manual

Vacuum-Belt Applicator

5326C

Service Manual
for the following Products

Family	Type
Vacuum-Belt Applicator	5326C

Edition: 08/2022 - Part No. 9003480

Table of Contents

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 to make the work routine easier or on important steps 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 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.
- The device applicator mounted on a cab printer of the Hermes C series is intended exclusively for applying 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 manual, including the manufacturer's maintenance recommendations and specifications.

Note!
The complete documentation can currently be found in the Internet.

1.3 Safety Instruction

- Before mounting the delivered components disconnect the printer from the power supply and close the shutoff valve at the applicator.
- 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.
- In operation, moving parts are easily accessible.
  This applies especially for the zone of belts and fans. During operation do not reach into that zone and keep long hair, loose clothes, and jewelry distant.
- During operation do not reach into that zone and keep long hair, loose clothes, and jewelry distant.
- 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.
- Perform only those actions described in this 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.

1.4   Safety Markings

1:      Warning danger of electrocution.

2:      Warning of contusions and/or crushing of hands and fingers when mounting or dismounting the applicator!

3:      Beware of rotating parts. Potential bodily harm particularly to hands and fingers.

Fig. 1   Safety Markings

> **Attention!**
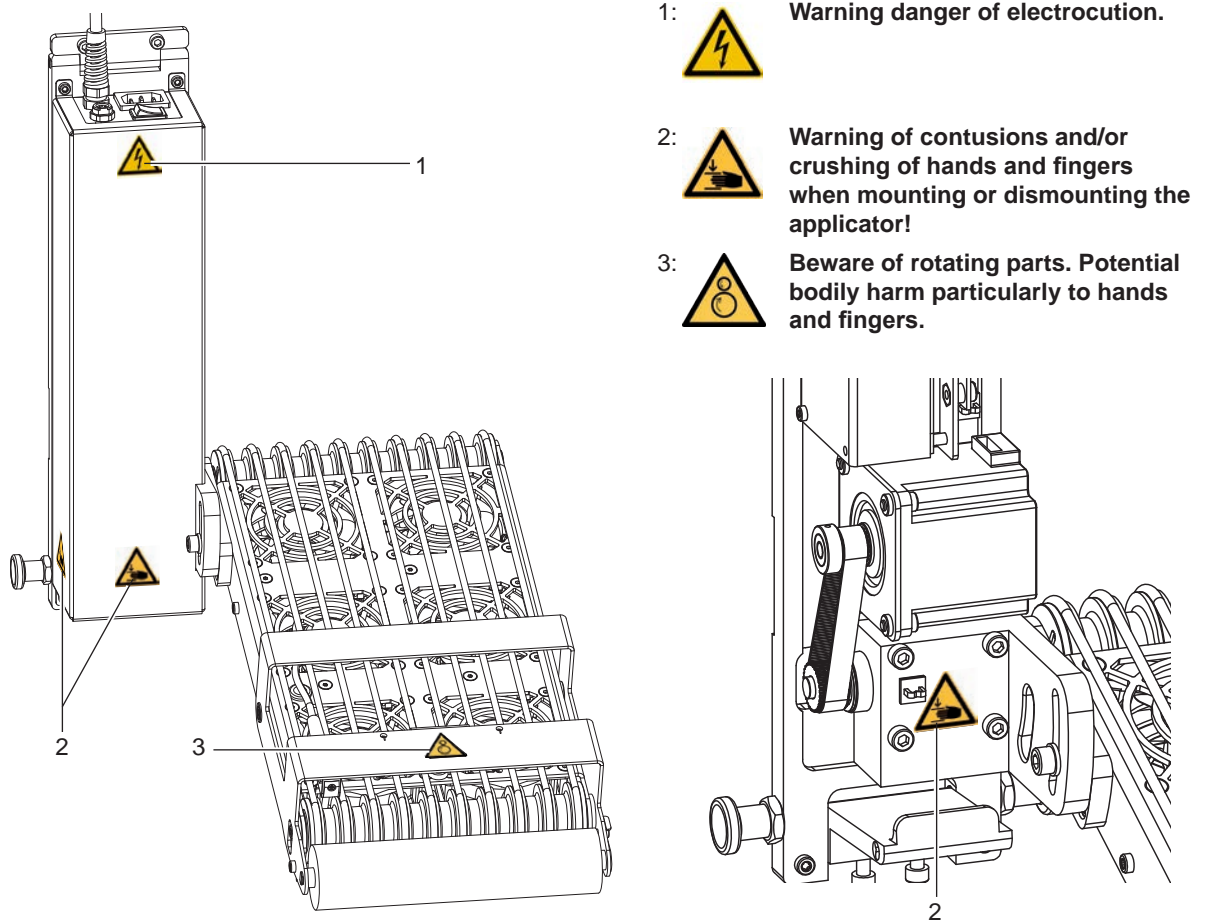> **Never remove or cover safety markings! Replace it in case of damage!**

1.5   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 print module enables it to be easily disassembled into its component parts.
▶ Send the parts for recycling.

2 Product Description

2.1 Important Features

- For operation in a system the I/O interface of the printer can be used.

2.2 Technical Data

Technical data		Vacuum belt applicator
		5326C
Labeling		On the surface
Dispensing direction		Left
Label width	mm	46-174
Label height	mm	80-356
Product during labeling	in motion	∎
Labeling on the product	from top	∎
	from below	∎
	from the side	∎
Product height		Steady
Product speed	max. m/s	0.5
Distance between one product and the next min. m		1.0
Stability at application level	F=mm	–
Corner wrap labeling	X max. mm	–
Labeling on a cylinder	diameter min. mm	–
Vacuum belt speed[1]	mm/s	100-500
Cycle time[2]	max. labels/min.	15
Label distance to conveyor belt when labeling from the side	Y min. mm	20

[1] The product speed must be higher than the vacuum belt speed.
[2] Calculated at 100 mm label height/print speed 100 mm/s

Table 1   Technical Data

2.3   Device Overview

1   Power supply cable of the printer
2   3-pole connector for sensor start
3   Power switch applicator
4   SUB-D 9 connector to the printer
5   Circuit board applicator control
6   Belt driven motor
7   Vacuum belt unit and ventilators
8   Sensor
9   Power supply with cover
10 Belt with motor shaft belt
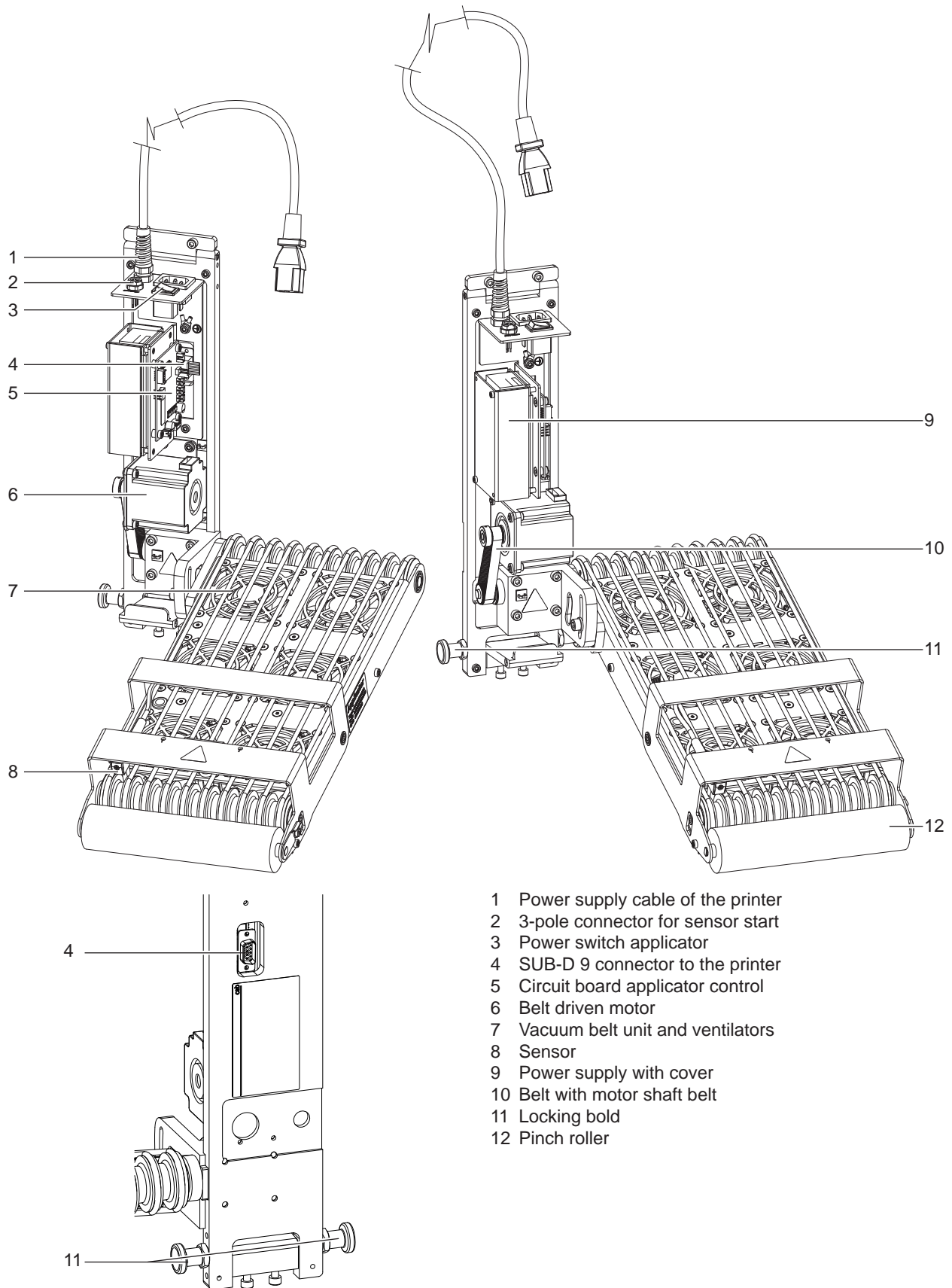11 Locking bold
12 Pinch roller

Fig. 2   Overview

2.4 Contents of Delivery
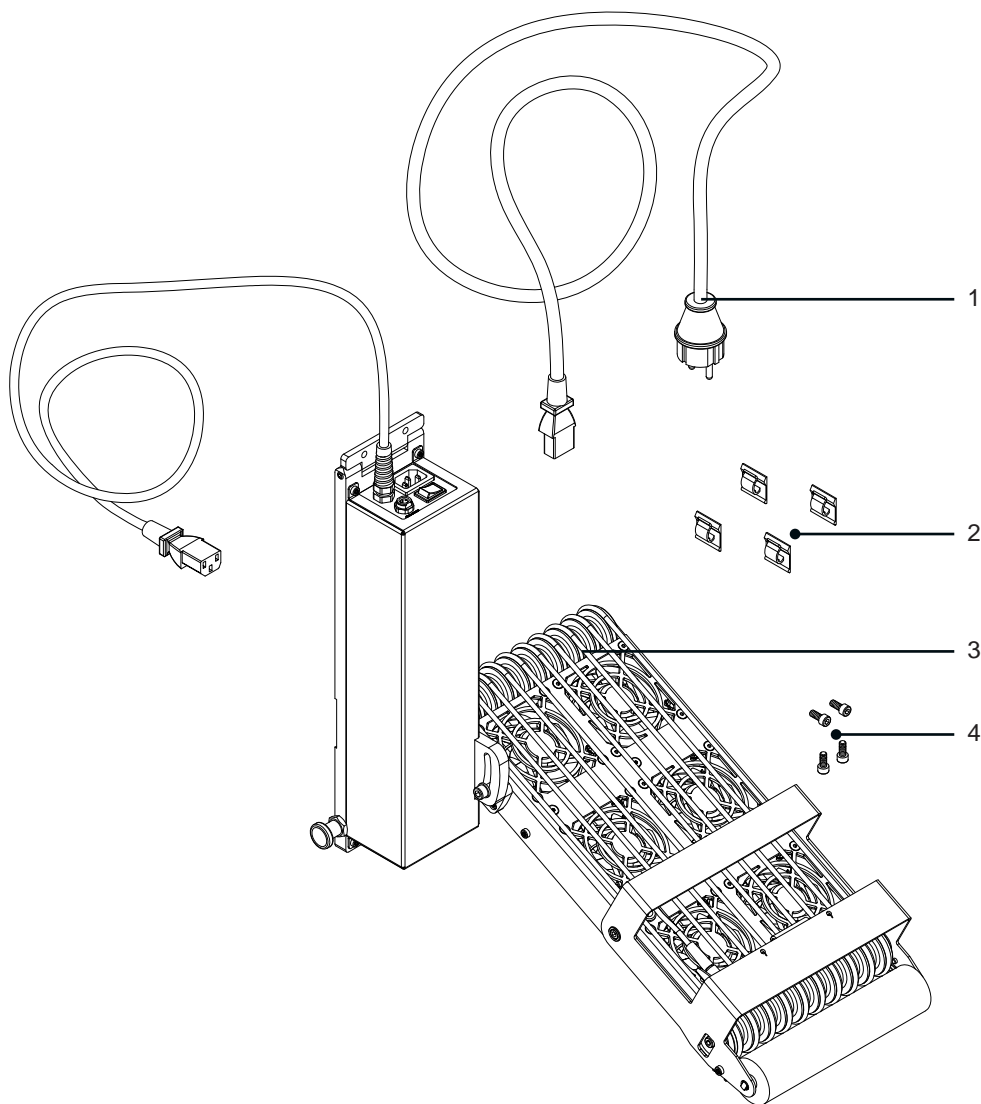
Fig. 3 Contents of delivery

- Power cable (1)
- 4 x self-adhering cable guides (2)
- Mounted applicator (3)
- Screws for mounting the applicator to the printer (4)
- Documentation

Note!
Please keep the original packaging in case the applicator needs to be transported or returned.

Attention!
The device and printing materials will be damaged by moisture and liquid.
▶ **Only set up the label printer with applicator in dry locations protected from moisture.**

3.1 Standard Operation

▶ Check all external connections.

▶ Load the material. ▷ "Operator's Manual"

▶ Switch on the printer.

▶ Press the **feed** key of the printer.
A synchronization feed is initiated. The processed labels need to be removed manually. After a few seconds the printer carries out a short backfeed to position the front edge of the next label at the printing line.

ℹ **Note!**
This synchronization also has to be carried out when the print job is interrupted with the cancel key.
Synchronizing is not necessary if the print head was not lifted between print jobs. This also applies if the printer was powered off in between print jobs.

▶ Start a print job.
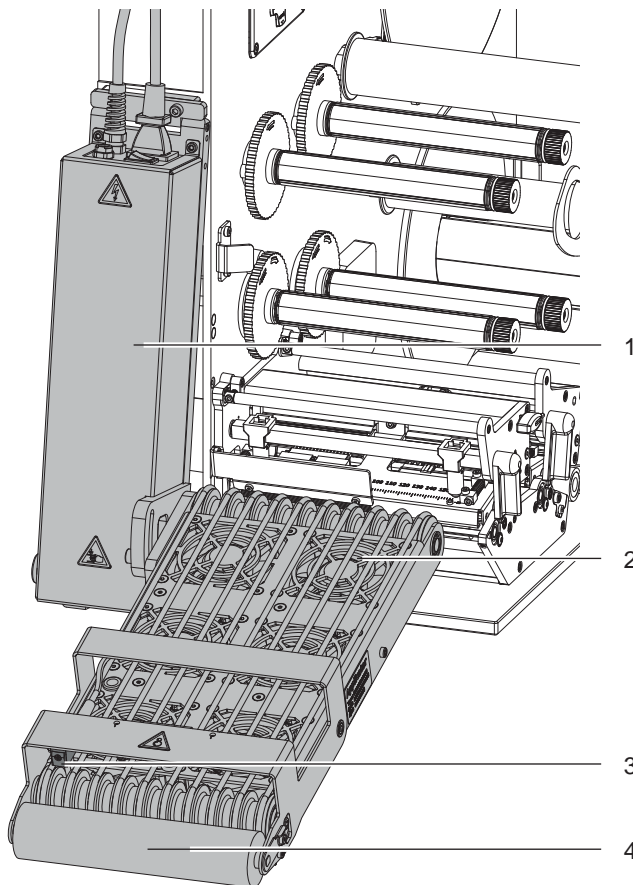
▶ Start the labeling process via PLC interface.

Error messages that occur during the labeling process are shown in the display of the printer.

3.2 Cleaning

⚠ **Attention!**
Never use solvent and abrasive.

▶ Dismount the applicator in order to reach all areas. ▷ „5.3 Mounting and Dismounting the Applicator"

▶ For cleaning the outer surfaces (1) and transport belts a multipurpose cleaner is sufficient.

▶ Clean the fan area (2) with a soft brush or a vacuum cleaner.

▶ Use glass cleaner to clean the reflex sensor (3).

▶ Clean the pinch roller (4) with a special pinch roller cleaner or a multi purpose cleaner.

▶ Remount the applicator

Fig. 4 Cleaning
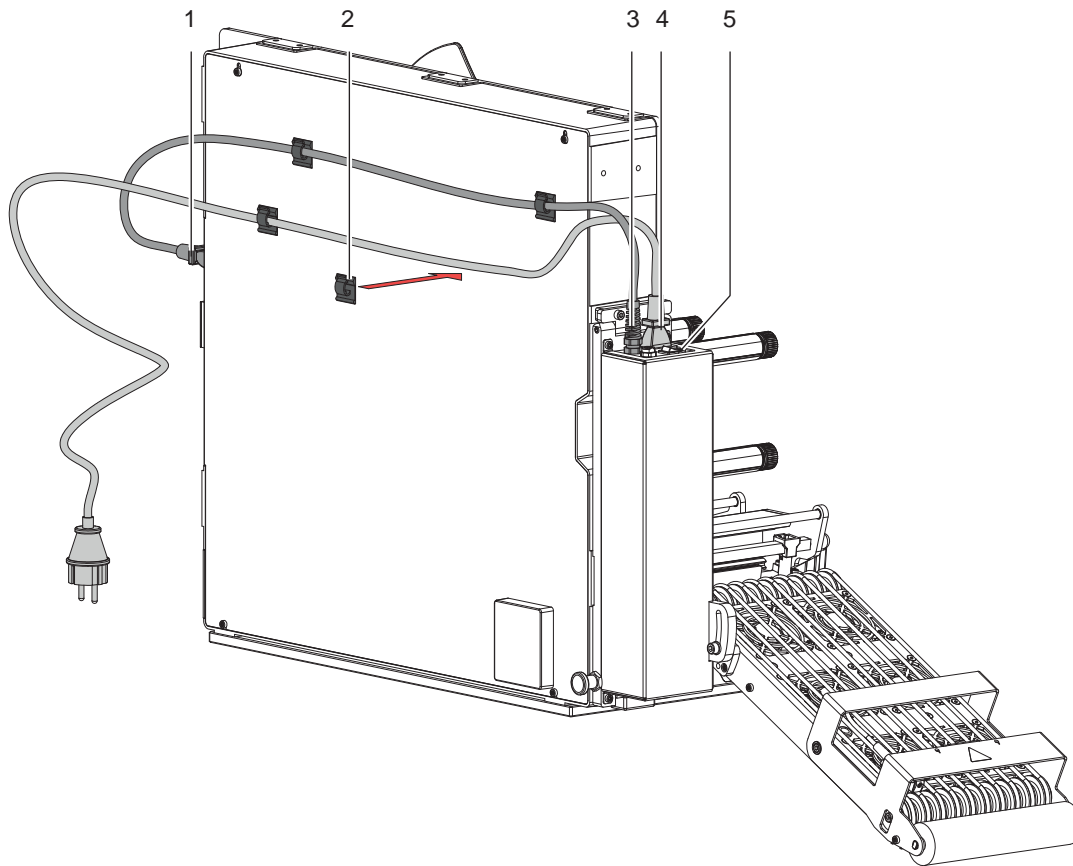
3.3 Power Supply of the Device

Fig. 5   Power supply of the printer and the applicator

Attention!
When the power cable is connected the entire current flows through the power supply of the printer. The power switch of the applicator only affects the powers supply of the applicator.

1. Plug the power cable (4), as part of the contents of delivery, into the plug point of the applicator.
2. Disconnect the plug (1) of cable (3) of the applicator and plug it into the plug point of the printer.
3. Switch on the applicator via the switch (5).
4. Power up the printer.

Note!
If only the printer is powered and not the applicator, the error message: `Compressed air error` **will be displayed.**

5. To better organize the cables use the self adhering cable clamps (2). These clamps may be freely placed to best suit the needed support for the cables.
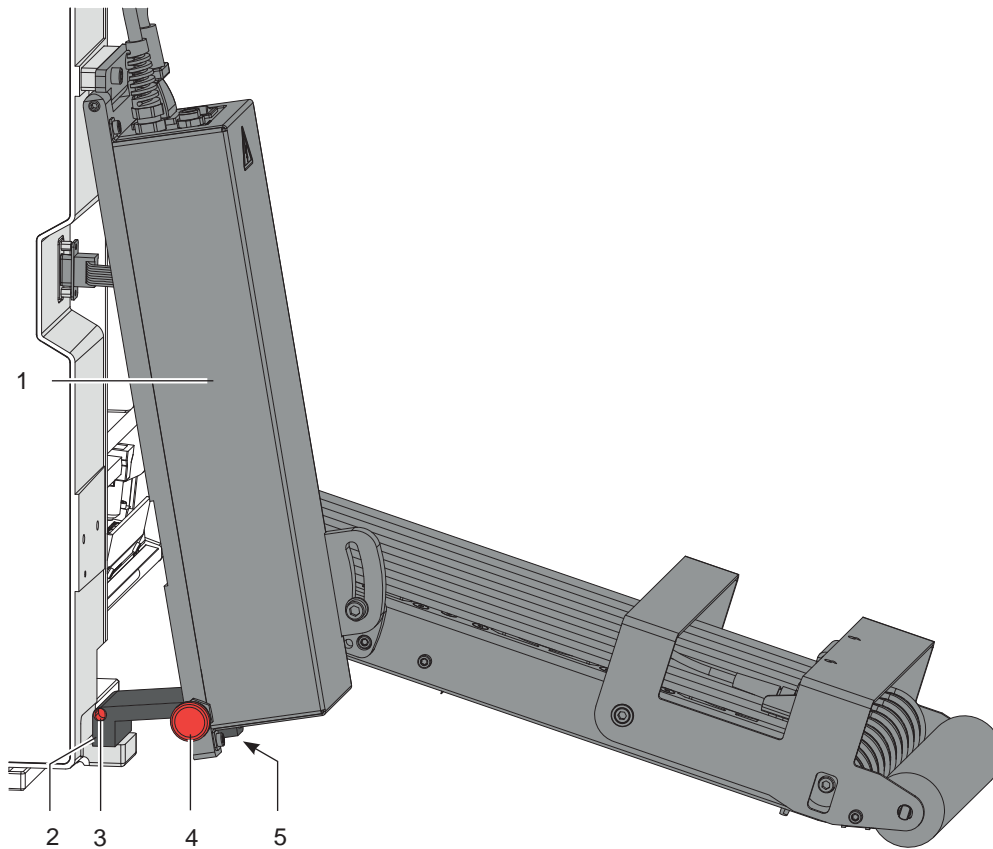
3.4   Pivoting the Applicator

Fig. 6   Pivoting the applicator

> **⚠ Attention!**
> **Danger of injury to hands and fingers by the applicator!**
> **When releasing the snap lock keeping the applicator in place, it will drop due to its own weight.**

1. To dismount the applicator (1), for cleaning or inserting material, pull the locking bolts (4) outward.
2. With pulled out locking bots (4) lift the applicator (1) until the bolts can snap into the provided holes (5) of the mounting plate (3).
3. To remount the applicator pull the locking bolts (4) outward again and push the applicator toward the printer until the bolts (4) can securely lock into the provided holes (2) on the mounting plate (3).

4 **Error Messages**

4.1 Error Messages of the Printer

For detailed information about printer errors (e.g. 'Paper out', 'Ribbon out', etc.) ▷ Operator's manual of the printer

Error treatment:

▶ Clear the error results.

▶ Press the **feed** key to synchronize the label feed and remove the peeled labels manually.

▶ Press the **pause** key to quit the error state.

After error correction, the label causing the error will be reprinted.

4.2 Error Messages of the Applicator

The following table contains an overview of error messages and their possible causes. It also suggests methods to resolve the problem:

Error Message	Possible Cause
`Vac. plate empty`	Label is removed from the waiting position on the pressure roll before the signal START is coming in.
`Upper position`	Label has not reached the area of the reflex sensor after 5 sec or was not detected.

Table 2   Error messages of the applicator

Error treatment:

▶ Clear the error results

▶ Press the **pause** key to quit the error state.

ℹ **Note!**

In fault check adjustments and settings with help of the Service Manual.

▶ After error correction, the print of the label causing the error cannot be repeated without re-start the print job. Except at the error `"Vac. plate empty"`. In this case, the last label will be printed again after the error state has been quit with the **pause** key and by then pressing the Enter button ↵ .

▶ In the application mode "Apply/Print" send the signal "Print first label" or press the button ↵ to send a printed label to the reflex sensor position on the applicator.

5.1   Factory Default Settings

ℹ **Note!**
The applicators are set to default configurations by factory standards. These values guarantee a seamless operation within the parameters.

ℹ **Note!**
If the customer requires a custom setup the parameters will be pre installed. These values may deviate from the factory default parameters. The values are listed in the setup protocol and delivered with the printer applicator system.

The default factory values are:
- Connected to a cab Hermes C printer, vertical
- Default material used for the setup: cab part No.: 5556480 100x150

5.2   Tools

• Crosstip screwdriver (Phillips)	2		to adjust the sensor
• Hexagon key L-wrench	2.5		for matched norm parts (in delivery state of the applicator)
	3		to set the angle of the applicator
	5		to adjust the pressure roller
• Flat-round noise	straight		
	angled		

Table 3   Tools

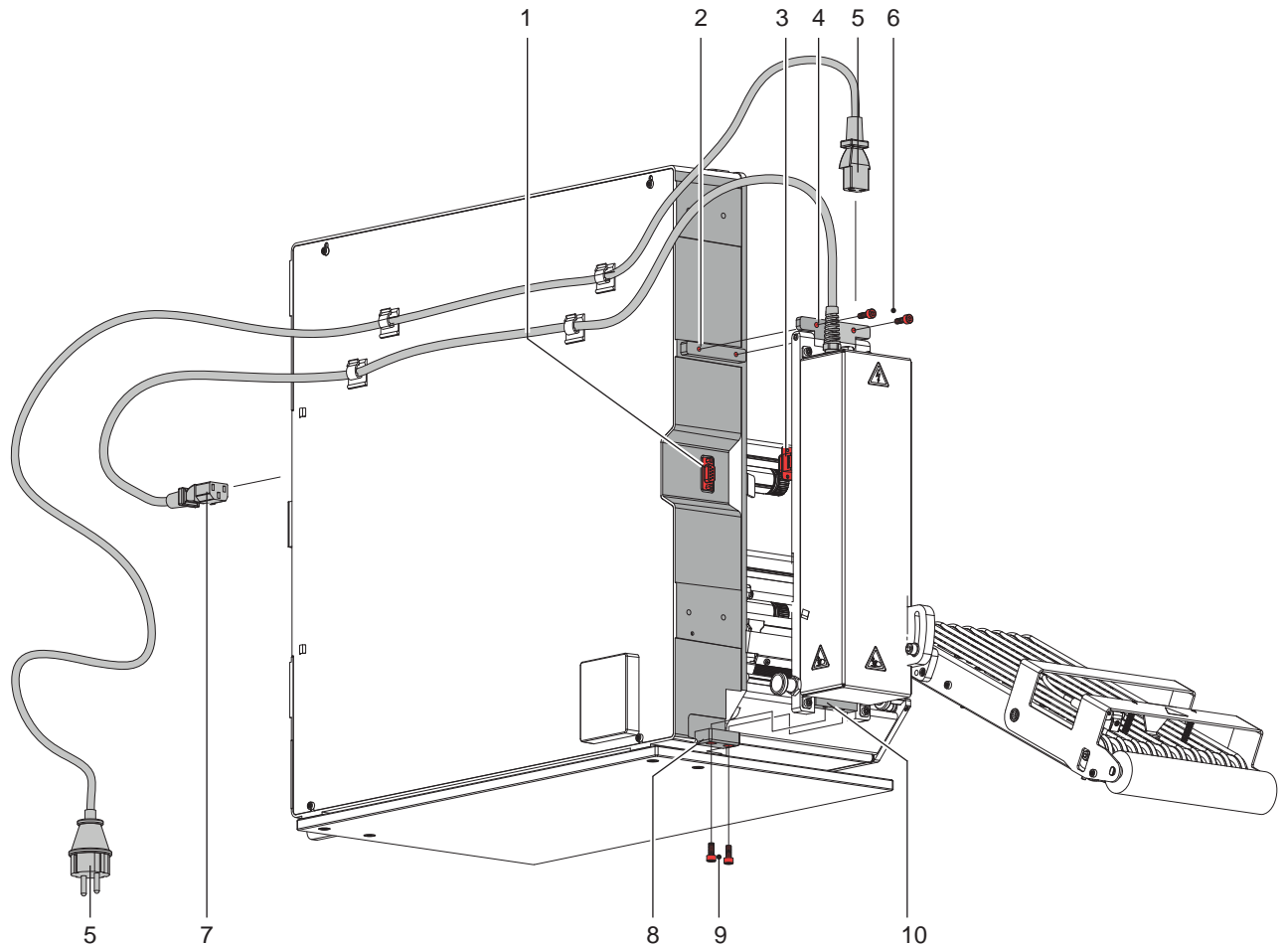## 5.3   Mounting and Dismounting the Applicator

Fig. 7   Mounting and dismounting the applicator

> **⚠ Attention!**
> **Initiation, adjustments and changing of parts is to be performed by qualified service personnel only.**
> ▷ **Service Manual Applicator.**

> **⚠ Attention!**
> ► **Disconnect the printer from the power supply before mounting the applicator!**
> ► **Ensure the printer is standing securely in a stable position!**

To clean the applicator and printer it is sometimes necessary to pivot away or even dismount the applicator entirely from the printer.
Do not adjust the setting screws, throttle valves or other alignment elements as this will enable use of the applicator directly after cleaning.

Dismounting the Applicator

1. Pull the power cable (7) out of the printer and power cable (5) out of the applicator.
2. Undo the screws (9) from the retainer (10).
3. Hold the applicator firmly and loosen screws (6).
4. Move the applicator forward and pull the SUB-D connector (3) out of the socket (1) of the printer.
5. Detach the applicator by lifting it away.

Remounting the Applicator

6. Lift the applicator onto the printer and connect the SUB-D connector (3) to the socket (1).
7. Place the applicator onto the retainer (8). Push the applicator onto the printer so that the upper holes (4) of the hinge plate are congruent to the holes (2) of the printer.
8. Insert and fasten screws (6).
9. Insert and fasten screws (9).
10. Connect power cables (5 and 7).

5.4   External Start Sensor

The start signal to apply the label can originate from an external sensor connected to the 3 pole connector (1) connected directly to the applicator.
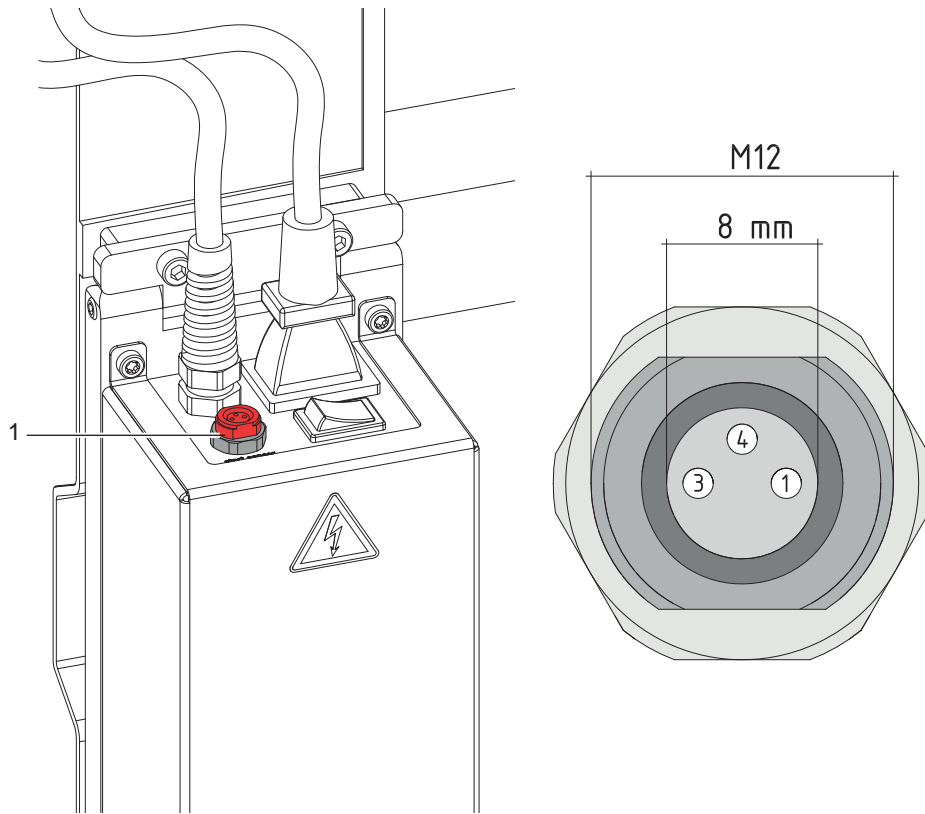

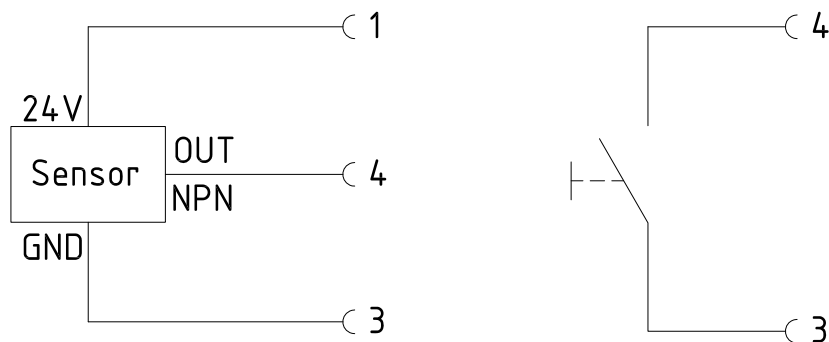Fig. 8   Start signal connector on the applicator

Fig. 9   Examples of connections of start sensors

The start of the printing job - print first label is still initiated over the I/O interface of the printer. Circuitry and programming of the connections is to be set as illustrated ▷ „6.3 Signals"

> ℹ️ **Note!**
> **The position of the applicator to the printer is predetermined by the factory and should not be altered to guarantee a reliable label take-over. Only change the angle of the applicator and the pressure of the pinch roller.**
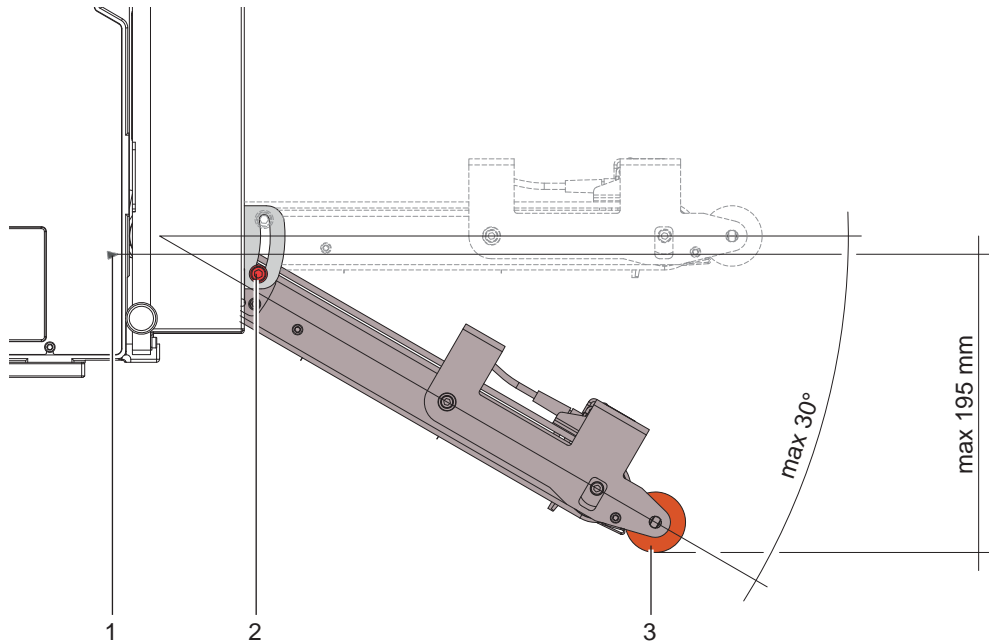
6.1 Adjusting the Angle to the Printer

Fig. 10   Angle of the applicator to the printer

> ⚠️ **Warning!**
> **If you loosen screw (1) the device will drop onto its own weight! Potential risk of injury!**

▶ Loosen screw (2) to set the angle, and depth, of the applicator to the printer.

▶ Set the angle to the product and fasten the screw (2). The distance between pinch roller (3) to the dispense plate (1) of the printer can be 195 mm maximum.

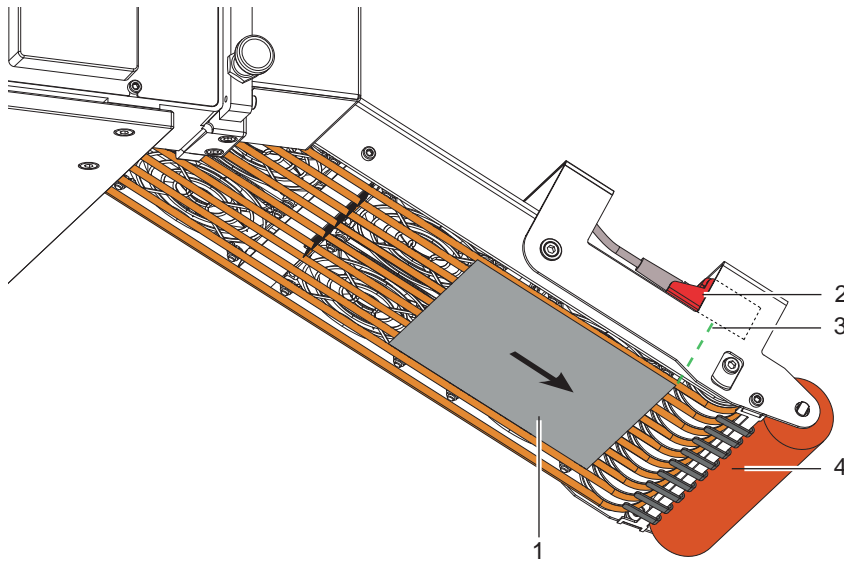## 6.2   Settings in the Configuration of the Printer

Fig. 11   Label transport/reflex sensor

Waiting position of the label

The operation mode `"Blow"` must be selected in the setup. Only once this is selected is it possible to change the parameter `"Blow time"`.

After detection of the label (1) by the reflex sensor (2) it will be transported further for a set time to reach the pinch roller (4).

To change this value use the parameter:

> Blow time

A higher value causes a longer transport distance.

200 ms equates to approximately 10 mm.   ▷ „7.2 Configuration Parameters of the Applicator"

Overrun of the label

If the label (1) has left the sensor area (3) it will be transported for a defined time to apply the label via the roller. To change this overrun time use the parameter:

> Support delay on

6.3   Signals

- The signal **DREE** causes the label to be printed which is then transported to the waiting position.
- The signal **START** will transport and apply the label to the product.

  In the application mode **"Apply - Print"** the printing of the next label starts directly after application of the previous label.
  In the application mode **"Print - Apply"** the signal DREE must be sent for the print of each label.

Pin	Signal	Name	Description		Activation/active status
			without applicator	**with applicator**	
1	⟿	DREE	-	print first label in mode "Apply-Print"	Switch on +24V between Pin 1 and Pin 25
13	⟿	START	Print start signal Precondition: The superior control has confirmed with the ETE signal that the previous label has been taken from the peel-off position.	Start of printing and labeling	+24V between Pin 13 and Pin 25

Table 4   A section of the ▷   interface description of the label printer Hermes C

7   Configuration

7.1   Quick Mode for Setting the Delay Times

It is possible to set the transport speed of the label in four steps.

By switching the parameter to `Support del. off.`

Beside the standard method for the printer configuration there is a quick mode to adjust the delay times available.

i **Note!**
The quick mode settings can be made during operation . The changes directly affect the current print job.

1. Press the **menu** key for at least 2 seconds.
   The first delay time appears on the display.
2. Adjust the delay time by pressing the ⏶ key and ⏷ key.
3. To switch between the different delay times press the ▶ key.
4. To leave the quick setup mode press the ◀ key.
   The selected delay times are stored by the printer.

7.2   Configuration Parameters of the Applicator

The configuration parameters of the applicator can be found in the menu `Setup > Machine param.`

i **Note!**
The speed of the belt and the label transport is set by the parameter `Support del. off`**.**
The value is displayed in ms and not the actual value used mm/s.

i **Note!**
It is necessary to set the values of the table precisely. Deviation from the listed values will cause the default value of 100 to be used.

Parameter	Meaning	Default
⌀→0 `> Support del.` ≋ `off`	Parameter to set the speed of the belts. Four steps are available. 100 ms: 100 mm/s speed of the transport belt 150 ms: 150 mm/s speed of the transport belt 220 ms: 220 mm/s speed of the transport belt 300 ms: 300 mm/s speed of the transport belt 500 ms: 500 mm/s speed of the transport belt	`100 ms`

Table 5   Applicator parameters

7.3   Setting the Peel Position

To optimize the transfer of the labels from the printer to the applicator there are two different parameters available for adjusting the peel position.

> **!**   **Attention!**
>
> ▶   **First adjust the parameter "Peel Position" in the printer configuration.**
>
> ▶   **Then adjust the additional peel-off offset in the software.**
>
> **It is very important to follow this procedure for a seamless start after loading material and dealing with the treatment of error.**

Parameter "Peel Position" in the printer configuration

▶   Check the basic setting in the printer setup. Perform labeling cycles by alternating between the **feed** key and the enter ↵ /pre-dispense key ▷„8.1 Test Mode without a Print Job"

▶   Adjust the "Peel Position" in such a way, that the blank labels are peeled-off the liner completely. ▷ „7.2 Configuration Parameters of the Applicator"

Peel-off offset in the software

▶   Check the setting in the software. Perform labeling cycles by repeatedly pressing the the pre-dispense key
    ▷ 8.3 Setting the Peel Position

▶   Adjust the peel-off offset in such a way, that the printed labels are peeled off the liner completely.
    ▷ Programming manual or software documentation.

7.4   Activating the Peel-off Mode

> **i**   **Note!**
>
> ▶   **For labeling operations activate the peel-off mode in the software.**
>
> **For direct programming use the P command ▷ Programming manual.**

8.1 Test Mode without a Print Job

> ⚠️ **Warning!**
> **During operation movable parts are easily accessible. Particularly the transportation belts and fans pose a threat!**
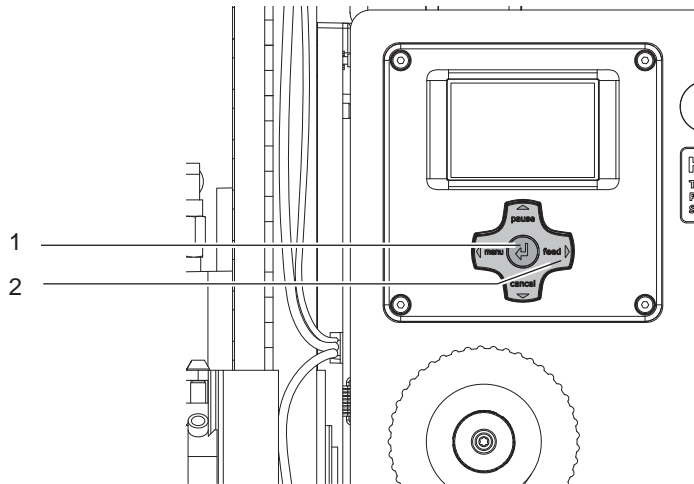> ▶ **Do not reach into these areas and keep things like long hair, loose clothes and jewelery away.**

Fig. 12   Test mode via enter key ↵

> ℹ️ **Note!**
> ▶ **Please use the test mode to adjust the parameter "Peel position" in the printer configuration.**

The whole labeling process can be simulated without the need of a print job or a connection to a computer by alternately pressing the **feed** (2) key and the Enter key ↵ (1):

▶ Press the **feed** key (2).
A blank label is fed. The vacuum from the fans as well as the supporting air (blow tube) are switched on. After detection of the label by the reflex sensor, the supporting air is switched off.

▶ Press the Enter key ↵ (1).
The label will be moved to the labeling position.

8.2 Test Mode with Print Job

> ℹ️ **Note!**
> ▶ **Please use that test mode to adjust the peel-off offset in the software.**

The following method allows the testing of the labeling process with the real print data using the Enter key ↵ (1).

▶ Send a print job.

The test mode is executed in two half cycles:

▶ Press the Enter key ↵ (1).
Half cycle 1
A label is printed. The vacuum from the fans as well as the supporting air (blow tube) are switched on. After the label has been picked up by the applicator, the supporting air is switched off.

▶ Press the Enter key ↵ (1) again.
Half cycle 2
The label is moved to the labeling position.

If the label is manually removed after the first half cycle, the half cycle 1 will be repeated when the pre-dispense key is pressed again.

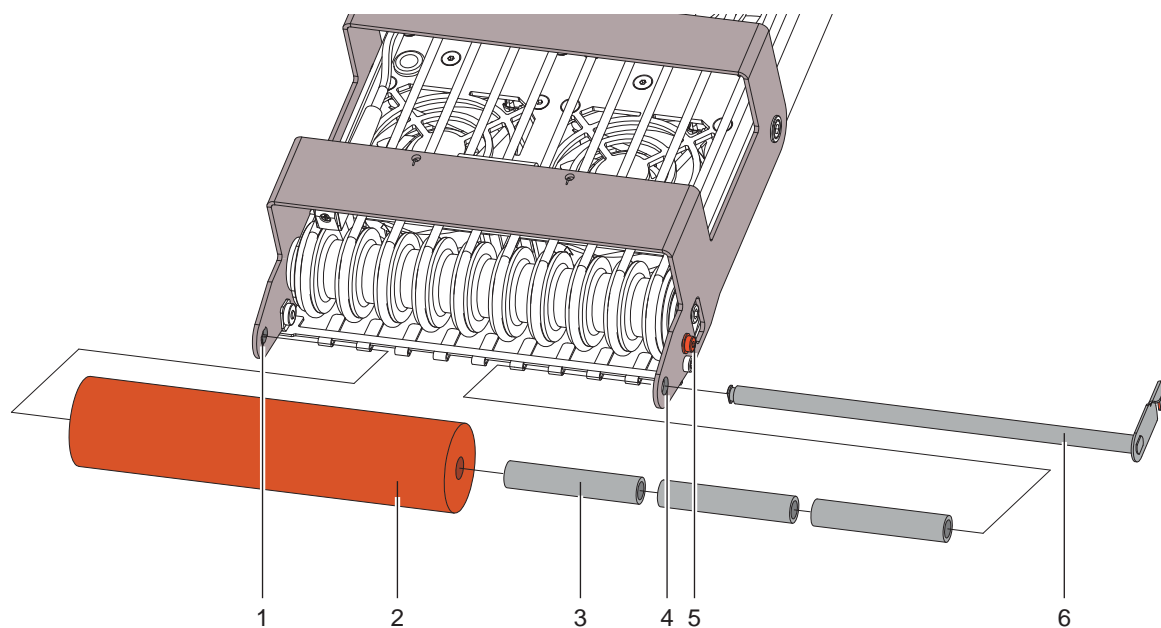## 9.1   Exchanging the Pinch Roller

Fig. 13   Exchanging the pinch roller

1. Loosen screws (5).
2. Turn the axle (6) so that the look (1) is free and pull out the axle shaft (6).
3. Take out the pinch roller (2) with tubes (3) out of the frame (4).
4. Remove the tubes (3) from the pinch roller (2) and place them into the new pinch roller.
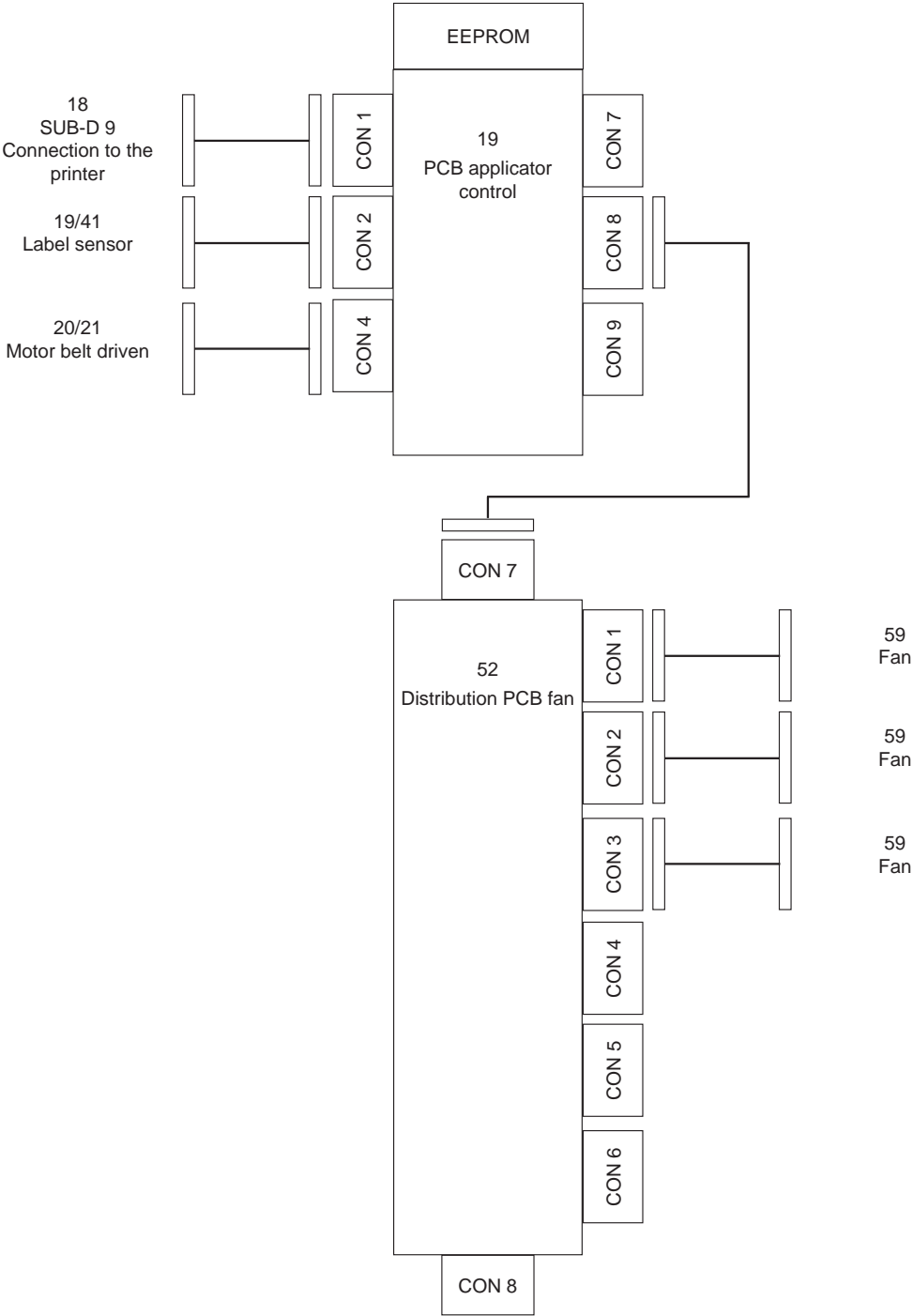5. Reassemble the pinch roller in the reverse order to disassembling it.

Fig. 14   Block diagram

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