# **Service Manual**





Vacuum-Belt Applicator

# 5314 / 5316

Made in Germany

# Service Manual for the following products

Family	Туре
Vacuum-Belt Applicator	5314 L-3
	5314 R-3
	5316 L-3
	5316 R-3

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1	Introduction
1.1	Instructions
	Important information and instructions in this documentation are designated as follows:
4	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.
1	Notice! Gives you tips. They make a working sequence easier or draw attention to important working processes.
E.S.	Environment!
	Gives you tips on protecting the environment.
	Handling instruction
$\triangleright$	Reference to section, position, illustration number or document.
*	Option (accessories, peripheral equipment, special fittings).
<b>m</b> !	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+ series is intended exclusively for applying 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 complete documentation can currently be found in the Internet.

## 1.3 Safety Instruction

#### Attention!

Initiation, adjustments and changing of parts is for qualified service personal only.



#### 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.

- 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.

#### 1 Introduction

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 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.

#### 1.4 Safety Marking



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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.

# 6 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 5314	Vacuum-Belt Applicator 5316
Label width	Hermes+4 mm	20 - 114	-
	Hermes+6 mm	_	50 – 174
Label height	mm	70 –	320
Product during labeling	in motion		
Labeling onto the product	from the top		•
	from below		1
	sideways		
Product height	fix		•
Speed vacuum belt	mm/s	100 / 150 /	/ 220 / 300
Length vacuum belt	mm	39	90
Cycle time about <sup>1)</sup>	frequency/min.	3	0

1) Label height 100 mm, print speed 100 mm/s

Table 1 Technical Data

## 2 Product Description

## 2.3 Device Overview



#### Fig.2 Overview

- 1 SUB-D 15 Interface to the printer
- 2 EEPROM
- 3 Interface sensor on board PCB control
- 4 Sensor
- 5 Pressure roller
- 6 Setting screw roller pressure
- 7 Setting screw stopper roller
- 8 Fan

- 9 Connector to SUB-D 15 Interface to the printer
- 10 Connectors to the fans
- 11 Motor belts
- 12 Connector motor belts
- 13 Base plate for mounting on printer
- 14 Screws to adjust the angle of the applicator
- 15 Screws to adjust the applicator direction

8 2 Product Description

## 2.4 Contents of Delivery



Fig.3 Contents of delivery

- 1 Applicator mounted
- 2 Screws to mount on the printer
- 3 Documentation

Notice!

Please keep the original packaging in case the applicator must be returned.

## Y

A

Attention!

The device and printing materials will be damaged by moisture and wetness.

Set up label printer with applicator only in dry locations protected from splash water.

### 3 Operation

## 3.1 Standard Operation

- Check all external connections.
- ▶ Load the material. ▷ "Operator's Manual" of the printer.
- Switch on the printer.
- Press the feed key at the printer. A synchronization feed is released. The processed labels have 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.

#### Notice!

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This synchronizing also has to be carried out when the print job has been interrupted with the cancel key. Synchronizing is not necessary when the print head was not lifted between print jobs. This also applies if the printer was powered off between print jobs.

Start a print job

Start the labelling process via PLC interface.

Error messages during labelling process are shown in the display of the printer  $\triangleright$  4 Error Messages.

## 3.2 Cleaning



#### Attention!

Never use solvent and abrasive.



- Clean the outside surfaces and transport belts with multi purpose cleaner. area 1
   Clean the fan area with a soft bruch or (and a vacuum)
- Clean the fan area with a soft brush or/and a vacuum cleaner. area 2
- Use glass cleaner to clean the reflex sensor. area 3

#### 10 4 Error Messages

#### 4.1 Error Messages of the Printer

For detailed information about printer errors (e.g. 'Paper out', 'Ribbon out', etc.)  $\triangleright$  Operator's manual of the printer Error treatment :

- Clear the error results
- Press the feed key to synchronize the label feed, remove the peeled labels manually
- Press the **pause** key to quit the error state.

After error correction, the print of the label causing the error will be repeated.

#### 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.

#### Notice!

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 of the print job. Except at the error "Vac. plate empty". In this case, the latest label will print again after quit the error with the **pause** key and then press the Enter button  $\leftarrow$  .

► 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 Licences

#### 5.1 **Declaration of Incorporation**



cab Produkttechnik GmbH & Co KG Wilhelm-Schickard-Str. 14 D-76131 Karlsruhe Germany

### **Declaration of Incorporation**

We declare herewith that the following "partly completed machinery" as a result of design, construction and the version put in circulation complies with the essential requirements of the Directive 2006/42/EC on machinery :

Annex I, Article 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.2.1, 1.3.2, 1.5.2, 1.5.8, 1.6.3, 1.7

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.

Device:	Vacuum-Belt Applicator
Туре:	5314 / 5316
Applied EU Regulations:	Applied Standards:
Directive 2006/42/EC on machinery	• EN ISO 12100:2010
	• EN ISO 13849-1:2008
	<ul> <li>EN 60950-1:2006</li> <li>+A11:2009+A12:2011+A1:2010+A2:2013</li> </ul>
Other Relevant Directives:	

Relevant Directives:

- 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

Person authorised to compile the technical file :	Erwin Fascher Am Unterwege 18/20 99610 Sömmerda
Signed for, and on behalf of the Manufacturer :	Sömmerda, 17.06.2015
cab Produkttechnik Sömmerda Gesellschaft für Computer-	Osecur and
und Automationsbausteine mbH	Erwin Fascher
	Managing Director

The product must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive on machinery

The documents according annex VII part B from the incomplete machinery are created and will commit to state agencies on request in electronic kinds.

#### 12 5 Licences

## 5.2 EU Declaration of Conformity



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## **EU Declaration of Conformity**

We declare herewith that the following device as a result of design, construction and the version put in circulation complies 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.

Device:	Vacuum-Belt Applicator
Туре:	5314 / 5316
Applied EU Regulations:	Applied Standards:
Directive 2014/30/EU relating to electromagnetic compatibility	• EN 55022:2010
	• EN 55024:2010
	• EN 61000-6-2:2005
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment	• EN 50581:2012
Signed for, and on behalf of the Manufacturer :	Sömmerda, 17.06.2015
cab Produkttechnik Sömmerda Gesellschaft für Computer- und Automationsbausteine mbH 99610 Sömmerda	Gleebur Contractor Erwin Fascher Managing Director

## 6 Installation

## 6.1 Standard Settings Ex Factory



The applicator is adjusted in a standard configuration by the factory. Adjustments with these values guarantee a smooth operation with same configuration.

## Notice!

In case of a customer setup with special material the adjustments can deviate from standard values. Then the values in the setup protocol are valid.

The standard values for the settings ex-factory are:

- Connecting on a cab Hermes+ printer, vertical
- Used material for ex-factory settings:

cab part No.: 5556472 54x35.5

4 6	Installation			
6.2	Tools			
	Crosstip screwdriver (Phillips)	2		to adjust the sensor
	Hexagon kay L-wrench	2.5		for matched norm parts (in delivery state of the applicator)
		3	1	to set the angle of the applicator
		5	Image: constraint of the sensor       to adjust the sensor         Image: constraint of the sensor       for matched norm parts (in delivery state of the applicator)         Image: constraint of the sensor       to set the angle of the applicator to adjust the pressure roll         Image: constraint of the sensor       to set the angle of the applicator to adjust the pressure roll	
	<ul> <li>Flat-round noise</li> </ul>	straight		
		angled		

Table 3 Tools

14

- 6 Installation
- 6.3 Mounting



Fig.5 Mounting

- 1 Lay on the printer (1) on the rear side print unit and material guiding on top.
- 2 Move the applicator (6) so in position to the printer that the holes in the mounting plate (4) are over the holes in the base of the printer (1).
- 3 Set on screws (5) and tighten it.
- 4 Connect SUB-D 15 male connector (3) to the female connector (2) of the printer.

#### **Attention!**

- **b** Disconnect the printer from the power supply before mounting the applicator !
- Ensure a stable standing of the printer !

## 16 7 Adjustments

## Notice!

The right position of the applicator to the printer is adjusted ex factory and is not to change. Adjust only the Degree of the applicator to the printer and the pressure of the pressure roll.

7.1 Adjust the angle to the printer





## Warning!

Attention if you lose the screws (1 und 2)! Device dump down.

- ▶ Lose both screws (1 and 2) to adjust the angle and so in follow the depth of the applicator to the printer.
- Adjust angle or the depth on a product and tighten screws (1 and 2).

## 7.2 Adjust the pressure roll



Fig.7 Pressure

With the setting screw (1) it is possible to change the pressure which the label apply on the product.

Adjust the pressure so that the label apply bubble-free over the full area.

Do not damage the product with to much pressure

Setting screw (2) adjust the lower position of the roll in fine adjustment.

## 7 Adjustments

## 7.3 Adjustments in the Printer Setup



Fig.8 Label transport / Reflex sensor

#### Waiting position of the label

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

After detecting the label (2) by the reflex sensor (1) it will be transported further for a defined time to reach the pressure roll (4).

To change this overrun time use the parameter

> Blow time

A higher value causes a longer transport distance.

200 ms equates to 10 mm > Setup parameters of the applicator

#### Overrun of the label

If the label (2) has left the sensor area (3) it will be transported further for a defined time to apply the label completely stressless. To change this overrun time use the parameter

## 7.4 Signals

- With the signal **DREE** will be started the print and transport to the waiting position of the label.
- With the signal **START** will be started the application of the label on the product.

In the application mode "Apply - Print" the print 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 each label.

Pin	Signal	Name	Description		Activation / Active Status
			without applicator	with applicator	
1	<b>9</b> –	DREE	-	print first label in mode "Apply-Print"	Switch on +24V between Pin 1 and Pin 25
13	œ–	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
	$\triangleright$ I	nterface desc	ription Hermes+		

Part of the interface description of the label printer Hermes+

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#### 18 8 Configuration

#### 8.1 Quick Mode for Setting the Delay Times

On the applicator it is possible to set the transport speed of the label in four steps. By the parameter  ${\tt Support \ del. \ off}$  .

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

#### Notice !

The quick mode settings can be made during operation . The changes affect directly 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  $\uparrow$  key and  $\checkmark$  key.
- 3. To switch between the different delay times press the ▶ key.

## 8.2 Configuration Parameters of the Applicator

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



The speed of the belt and the label transport is to set by the parameter  ${\tt Support\ del.\ off}$  . The value is displayed in ms and not in real used mm/s.



#### Notice!

Notice!

It is necessary to set exact the values of the table . In case of a deviation will used the standard value 100.

Parame	eter		Meaning			Default
®,→0	>	Support del.	Parameter to	o set t	he speed of the belts.	100 ms
<u> </u>	(	off	Four steps a	ire av	ailable.	
			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	

Table 5Applicator parameters

#### 8 Configuration

### 8.3 Setting the Peel Position

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

#### Attention!

1

- First adjust the parameter "Peel Position" in the printer configuration.
- Following adjust the additional peel-off offset in the software.

It is very important to follow that procedure for a certain start after label loading and for the re-start after error treatment.

#### Parameter "Peel Position" in the printer configuration

- ► Check the basic setting in the printer setup. Perform labelling cycles by alternately pressing the feed key and the pre-dispense key ▷,9.1 Test Mode without Print Job".
- Adjust the "Peel Position" in such a way, that the blank labels are peeled-off completely from the liner

#### Peel-off offset in the software

- Check the setting in the software. Perform labelling cycles by repeatedly pressing the the pre-dispense key >,9.2 Test Mode with Print Job"
- Adjust the peel-off offset in such a way, that the printed labels are peeled-off completely from the liner
  Programming manual or software documentation.

### 8.4 Activation of Peel-off Mode

#### Notice!

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► For labelling operation activate the peel-off mode in the software.
For direct programming use the P command ▷ Programming manual.

#### 20 9 Operation



9.1

## Test Mode without Print Job

### Warning!

In operation of the applicator movable parts are accessible. It is particularly in the area of belt and fans.

**b** Do not reach into the zone of the moving parts and keep long hair, loose clothes, and jewelry distant.



Test mode via Enter key Fig.9

#### Notice!

#### Please use that test mode to adjust the parameter "Peel position" in the printer configuration.

The whole labelling 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  $\downarrow$  (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 the detecting the label from reflex sensor, the supporting air is switched off.
- Press the Enter key  $\leftarrow$  (1). The label will moved to the labelling position.

#### 9.2 **Test Mode with Print Job**

#### Notice!

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#### Please use that test mode to adjust the peel-off offset in the software.

That method allows to check labelling process with the real print data using the Enter key  $\downarrow$  (1).

Send a print job.

The test mode is executed in two half cycles :

Press the Enter key  $\downarrow$  (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  $\leftarrow$  (1) again.
  - Half cycle 2

The label will moved to the labelling 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.

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#### 10 **Spare Parts**

#### Support Assembly / Transport 10.1

No.	Part-No.	Description		PU	Seria	al No.
					from	to
1	5902282.001	Screw DIN7984 M5x20		10		
2	5903041.001	Washer DIN125-A5.3		10		
3	5971488.001	Side Plate		1		
4.1	5971679.001	Support	L	1		
4.2	5971507.001	Support	R	1		
5	5903059.001	Washer DIN988-10x16x0.5		10		
6	5903054.001	Washer DIN988-10x16x1		10		
7.1	5971492.001	Profile Shaft	5314	1		
7.2	5972134.001	Profile Shaft	5316			
8.1	5971501.001	Profile Shaft Motor Side	5314	1		
8.2	5972253.001	Profile Shaft Motor Side	5316			
9	5906309.001	Circular Belt AA=330 4.0x73	37	1		
10.1	5971483.001	Axle	5314	1		
10.2	5972149.001	Axle	5316			

No.	Part-No.	Description		PU	Seria	al No.
					from	to
11.1	5971491.001	Motor Shaft		1		
11.2	5972137.001					
12	5971493.001	Adapter Plate		1		
13	5902016.001	Screw DIN7991-M4x10		10		
14.1	5971696.001	Ground Plate	5314 L	1		
14.2	5971698.001	Ground Plate	5314 R			
14.3	5972147.001	Ground Plate	5316 L	1		
14.4	5972179.001	Ground Plate	5316 R			
15	5971689.001	Flange		1		
16.1	5971682.001	Base Plate	5314 L	1		
16.2	5971692.001	Base Plate	5314 R			
16.3	5972129.001	Base Plate	5316 L	1		
16.4	5972174.001	Base Plate	5316 R			
17	5902241.001	Screw DIN7984-M4x10		10		
18	5902240.001	Screw DIN7991-M5x14		10		



#### 22 10 Spare Parts

## 10.2 Control Unit / Contact Pressure



# 10 Spare Parts

# 10.3 Fan

No.	Part-No.	Description	PU	Serial No.	
				from	to
43	5971790.001	Fan	1		
45	5902015.001	Screw DIN7991-M4x35	10		
46	5902570.001	Nut DIN982-M4	10		
47	5907065.001	Protective Grid 92x92	1		





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