

# APL 100

Operating Manual



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Information on the scope of delivery, appearance, performance, dimensions and weight reflect our knowledge at the time of printing.

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Due to the constant further development of our devices discrepancies between manual and device can occur.

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### **Trademarks**

All named brands or trademarks are registered brands or registered trademarks of their respective owners and may not be separately labelled. It must not be concluded from the missing labelling that it is not a registered brand or a registered trademark.

The pneumatic applicator complies with the following safety guidelines:

- CE** EG Low-Voltage Directive (2006/95/EC)
- EG Electromagnetic Compatibility Directive (2004/108/EG)
- EG Machinery Directive (2006/42/EG)



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# 1 Introduction

## 1.1 General Instructions

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



**DANGER** identifies an extraordinarily great and immediate danger which could lead to serious injury or even death.



**WARNING** identifies a possible danger which could lead to serious bodily injury or even death if sufficient precautions are not taken.



**WARNING** of cutting injuries.

Pay attention that cutting injuries caused by blades, cutting devices or sharp-edged parts are avoided.



**WARNING** of hand injuries.

Pay attention that hand injuries caused by closing mechanical parts of a machine/equipment are avoided.



**WARNING** of hot surfaces.

Pay attention so as not to come into contact with hot surfaces.



**CAUTION** indicates a potentially dangerous situation which could lead to moderate or light bodily injury or damage to property.



**NOTICE** gives you tips. They make a working sequence easier or draw attention to important working processes.



Gives you tips on protecting the environment.



Handling instruction



Optional accessories, special fittings

Date

Information in the display

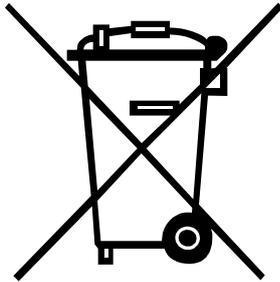
## 1.2 Intended Use

- The device is a state-of-the-art device which complies with the recognized safety-related rules and regulations. Despite this, a danger to life and limb of the user or third parties could arise and the device or other property could be damaged while operating the device.
- The device may only be used while in proper working order and for the intended purpose. Users must be safe, aware of potential dangers and must comply with the operating instructions. Faults, in particular those which affect safety, must be remedied immediately.
- The applicator mounted on a label printer of the Compa II series is intended to print suitable media which have been approved by the manufacturer. Any other or additional use is not intended. The manufacturer/supplier is not liable for damage resulting from misuse. Any misuse is at your own risk.
- Intended used includes heeding the operating manual, including the maintenance recommendations/regulations specified by the manufacturer.



### NOTICE!

The complete documentation is included in the scope of delivery on CD ROM and can also currently be found in the internet.



## 1.3 Environmentally-Friendly Disposal

Manufacturers of B2B equipments are obliged to take-back and dispose old equipment which was manufactured after 13 August 2005. In principle, these old equipments may not be delivered to communal collecting points. They may only be organised used and disposed by the manufacturer. Valentin products accordingly labelled can therefore in future be returned to Carl Valentin GmbH.

Thereupon old equipment is professionally disposed.

Thereby Carl Valentin GmbH observes all obligations in the context of old equipment disposal in time and makes therewith the smooth selling of products furthermore possible. Please understand that we can only take-back equipment that is send free of carriage charges.

Further information on the WEEE directive is available on our website [www.carl-valentin.de](http://www.carl-valentin.de).

## 2 Safety Instructions

- 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, where the pad is moved between the starting and the labelling position. During operation do not reach into that zone and keep long hair, loose clothes, and jewellery distant.  
Before any manipulations in those areas, close the shutoff valve.
- 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.
- Operate the direct print module only in an environment protected against abrasive dust, swarf and other similar impurity.

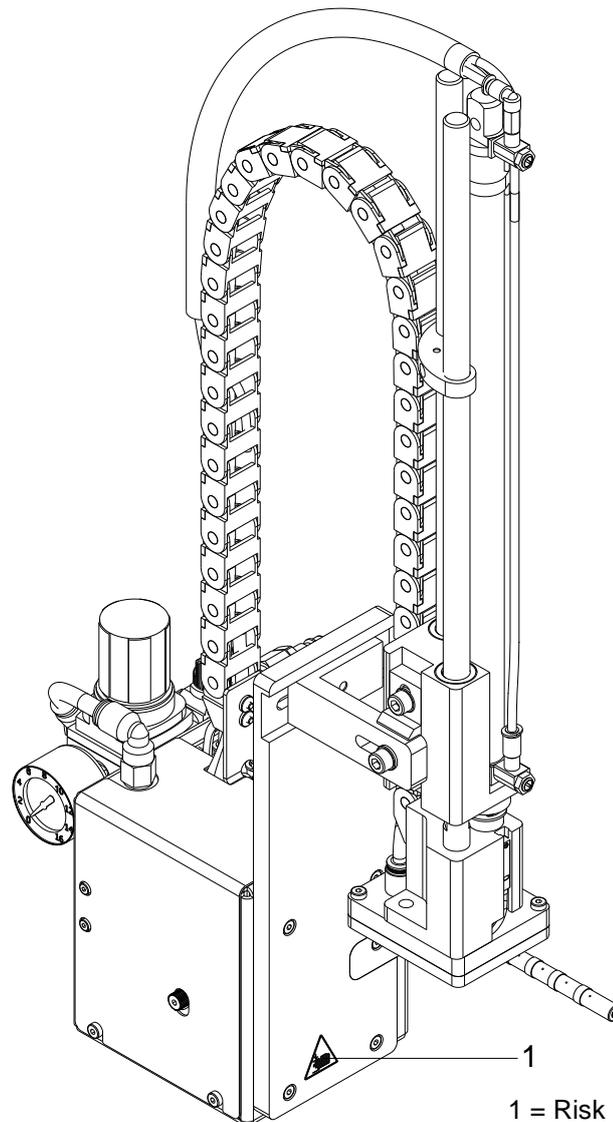


### NOTICE!

With the open printing unit (due to construction) the requirements of EN60950-1 regarding fire protection casing are not fulfilled. These must be ensured by the installation into the end device.

- Carry out only the actions described in these operating instructions. Any work beyond this may only be performed by the manufacturer or upon agreement with the manufacturer.
- 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 warning stickers on the direct print modules that draw your attention to dangers. Therefore the warning stickers are not to be removed as then you and others cannot be aware of dangers and may be injured.
- When incorporating the unit into the overall system, make sure that safety precautions are taken so that no-one is able to reach into the working area.
- The direct print module must be integrated with the Emergency Stop circuit when it is incorporated into the overall machine.
- Before starting the machine, all protective guards must be fitted.

## 2.1 Safety Marking



1 = Risk of crushing due to the movement of the pad

**Figure 1**



### **CAUTION!**

There is a risk of injury due to the movement of the pad downwards and back up again.

- ⇒ Do not reach into the working area of the pad.
- ⇒ Keep hair, loose clothing and items of jewellery out of this area.
- ⇒ When incorporating the unit into the overall system, safety precautions must be taken so that no-one is able to reach into the working area.

## 2.2 Operating Conditions

**Before initial operation and during operation** these operating conditions have to be observed to guarantee safe and interference-free service of our printers.

Therefore please carefully read these operating conditions.

Shipment and storage of our printers are **only** allowed in original packing.

Installation and initial operation of printer is only allowed if operating conditions were **fulfilled**.

Commissioning is prohibited until it can be established that, where relevant, the machine into which the partly completed machinery is to be incorporated complies with the provisions of Machinery Directive 2006/42/EC.

Initial operation, programming, operation, cleaning and service of our printers are only recommended after careful study of our manuals.

Operation of printer is only allowed by especially trained persons.



### **NOTICE!**

Perform trainings regularly.

These indications are also valid for someone else's equipment supplied by us.

Only use original spare and exchange parts.

### **Conditions for installation place**

The installation place of printer should be even, free of vibration and currents of air are to be avoided.

The printers have to be installed to ensure optimal operation and servicing.

### **Installation of power supply**

The installation of the power supply to connect our printers has to be effected according to the international rules and regulations, especially the recommendations of one of the three following commissions:

- International Electronic Commission (IEC)
- European Committee for Electro technical Standardisation (CENELEC)
- Verband Deutscher Elektrotechniker (VDE)

Our printers are constructed according to VDE and have to be connected to a grounded conductor. The power supply has to be equipped with a grounded conductor to eliminate internal interfering voltage.

**Technical data of power supply**

Power line voltage and power line frequency: See type plate

Allowable tolerance of power line voltage:  
+6% to -10% of nominal value

Allowable tolerance of power line frequency:  
+2% to -2% of nominal value

Allowable distortion factor of power line voltage:  $\leq 5\%$

**Anti-interference measures**

In case your net is infected (e.g. by using thyristor controlled machines) anti-interference measures have to be taken. You can use one of the following possibilities:

- Provide separate power supply to our printers.
- In case of problems please connect capacity-decoupled isolation transformer or similar interference suppressor in front of our printers.

**Stray radiation and immunity from disturbance**

Emitted interference according to EN 61000-6-3: 2007 industrial sector

- Interference voltage to wires according to EN 55022: 09-2003
- Interference field power according to EN 55022: 09-2003
- System perturbation according to EN 61000-3-2: 09-2006
- Flicker according to EN 61000-3-3: 1955 + A1:2001 + A2:2005

**Stray radiation and immunity from disturbance**

Immunity to interference according to EN 61000-6-2: 2005 industrial sector

- Stray radiation against discharge of static electricity according to EN 61000-4-2: 12-2001
- Electromagnetic fields according to EN 61000-4-3: 11-2003, ENV 50204: 03-1995
- Fast transient burst according to EN 61000-4-4: 07-2005
- High-frequency tension according to EN 61000-4-6: 12-2001

**NOTICE!**

This is a machine of type A. This machine can cause interferences in residential areas; in this case it can be required from operator to accomplish appropriate measures and be responsible for it.

**Machine safety**

- EN 415-2 - Safety of packaging machines
- EN 60204-1:2006 - Safety of machinery – Electrical equipment of machines – Part 1

**Connecting lines to external machines**

All connecting lines have to be guided in shielded lines. Shielding has to be connected on both sides to the corner shell.

It is not allowed to guide lines parallel to power lines. If a parallel guiding cannot be avoided a distance of at least 0.5 m has to be observed.

Temperature of lines between: -15 to +80 °C.

It is only allowed to connect devices which fulfil the request 'Safety Extra Low Voltage' (SELV). These are generally devices which are checked corresponding to EN 60950.

**Installation of data lines**

The data cables must be completely protected and provide with metal or metallised connector housings. Shielded cables and connectors are necessary, in order to avoid radiant emittance and receipt of electrical disturbances.

**Allowable lines**

Shielded line:

4 x 2 x 0,14 mm<sup>2</sup> ( 4 x 2 x AWG 26)

6 x 2 x 0,14 mm<sup>2</sup> ( 6 x 2 x AWG 26)

12 x 2 x 0,14 mm<sup>2</sup> (12 x 2 x AWG 26)

Sending and receiving lines have to be twisted in pairs.

Maximum line length:

with interface V 24 (RS-232C) - 3 m (with shielding)

with Centronics - 3 m (with shielding)

USB - 5 m

Ethernet - 100 m

**Air convection**

To avoid inadmissible heating, free air convection has to be ensured.

**Limit values**

Protection according IP: 20

Ambient temperature °C (operation): Min. +5 Max. +35

Ambient temperature °C (storage): Min. -25 Max. +60

Relative air humidity % (operation): Max. 80

Relative air humidity % (storage): Max. 80  
(bedewing of printers not allowed)

**Guarantee**

We do not take any responsibility for damage caused by:

- Ignoring our operating conditions and operating manual.
- Incorrect electric installation of environment.
- Building alterations of our printers.
- Incorrect programming and operation.
- Not performed data protection.
- Using of not original spare parts and accessories.
- Natural wear and tear.

When (re)installing or programming our printers please control the new settings by test running and test printing. Herewith you avoid faulty results, reports and evaluation.

Only specially trained staff is allowed to operate the printers.

Control the correct handling of our products and repeat training.

We do not guarantee that all features described in this manual exist in all models. Caused by our efforts to continue further development and improvement, technical data might change without notice.

By further developments or regulations of the country illustrations and examples shown in the manual can be different from the delivered model.

Please pay attention to the information about admissible print media and the notes to the printer maintenance, in order to avoid damages or premature wear.

We endeavoured to write this manual in an understandable form to give and you as much as possible information. If you have any queries or if you discover errors, please inform us to give us the possibility to correct and improve our manual.

### 3 Product Description

The applicator APL 100 is an optional device to use with label printers of the Compa or Compa II series for automatically applying the printed label onto the product. The labels are transferred with a pad, which moves between the two positions, starting position and labelling position, by a compressed-air driven pneumatic cylinder.

- In the starting position, the label is picked up from the printer.
- A sensor at the cylinder signals when the pad is in the starting position.
- The label is removed from the carrier ribbon directly at the dispense edge of the printer. It is sucked on the pad by a vacuum via drillings at the bottom of the pad.
- For support, the label is also blown against the pad (supporting air) with an air current coming from a blow tube.
- The correct transfer of the label is controlled by a vacuum sensor.
- Next, the pad is moved down into the labelling position. Reaching the labelling position is confirmed by another sensor (labelling position sensor).
- In the labelling position the label is transferred onto the product.
- While the pad is moving back into the starting position, the vacuum sensor checks whether the label has been removed from the pad.

#### Application of the label

The label can be applied with three different methods:

##### **Stamp on**

The label is pressed directly onto the product.

##### **Blow on**

The pad moves to a pre-adjusted position approximately 10 mm away from the product. The label is blown onto the product by an air stream.

##### **Roll on**

In the starting position the label is forwarded until touching the roller of the roll on pad. At the labelling position the roller is pressed onto the product. Then the label is applied and rolled on by the movement of the product.

### 3.1 Important Characteristics

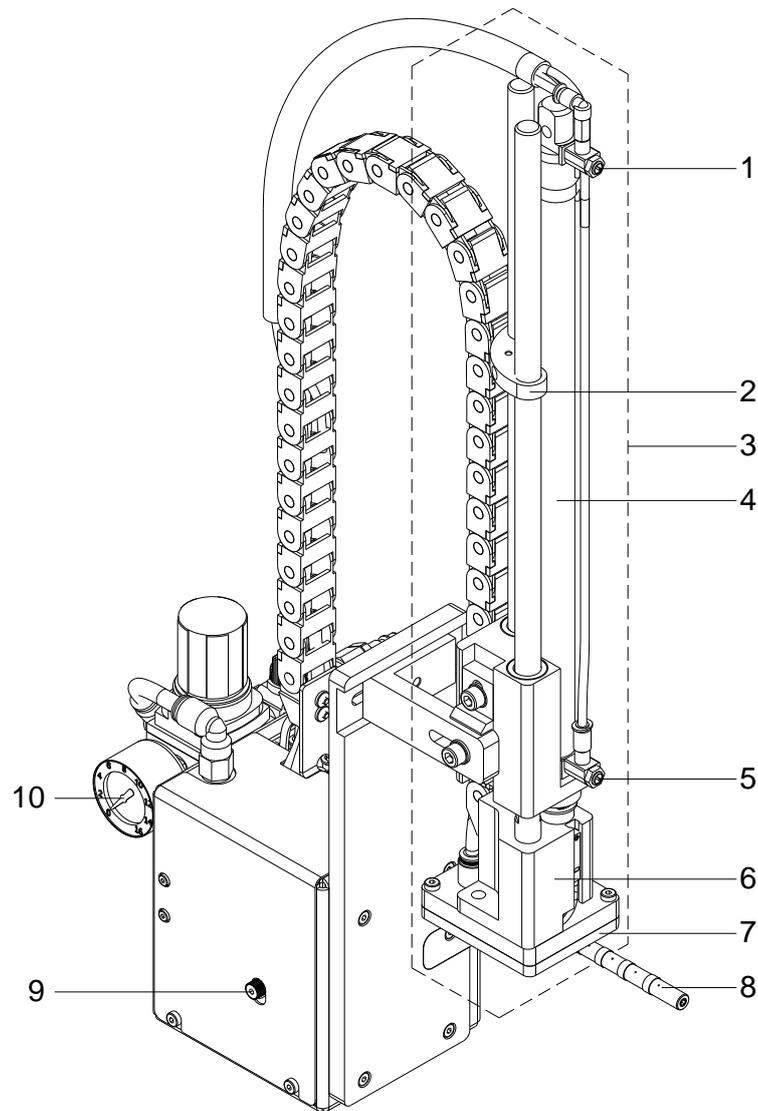
- The supporting air and the vacuum as well as the speed of the cylinder are adjustable. That way the applicator can be adapted to different label materials and sizes.
- The pressure for the cylinder movement is reduced in relation to the operating pressure of the entire labelling machine so that the danger of injury is reduced as much as possible.
- To avoid contamination within the vacuum channels they are cleaned by air pressure impulse at the end of each application.
- For integration into a superordinated process the printers are equipped with 'Dispenser I/O'.

### 3.2 Technical Data

| Label transfer method         | Stamp on | Blow on  | Roll on  |
|-------------------------------|----------|----------|----------|
| Labe width (mm)               | 25 - 176 | 25 - 176 | 25 - 176 |
| Label height (mm)             | 25 - 200 | 25 - 100 | 80 - 200 |
| Cylinder stroke (mm)          | 300      | 300      | 300      |
| Pad stroke below printer (mm) | 180      | 180      | 180      |
| Compressed air pressure       | 5 bar    | 5 bar    | 5 bar    |
| Product surface               | flat     | flat     | flat     |
| Product height variable       | ✓        | -        | ✓        |
| Product height fixed          | ✓        | ✓        | ✓        |
| Product fixed                 | ✓        | ✓        | -        |
| Product linear movement       | -        | ✓        | ✓        |

### 3.3 Device Overview

#### Front view



**Figure 2**

- 1 = Upper cylinder throttle valve
- 2 = Stopper for the operation mode 'Blow on'
- 3 = Cylinder unit
- 4 = Pneumatic cylinder
- 5 = Lower cylinder throttle valve
- 6 = Pad holder
- 7 = Pad (application specific)
- 8 = Blow tube for supporting air
- 9 = Knurled screw for attaching the applicator to the printer
- 10 = Main pressure manometer

## Rear view

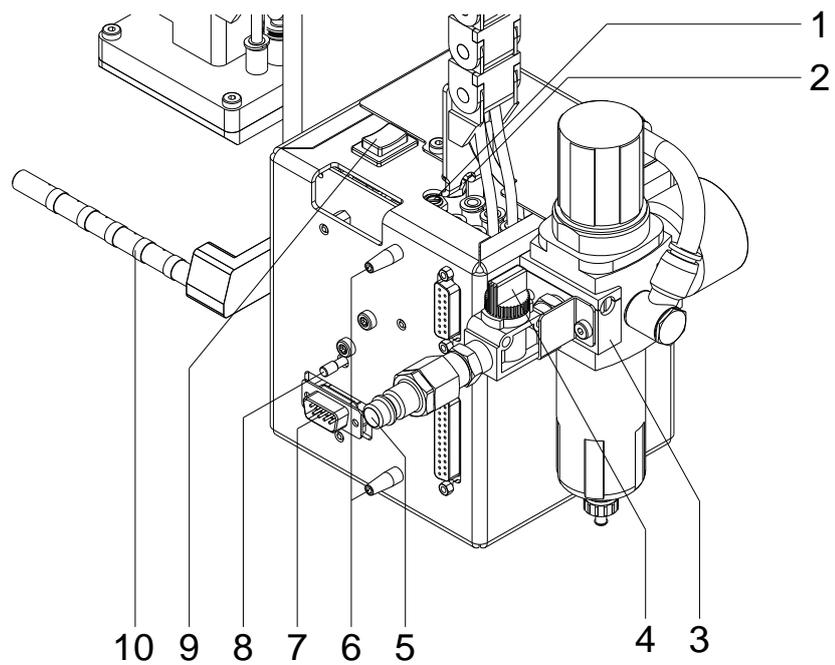


Figure 3

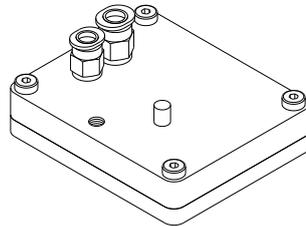
- 1 = Supporting air throttle valve
- 2 = Vacuum throttle valve
- 3 = Service unit
- 4 = Shutoff valve
- 5 = Compressed air connector
- 6 = Pins
- 7 = Interface to the printer
- 8 = Knurled screw for attaching the applicator to the printer
- 9 = Pre-dispense key
- 10 = Blow tube for supporting air

### 3.4 Pads

#### Tamp pads

Universal tamp pad

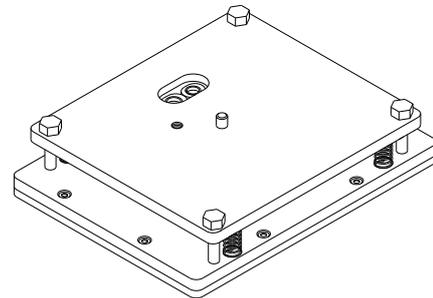
Standard sizes:  
70 x 60 mm and 90 x 90 mm



**Figure 4**

Universal tamp pad

Standard sizes:  
116 x 102 mm and 116 x 152 mm

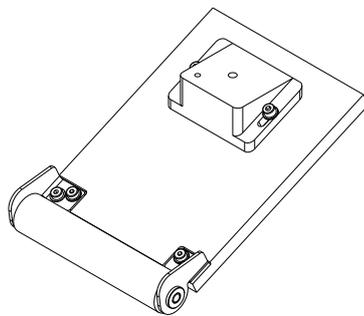


**Figure 5**

Universal tamp are available in different standard sizes. According to the size of the label the holes may be pierced by the customer. For that purpose a piercing pin is included in the delivery contents.

On request, tamp pads customized to the label sized are delivered.

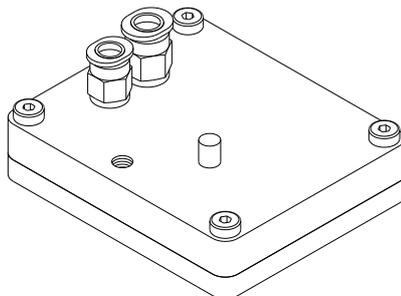
#### Roll-on pads



**Figure 6**

Roll-on pads are only produced on request customized to the label size.

#### Blow pads



**Figure 7**

Blow pads are only produced on request customized to the label size.



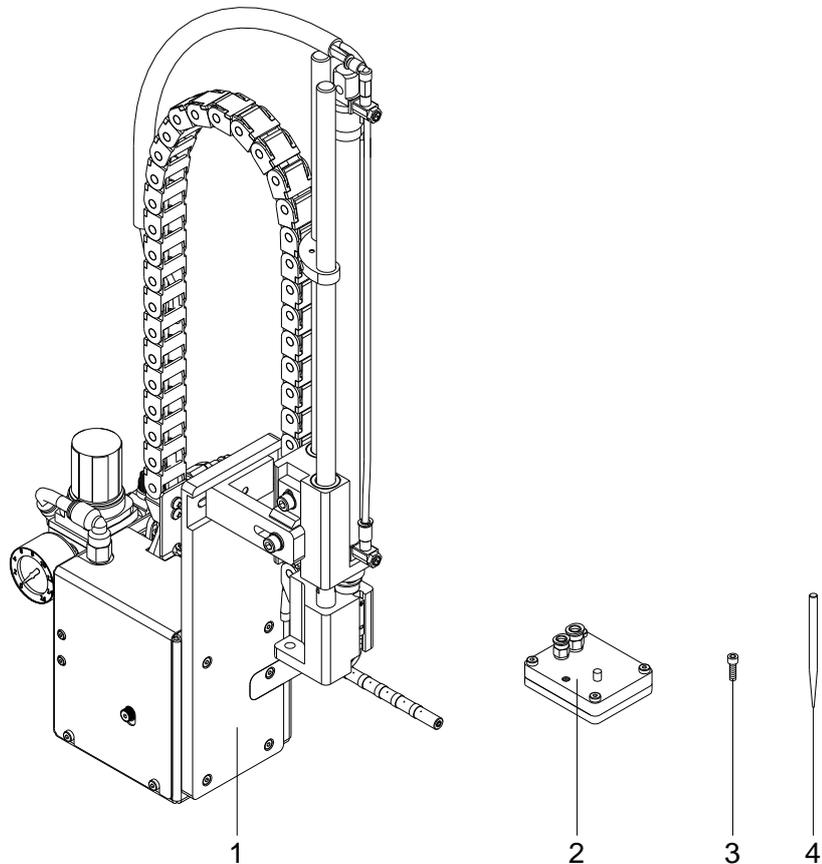
## 4 Installation

### 4.1 Scope of Delivery



#### NOTICE!

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



**Figure 8**

- 1 = Applicator with cylinder
- 2 = Pad (according to command)
- 3 = Cylinder screw (part of the pad)
- 4 = Piercing pin (at universal tamp pads only)



#### CAUTION!

The label printer and the applicator can be damaged by moisture and water.

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

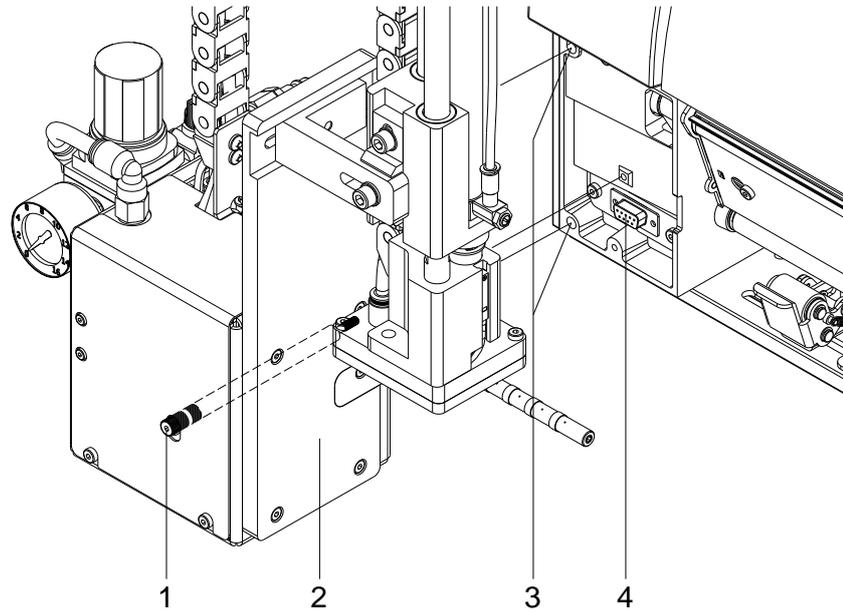
## 4.2 Mounting the Applicator to the Printer



### CAUTION!

Danger of injury by inadvertent move out of the cylinder.

- ⇒ Disconnect the printer from the power supply before mounting the applicator.
- ⇒ Connect the compressed air only after mounting the applicator to the printer.



**Figure 9**

1. Insert the pins (6, Figure 3) on the back of the applicator (2) into the holes (3) of the printer.
2. Press the applicator against the printer. That way the plug of the applicator will be connected to the peripheral port (4) of the printer.
3. Fix the applicator (2) with the screw (1).



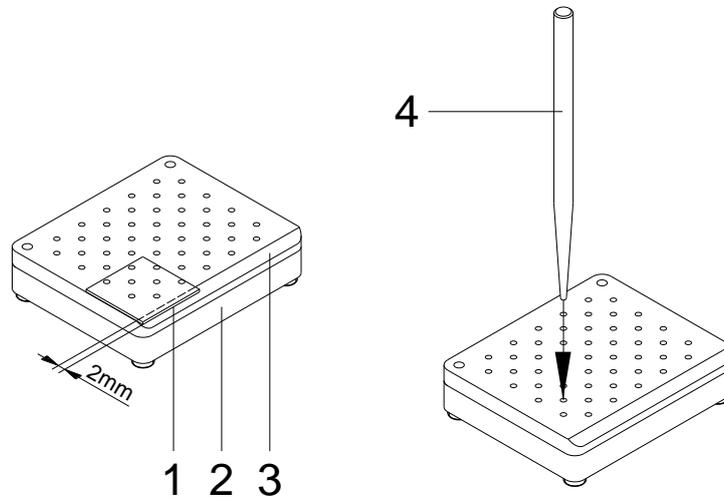
### CAUTION!

Malfunctions by inadequate operational surface space.

- ⇒ Ensure a stable standing of the printer.

### 4.3 Piercing the Universal Tamp Pad

On the bottom of the pads there are holes for sucking and holding the labels by vacuum. When an universal tamp pad is delivered these holes are covered by the sliding foil and must be opened according to the label size. For that purpose a piercing pin is included in the contents of delivery.



**Figure 10**

1. Place a label (1) to be operated on the bottom side of the pad (2). Note the position of the slanted edge (3).
2. Align the label to the side edge in such a way that it reaches over the rear edge of the pad by 2 mm.
3. Open all the holes, which are certainly covered by the label. Open the holes completely by turning the piercing pin (4) inside the holes.



#### **CAUTION!**

Malfunctions by a too weak vacuum.

⇒ Do not open holes which are located less than 1 mm from a label edge.

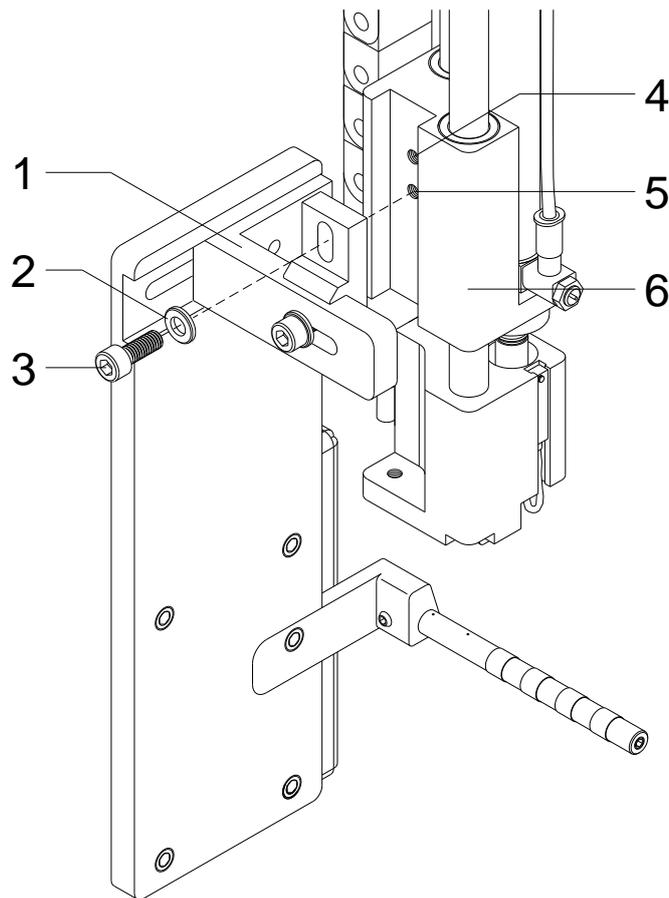
#### 4.4 Preparing for Using a Sprint-Mounted Tamp Pad

**NOTICE!**

For using a spring-mounted universal tamp pad (> 90 x 90 mm) the fitting of the cylinder unit must be changed.

The cylinder unit (6) can be mounted on the bracket (1) in two different positions.

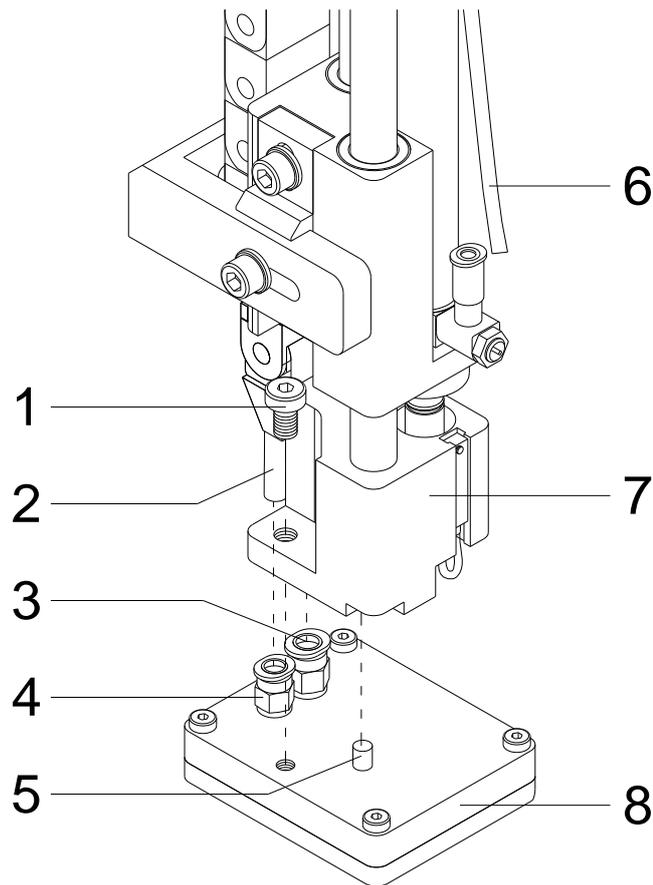
When the applicator is delivered, the cylinder unit is mounted on the bracket using the upper threaded hole (4). That position is suitable for the most pads.



**Figure 11**

1. Loosen the screw (3) and washer (2).
2. Dismount the cylinder unit (6) from the connecting bracket.
3. Fix the cylinder unit (6) with the screw (3) at the connecting bracket (1) by using the lower threaded hole (5).

## 4.5 Mounting the Pad



**Figure 12**

1. Pull the tube (6) out of the push-in-fitting.
2. Insert the pin (5) on the pad (8) into the hole on the bottom side of the pad holder (7).
3. Fix the pad (8) with the screw (1) at the pad holder (7) and make a rough adjustment of the pad to the printer dispense plate.
4. Insert the vacuum tube (2) and the blowing air tube into the appropriate push-in-fittings (3,4) of the pad.
5. Insert the tube (6) into the appropriate push-in-fitting on the cylinder.



### CAUTION!

Danger of collision of the pad with other parts of the labelling system.

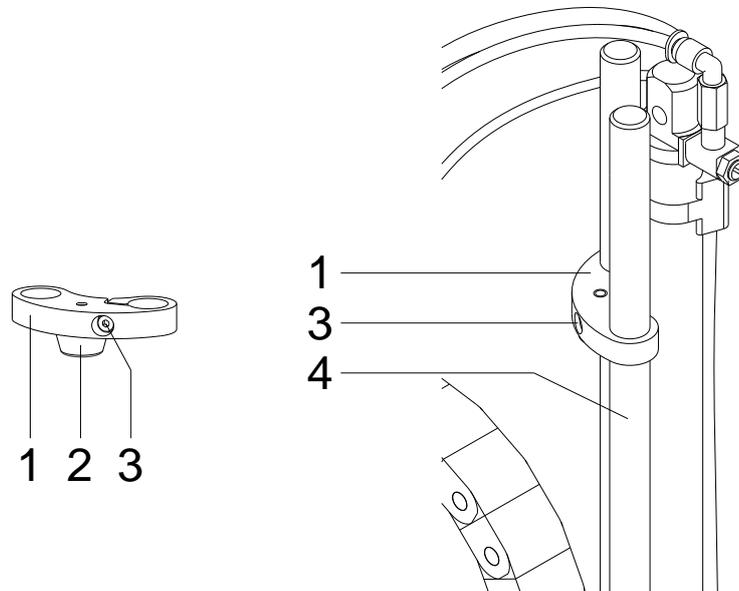
⇒ Before connecting the applicator to the compressed air supply please roughly align the pad in all directions..

## 4.6 Mounting the Stopper



### NOTICE!

In the operating modes 'Stamp on' and 'Roll on' the stopper is not needed.



**Figure 13**

When the applicator is delivered, the stopper (1) is mounted on the rods (4). With this stopper the labelling position for the operation mode 'Blow on' can be adjusted.

#### Operating mode 'Blow on'

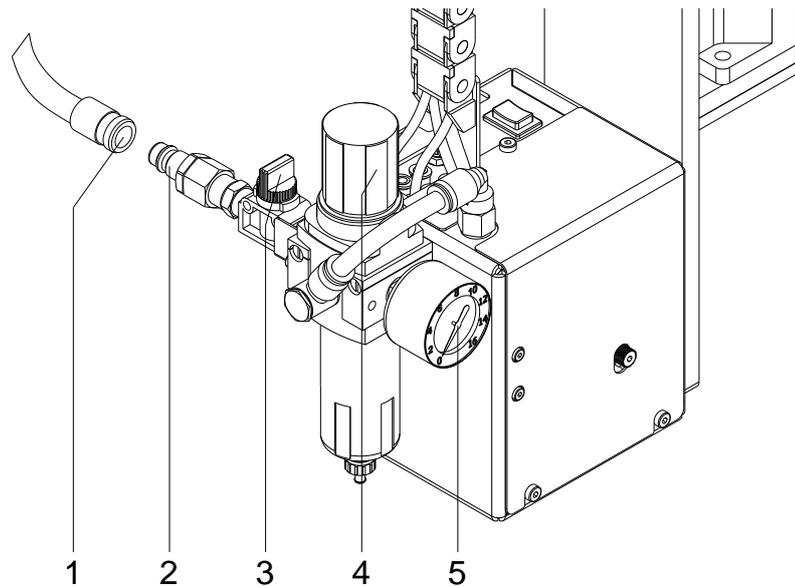
1. Slide the stopper (1) with the rubber buffer (2) down onto the rods.
2. Adjust the stopper (1) (see chapter 7.5, page 37).

#### Operating modes 'Stamp on' and 'Roll on'

In the operating modes 'Stamp on' and 'Roll on' the stopper is not needed. The stopper may not limit the pad movement.

1. Loosen the screw (3) at the stopper (1).
  2. Slide the stopper (1) as far as possible upwards and tighten the screw (3).
- or
3. Remove the stopper (1) upwards from the rods (4).

## 4.7 Connections



**Figure 14**

1. Prepare the printer connections to the power supply and to the computer (see operating manual of the label printer).
2. Close the shutoff valve (3 / lever at the valve is turned across the air flow direction).
3. Connect the applicator to the compressed air supply. The connector (2) for the compressed air supply is located at the rear of the service unit. The connector is suitable for a 1/4" coupling plug (1) or a tube with a diameter of 8 mm.
4. The air pressure for operating the applicator is pre-adjusted to 0,5 MPa (5 bar). Check the pressure at the manometer (5) of the service unit. Correct the adjustment if necessary:
  - Pull knurled knob (4) up.
  - Turn knob to tune required operating pressure of 5 bar.
  - Push knob down.
5. Open the shutoff valve (3 / lever is turned in the air flow direction).
6. Switch on the power supply of the printer.



### CAUTION!

The pad will immediately be moved in the starting position.

Danger of crushing to hand and fingers by the moving pad.

⇒ Do not reach into the zone of the moving pad.

⇒ Keep long hair, loose clothes and jewellery distant from the zone of the moving pad.

Danger of striking by the moving rods.

⇒ Do not reach or bend into the zone of the moving rods.



## 5 Configuration

The label applicator can be operated in different ways. While the original process stays the same, the operation mode can be chosen within the function menu of the connected label printer.

The most important setting is the selection between the operating modes 'Stamp on', 'Blow on' and 'Roll on'. Additionally the applicator has different application modes concerning the order of printing and applying within one labelling cycle.

|                                      | Stamp on | Roll on | Blow on |
|--------------------------------------|----------|---------|---------|
| Print-Apply                          | ✓        | ✓       | ✓       |
| Apply-Print<br>Waiting position up   | ✓        | ✓       | ✓       |
| Apply-Print<br>Waiting position down |          |         | ✓       |

### 5.1 Configuration Parameter

| Parameter         | Meaning   | Selection                             |
|-------------------|---|---------------------------------------|
| Operating mode    | Setting of operating mode<br>Default: Stamp on  | Stamp on, Blow on, Roll on            |
| Mode              | Setting of application mode<br>Default: Print-apply                                     | Print-apply<br>Apply-print            |
| Support delay On  | Setting of switch-on delay for supporting air<br>Default: 0 ms                          | 0 ... 2500 ms<br>in steps of 10 ms    |
| Support delay Off | Setting of switch-off delay for supporting air<br>Default: 500 ms                       | 0 ... 2500 ms<br>in steps of 10 ms    |
| Pressure control  | Setting of compressed-air control<br>Default: On  | On<br>Off                             |
| Vacuum control    | Setting of vacuum control<br>Default: On  | On<br>Off                             |
| Blow time         | Setting of blow time<br>Default: 100 ms   | 0 ... 2500 ms<br>in steps of in 10 ms |
| Waiting position  | Waiting position of pad with dispensed label for 'Blow on + Apply-print'<br>Default: Up | Up<br>Down                            |
| Roll on time      | Setting of roll on time<br>Default: 0 ms  | 0 ... 5000 ms<br>in steps of 10 ms    |
| Cleaning time     | Setting of cleaning time<br>Default: 100 ms   | 0 ... 2500 ms<br>in steps of 10 ms    |
| Timeout hub       | Moving up/down of pad<br>Default: 0 ms  | 0 ...5000 ms<br>in steps of 10 ms     |
| Pressure time     | Setting of pressure time<br>Default: 100 ms   | 0 ...5000 ms<br>in steps of 10 ms     |

## 5.2 Settings in printer function menu

Switch on the label printer and the display shows the main menu.

Press key  to access the function menu.

Press key  as long as you arrive the *Label applicator* menu.

Press key  to select the menu.

Press key  to change to the next mode.

### Operating modes

#### Stamp on:

The label remains in a fixed position. The label is pressed directly onto the product.

#### Blow on:

The pad moves to a pre-adjusted position approximately 10 mm away from the product. The label is blown onto the product by an air jet stream. The print and apply cycle performs in a fixed position or in linear movement of the product.

#### Roll on:

The label is dispensed and moved until touching the roller of the roll on pad. In the labelling position, this roll is pressed onto the product. Then the label is applied and rolled on by the movement of product.

Press key  to arrive the next parameter.

### Application mode

The applicator can be operated in two different ways concerning the order of printing and labelling within one labelling cycle (see chapter 6, page 32).

#### Print-Apply:

The print of a label is released by an external start signal. At the same time the vacuum on the pad as well as the supporting air from the blow tube are switched on. If the label is printed and picked up completely from tamp, the supporting air is switched off and the lift cylinder is controlled to move the pad down towards the labelling position. A sensor signals when the labelling position is reached. Following, the vacuum is switched off and the label is transferred to the product. After applying the label, the lift cylinder is so controlled that the pad is again moved back to the starting position. Now the labelling cycle is finished.

#### Apply-Print:

At the beginning of the cyclic operation 'Apply-Print' the first label is printed immediately and passed to the pad. The pad with the printed label is in starting position and the vacuum at the pad is switched on. At start of the cyclic operation when sending the start signal, the first label is already on the pad. The following process is similar to the mode 'print-apply' but at the end of the cycle the next label is printed and picked up by the pad. Now the labelling cycle is finished.

Press key  to arrive the next parameter.

### Support delay On

The supporting air from the blow tube is not immediately switched on at print start but only if the label has covered a distance.

This delay helps to prevent a turning or swinging at the front of the label and consequently avoids faults when the label is being picked up from printer.

Value range: 0 to 2500 ms

Step size: 0 ms

Default: 0 ms

Press key  to arrive the next parameter.

### Support delay Off

Delayed to the process of the label being picked up, the supporting air is switched off.

In many cases, after being picked up by the pad the label edge may still stick on the liner. This may affect the accuracy of the label positioning or even cause faults in the labelling. Therefore, switching off the air blow delayed can be useful to separate the label from liner and neatly place the label on the surface of pad.

Value range: 0 to 2500 ms

Step size: 10 ms

Default: 500 ms

Press key  to arrive the next parameter.

### Pressure control

With activated compressed air control, with help from a compressed air sensor it is checked at each labelling cycle if the compressed air fits with the valve block. If no compressed air is presented, the labelling cycle is stopped and the error message 'compressed air' is displayed.

If the parameter 'pressure control' is set to Off, the error treatment as described above will not be effected. This can be especially helpful at initiation of the labelling system.

For standard operation, set the parameter to On.

Press key  to arrive the next parameter.

### Vacuum control

The label transfer from printer to applicator is controlled by a vacuum sensor. If the transfer of label fails, the sucking holes on the pad will not be covered by the label and therefore no vacuum can originate on the pad. Afterwards an error message appears and the label strip will be fed back.

If the parameter 'vacuum control' is set to Off, the error treatment as described above will not be effected. This can be especially helpful during adjustments, because the immediate backfeed will be cancelled and therefore it is easier to check the reasons for the faulty transfer.

For standard operation, set the parameter to On.

- Press key  to arrive the next parameter.
- Blow time**
- This parameter is only active if the operating mode 'blow on' is selected. The time period can be adjusted, while the blowing air is switched on for transferring the label onto product.  
Value range: 0 to 2500 ms  
Step size: 10 ms  
Default: 100 ms
- Press key  to arrive the next parameter.
- Waiting position**
-  **NOTICE!**  
This parameter is only active if the operating mode 'blow on' and mode 'apply-print' are selected.
- Waiting position up:**  
In cyclic mode the pad with the printed label waits in the labelling position near the dispense edge of printer for the external start signal.
- Waiting position down:**  
In cyclic mode the printed label is transported to the labelling position at the end of a cycle.  
So the next cycle begin with blowing up the label.
- Press key  to arrive the next parameter.
- Roll on time**
- This parameter is only active if the operating mode 'blow on' is selected. The time period can be adjusted while the roll on pad is stopped in labelling position.  
Value range: 0 to 5000 ms  
Step size: 10 ms  
Default: 0 ms
- Press key  to arrive the next parameter.
- Cleaning time**
- This parameter is only active if the operating mode 'blow on' and 'roll on' are selected. The time period can be adjusted for the cleaning period of pad after application procedure.  
Value range: 0 to 2500 ms  
Step size: 10 ms  
Default: 100 ms
- Press key  to arrive the next parameter.
- Stroke timeout**
- Moving up and down of pad.  
If the pad does not reach the corresponding final position within the set time, then an error message appears ('final position above' at moving up and/or 'final position below' at moving down).  
Value range: 0 to 5000 ms  
Step size: 10 ms  
Default: 0 ms

Press key  to arrive the next parameter.

### Input/Output

This menu serves for the applicator setup as well as for error tracing. Input signals of the applicator can be monitored and output signals

can be set or reset separately. With keys  and  the corresponding output for setting and/or resetting the output signals

can be selected. With keys  and  the corresponding output can be set or reset.

#### Input signals

- I1 = Pre-dispense key (1 = key pressed, 0 = key not pressed)
- I2 = Final position up (1 = pad in final position up, 0 = pad not in final position up)
- I3 = Final position down (1 = pad in final position down, 0 = pad not in final position down)
- I4 = Compressed air (1 = compressed air available, 0 = no compressed air available)
- I5 = Vacuum (1 = vacuum at pad available, 0 = no vacuum at pad available)

#### Output signals

- 1 = Move pad downwards (1 = On, 0 = Off)
- 2 = Move pad upwards (1 = On, 0 = Off)
- 3 = not assigned
- 4 = not assigned
- 5 = Blowing air (1 = On, 0 = Off)
- 6 = Supporting air (1 = On, 0 = Off)
- 7 = Vacuum pad (1 = On, 0 = Off)

Press key  to arrive the next parameter.

### Pressure time

This parameter is only active if the operating mode 'stamp on' is selected. The time period can be adjusted while the pad is kept in the labelling position for applying the label onto the goods.

## 6 Signal Diagrams

### 6.1 Print - Apply

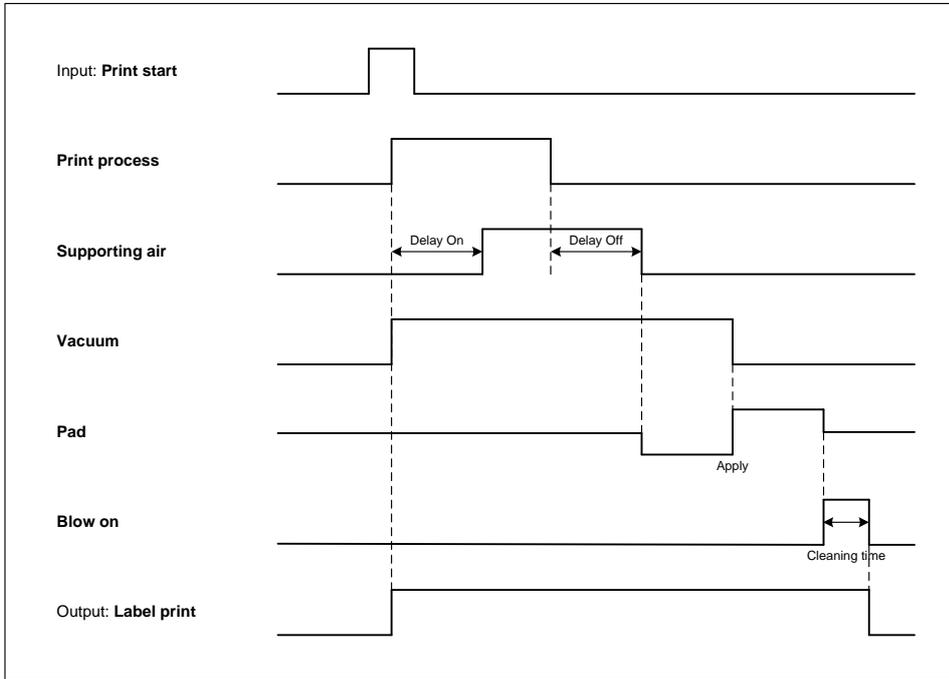


Figure 15

### 6.2 Apply - Print

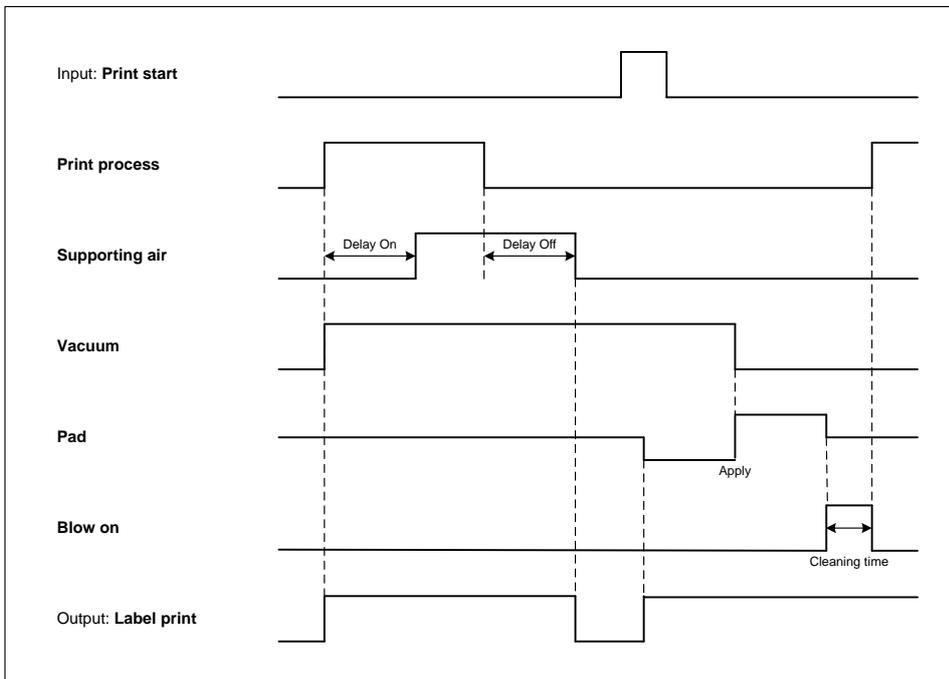


Figure 16

## 7 Mechanical Adjustments



### NOTICE!

Perform the mechanical adjustments in two steps

- ⇒ Roughly align the pad in all directions to avoid collisions of the pad with other parts when switching on the compressed air.
- ⇒ Perform the fine adjustment with compressed air switched on to optimize the labelling process.

### 7.1 Aligning the pad

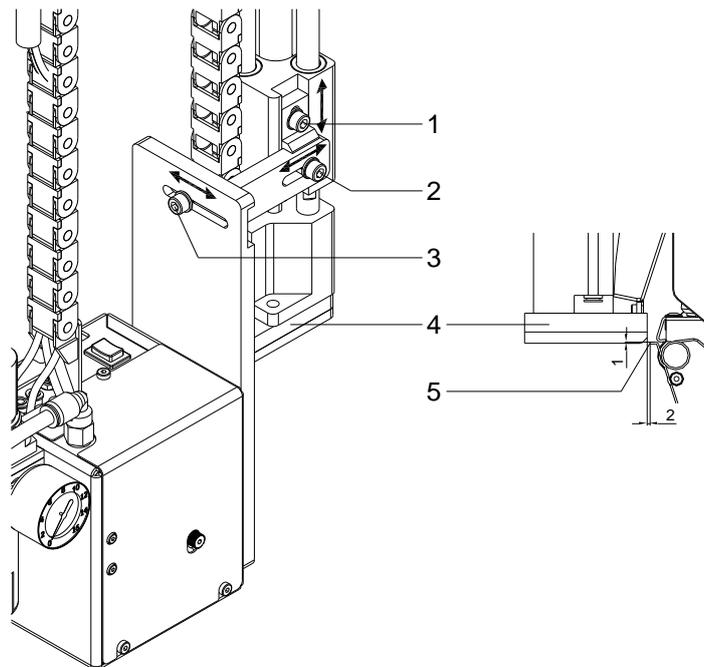


Figure 17

#### Adjustment in print direction

1. Loosen screw (3).
2. Shift the cylinder unit including the pad (4) inside the elongated hole in such a way, that the distance between the pad and the dispense edge (5) is about 2 mm.
3. Tighten screw (3).

#### Height adjustment

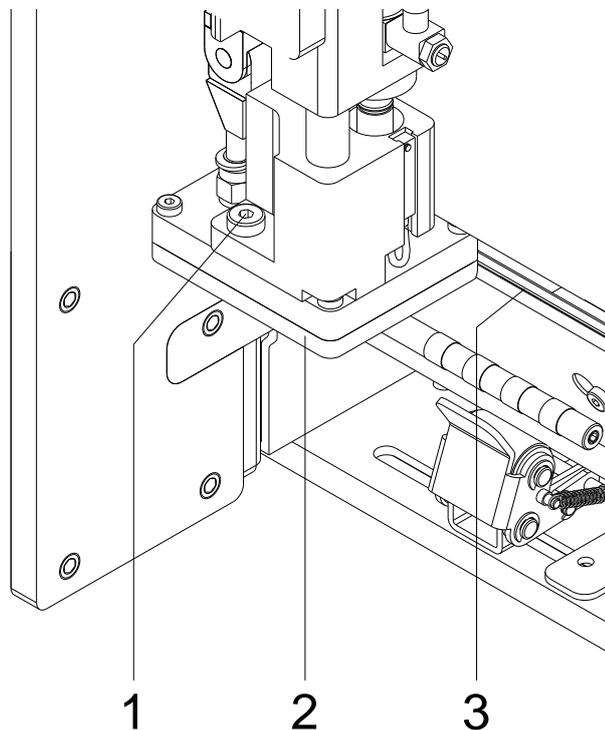
1. Loosen screw (1).
2. Shift the cylinder including the pad (4) inside the elongated hole in such a way that the lower rear edge of the pad (4) is located about 1 mm below the dispense edge (5) of the printer.
3. Tighten screw (1).

**Side adjustment**

1. Loosen screw (2).
2. Shift the cylinder unit including the pad (4) inside the elongated hole in such a way, that the dispensed label is aligned centrally to the pad respectively to the open holes in an universal pad.
3. Tighten screw (2).

**NOTICE!**

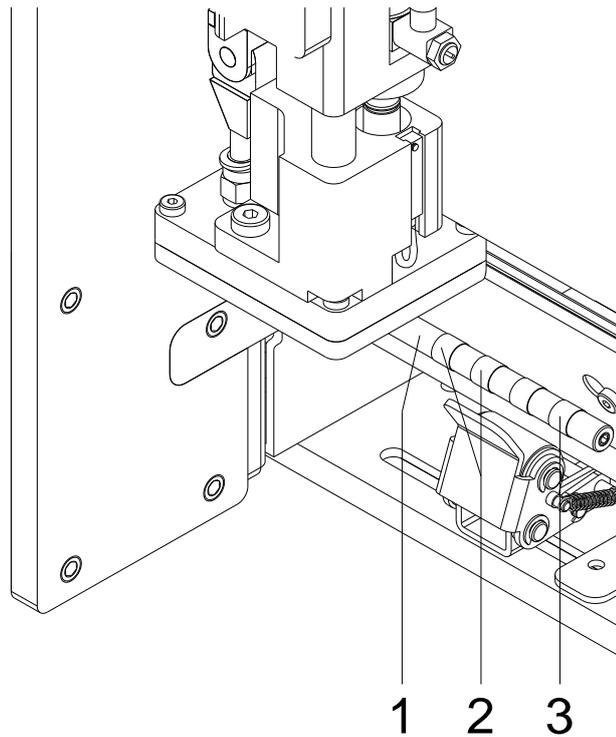
Check the adjustment with compressed air switched on.

**7.2 Adjusting the Parallelism between Pad and Dispense Edge**

**Figure 18**

1. Loosen screw (1).
2. Adjust the parallelism between the rear edge of the pad (2) and the dispense edge (3) by turning the pad.
3. Tighten screw (1).

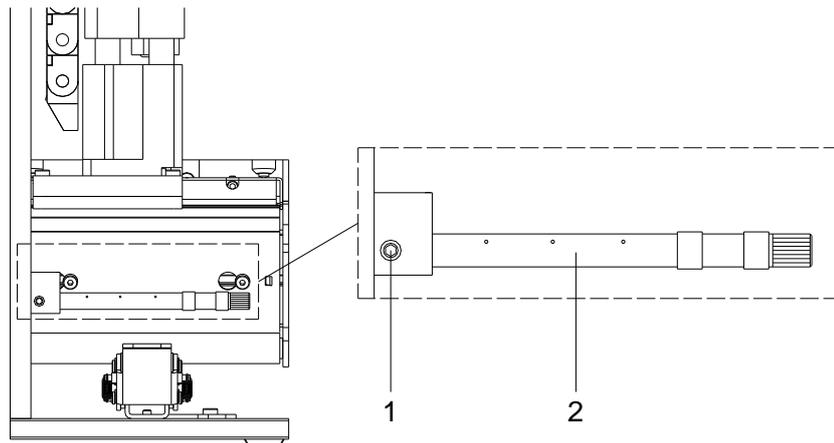
### 7.3 Opening the Holes on the Blow Tube



**Figure 19**

1. The blow tube (1) has holes for the supporting air in regular distances of 15 mm.
2. When the applicator is delivered only the two inner holes are open. The other holes are closed by plastic rings (3).
3. To adjust the supporting air to the label width, the plastic rings (2) can be removed from the holes.
4. Open all holes, which affect certainly the area of the label.

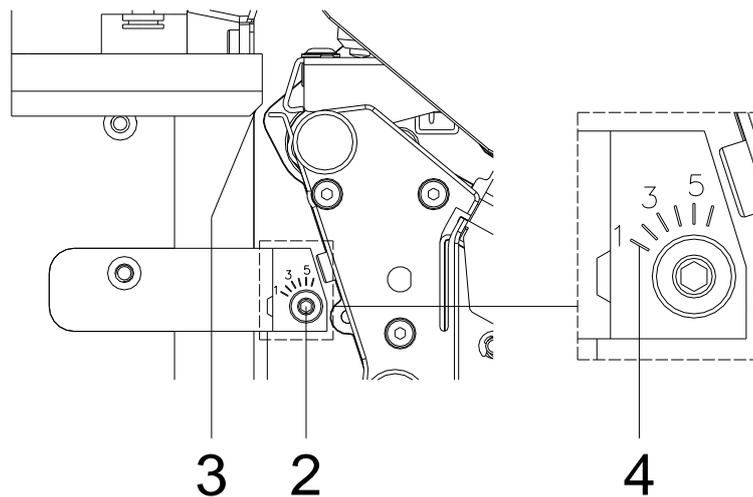
## 7.4 Aligning the Blow Tube



**Figure 20**

The blow tube (2) for the supporting air can be rotated around its axis. That way the direction of the supporting air can be optimized.

1. Loosen screw (1).
2. Turn the blow tube (2) in that direction that the air current supports the sucking of the label by the pad.



**Figure 21**

- For small labels direct the air current to the dispense edge (3) of the printer (setting 3 or 4 at the scale).
  - For larger labels direct the air current away from the dispense edge (3 / setting 1).
3. Tighten screw (1).

## 7.5 Adjusting the Stopper



### NOTICE!

For operating mode 'Blow on' only.

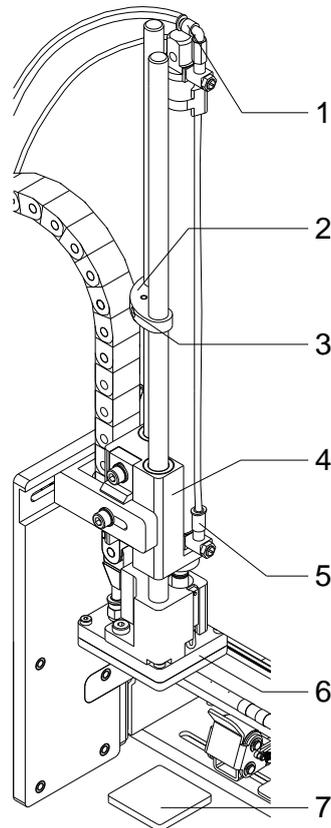


Figure 22



### CAUTION!

Danger of injury by inadvertent move out of the cylinder.

⇒ Switch off the printer and close the shutoff valve for the compressed air at the service unit.

1. Place a product sample (7) at the labelling point.
2. Pull the tubes out of the push-in-fittings (1,5).
3. Loosen the screw (3) in the stopper (2).
4. Move the pad manually in the required labelling position. The distance between the blow pad (6) in the labelling position and the product surface (7) must not exceed 10 mm.
5. Move the stopper (2) against the guide block (4) and tighten the screw (3).
6. Insert the tubes into the appropriate push-in-fittings (1,5).
7. Open the shutoff valve and switch on the printer.



## 8 Pneumatic Adjustments

### 8.1 Control Valves

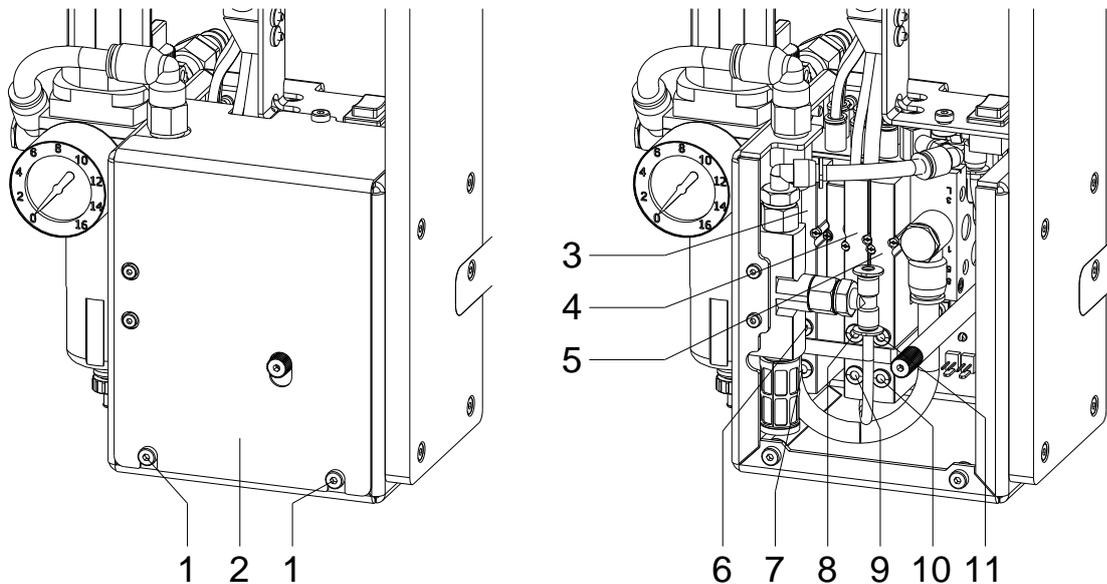


Figure 23

For adjustments of certain applicator functions it is possible to release the control valves in the pneumatic system.

- ⇒ Loosen screws (1) and remove cover (2).
- ⇒ The compressed air control valves can be controlled manually with integrated switch.

#### 3-way valve (3) to control the lift cylinder

If the printer is switched on the valve will be controlled by electronics and the tamp will hold in the upper end position (home position). If the valve is switched the tamp will move in the lower end position (labelling position).

In normal labelling operation the movement back in the upper end position will start by a signal from the labelling sensor.



#### NOTICE!

The switching by hand of this valve has only a result in case of a switched off printer.

Switching the valve by hand over switch 7 the tamp will move down up to the lowest possible position because no control is made by the sensor.

Switching the valve by hand over switch 7 the tamp will move up.

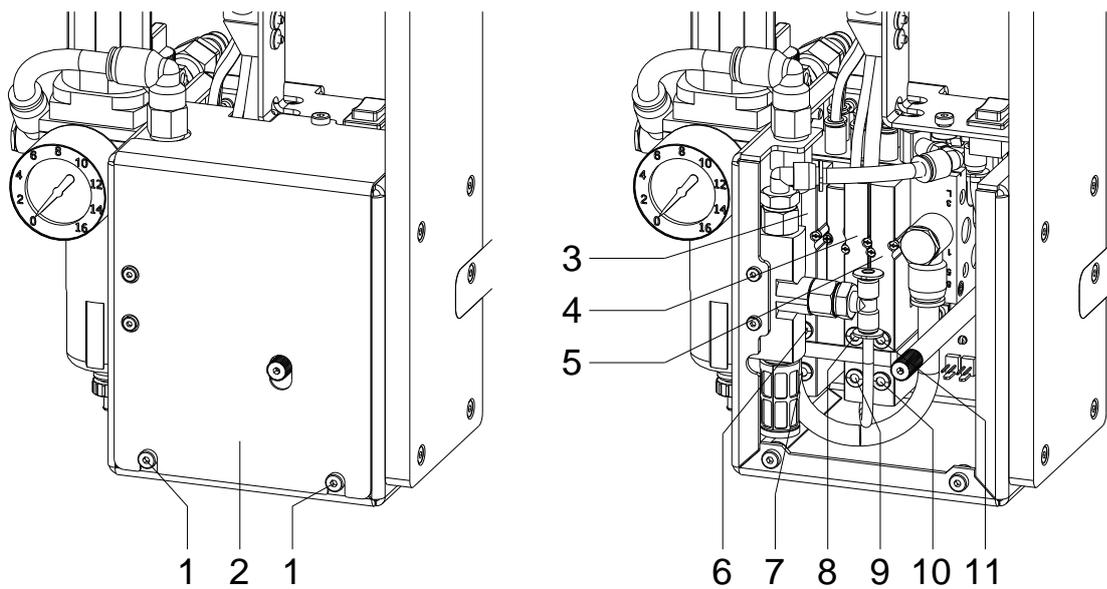


Figure 24

#### Double 2-way valve (4) for blow air

In the operation mode 'Blow on' the label will blow up to the product.

In the operating modes 'Stamp on' and 'Roll on' the blow air is switched on for a short time after each application to avoid contaminations within the vacuum channels.

For all described functions both valves will be controlled parallel.

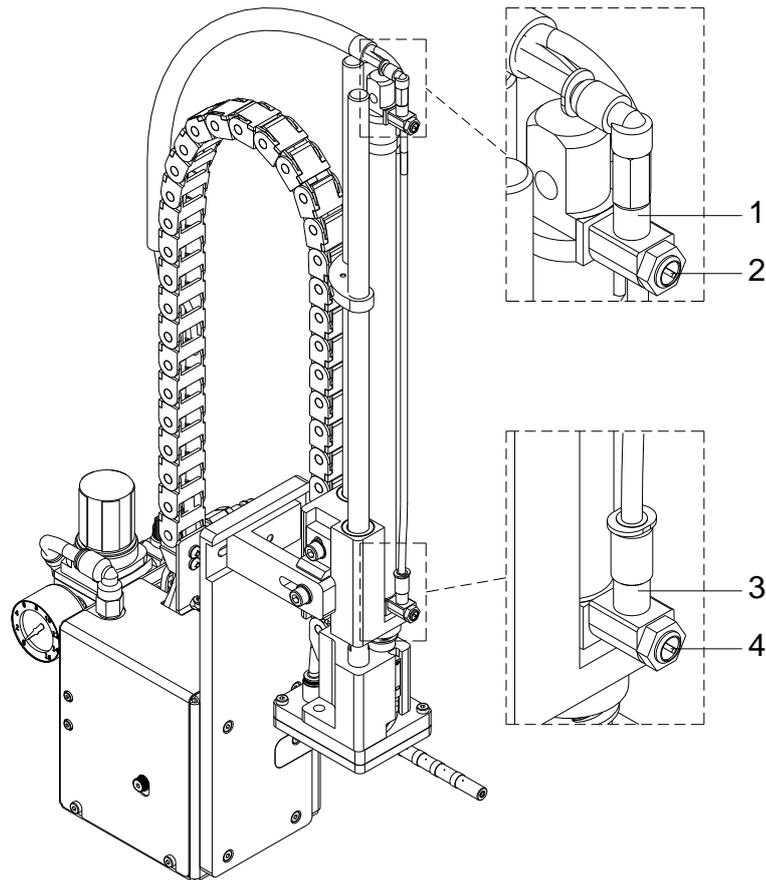
By pressing the keys 8 or 9 the blow air is only switched on by one of both internal valves.

#### Double 2-way valve (5) for vacuum / supporting air

The two internal valves serve the vacuum nozzle for connecting an in this way for creating the negative pressure at the tamp and independent of this for connecting the support air at the blow tube for the label transfer.

By pressing switch 10 the vacuum is switched on and by pressing switch 11 the supporting air is switched on.

## 8.2 Adjusting the Pad Movement Speed



**Figure 25**

The adjustment of pad movement speed can be regulated with two throttle valves (1, 3).

- ⇒ Adjust the pad movement speed as necessary.
- ⇒ To increase the downward speed turn the screw (4) at the lower valve (3) anticlockwise.
- ⇒ To increase the upward speed turn the screw (2) at the upper valve (1) anticlockwise.



### NOTICE!

The application pressure of the pad is mainly dependent on the downward speed of the pad.

- ⇒ To reduce the application pressure turn screw (4) in clockwise direction.



### CAUTION!

A too high decrease of the downward speed leads to an error message (Error 101 - Lower position).

- ⇒ The downward movement may not need more time as specified in the menu *Timeout Hub* (see page 30).

### 8.3 Adjusting Vacuum and Supporting Air

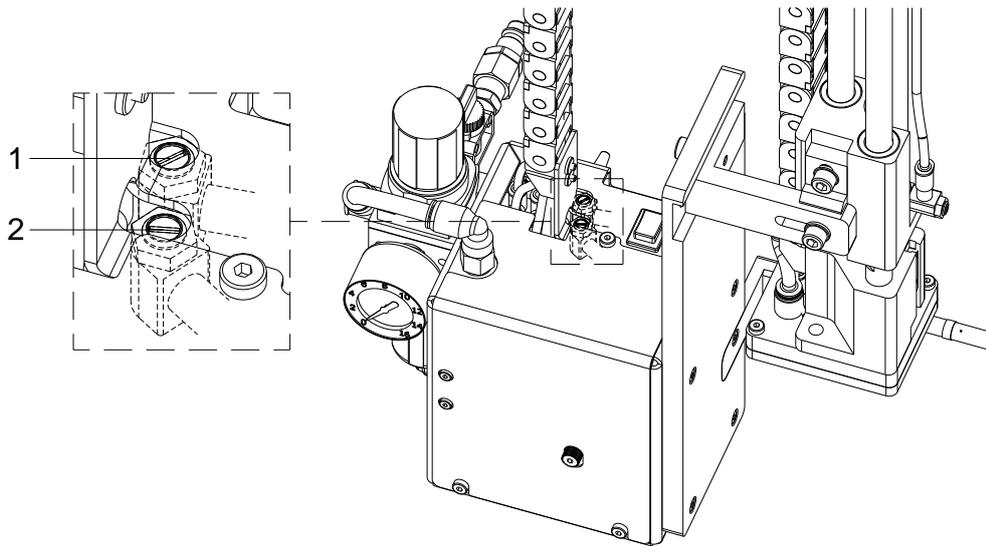


Figure 26

#### Adjusting the supporting air

With the valve (1) the supporting air for blowing the label to the pad can be varied.

- ⇒ Adjust the supporting air in such way that the label is blown on the pad without swirling.
- ⇒ To increase the supporting air turn the screw at the valve (1) anticlockwise.
- ⇒ If necessary adjust the direction of the air current (see chapter Aligning the Blow Tube, page 36).

#### Adjusting the vacuum



##### NOTICE!

With the vacuum setting the final position of the label on the pad can be adjusted. If the vacuum is too high the label feeding may early be stopped.

With the valve (2) the vacuum for sucking the label to the pad can be varied.

- ⇒ Adjust the vacuum in such way that the label is correctly sucked.
- ⇒ To increase the vacuum turn the screw at the valve (2) anticlockwise.

## 9 Operation

### 9.1 Loading the Label Material

**NOTICE!**

In dispensing mode the labels are removed after printing, and only the liner is wound up internally.

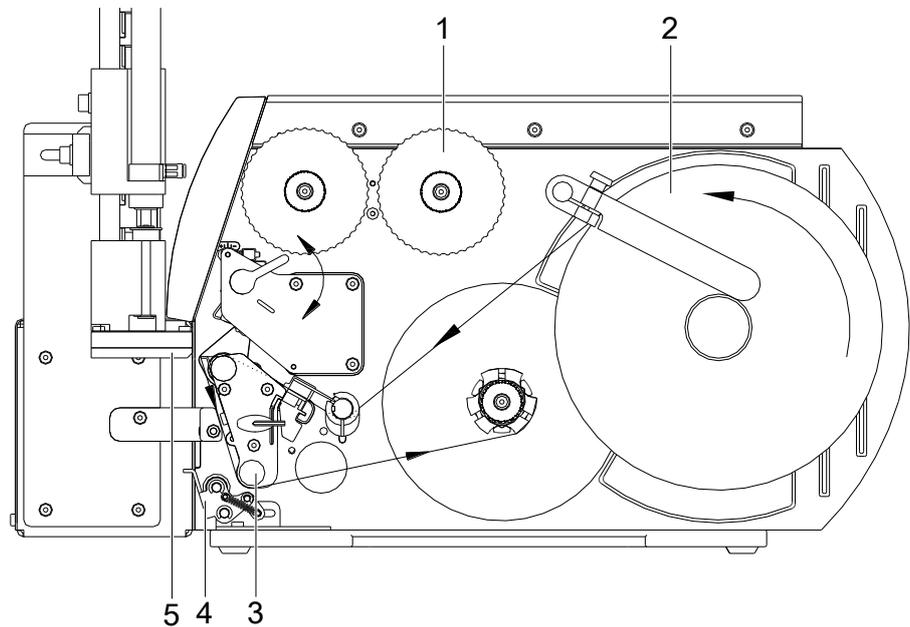


Figure 27

**NOTICE!**

For detailed information about inserting the material please read the operating manual of the label printer.

⇒ Insert the transfer ribbon (1).

⇒ Insert the label material.

**CAUTION!**

Collision between the pad (5) and the locking system (4) during the labelling procedure.

⇒ Swivel the locking system (4) on the rewind assistant roller (3).

## 9.2 Setting the Dispenser Mode



### NOTICE!

To operate the label printer in dispenser mode a print order must be started and the printer is to be in 'waiting' mode.

Switch on the label printer and the display shows the main menu.

Press key to access the function menu.

Press key as long as you arrive the *Dispenser I/O* menu.

Press key to select the menu.

In the upper line of display, the operating mode can be selected.

In the line below, the dispenser I/O offset (approx. 18 mm) can be set.

Press key to change to the next operating mode.

### Operating modes

#### Off:

It is printed without the labels are dispensed.

#### I/O static:

The input signal evaluated, i.e. it is printed as long as the signal exists. The number of labels which was entered at the print start is printed.

The set dispenser offset is not taken into consideration.

#### I/O static continuous:

For description of this operating mode, see I/O static.

Continuous means that it is printed as long as new data is transferred via interface

The set dispenser offset is not taken into consideration.

#### I/O dynamic:

The external signal is evaluated dynamically, i.e. is the printer in 'waiting' mode a single label is printed at each signal changing. After the print the set dispenser offset is executed, i.e. a backfeed is effected.

#### I/O dynamic continuous:

For description of this operating mode, see I/O dynamic.

Continuous means that it is printed as long as new data is transferred via interface.

#### Photocell:

The printer is controlled via photocell. The printer prints automatically a label if the user takes away the label at the dispensing ledge. The print order is finished when the target number of labels is reached.

#### Photocell continuous:

For description of this operating mode, see Photocell.

Continuous means that it is printed as long as new data is transferred via interface.

### 9.3 Test Mode

#### Test Mode Using the Pre-dispense Key without Print Job

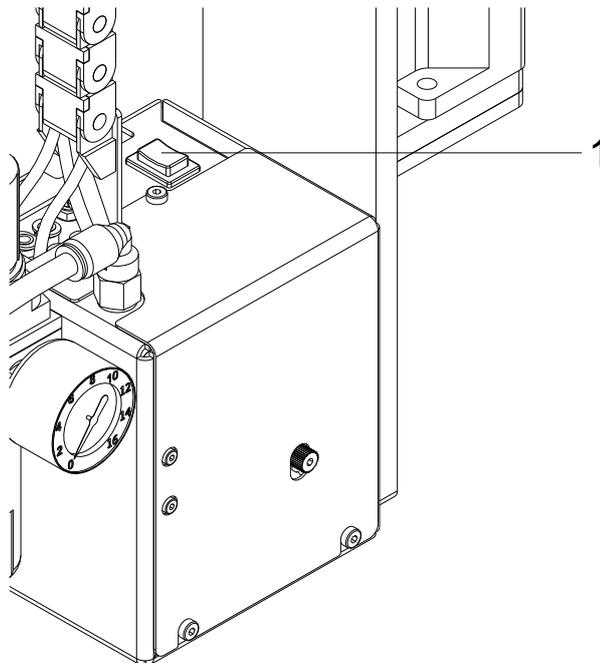


Figure 28

The whole labelling process can be simulated without the need of a print job or a connection to a computer by pressing the key  and the pre-dispense key (1).

- ⇒ Press the key .  
A blank label is fed. The vacuum at the pad as well as the supporting air (blow tube) are switched on.  
After the label has been picked up by the pad, the supporting air is switched off.
  
- ⇒ Press the pre-dispense key (1).  
The pad is moved to the labelling position. A sensor signals when the labelling position is reached. The vacuum is switched off and the label is placed onto the product. Then the pad is moved back into the starting position.



**NOTICE!**

Please use this method to find the appropriate dispenser offset in the printer configuration.

## Test Mode Using the Pre-dispense Key without Print Job

This method allows to check the labelling process with real print data using the pre-dispense key (1, Figure 28).

⇒ Send a print job.

The test mode is executed in two half-cycles.

⇒ Press the pre-dispense key (1, Figure 28).

### **Half-cycle 1**

A label is printed. The vacuum at the pad as well as the supporting air (blow tube) are switched on. After the label has been picked up by the pad, the supporting air is switched off.

⇒ Press the pre-dispense key (1, Figure 28) again.

### **Half-cycle 2**

The pad is moved to the labelling position. A sensor signals when the labelling position is reached. The vacuum is switched off and the label is placed onto the product. Then, the pad is moved back into the starting position.

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



### **NOTICE!**

Please use this method to adjust the appropriate dispenser offset in the label design software.

## 9.4 Standard Operation

1. Check all external connections (see chapter 4.7, page 25).
2. Load the transfer ribbon and the label material (see chapter 9.1, page 43).

**NOTICE!**

Ensure that the locking system (4, Figure 27) is closed.

3. Open the shutoff valve.

**CAUTION!**

If the pad is covered the vacuum sensor may be calibrated faultily.

⇒ Before switching on the printer-applicator system ensure that the pad is not covered.

4. Switch on the label printer.

**CAUTION!**

The pad will immediately be moved in the starting position.

⇒ Do not reach into the zone of the moving pad.

⇒ Keep long hair, loose clothes and jewellery distant.

⇒ Do not reach or bend into the zone of the moving rods.

5. Press the 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!**

This synchronizing also has to be carried out when the print job has been interrupted with the key .

Synchronizing is not necessary when the printhead was not lifted between print jobs. This also applies if the printer was powered off between print jobs.

6. Start a print job.



## 10 Applicator Interface

### 10.1 Pin Assignment

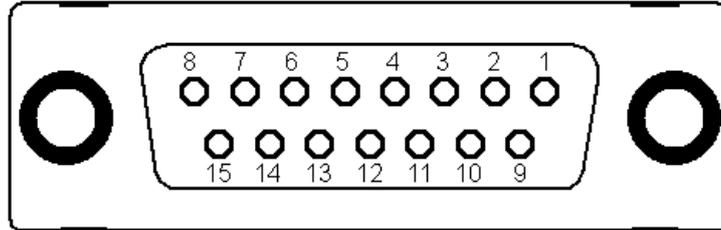


Figure 29

### 10.2 Internal Circuit of Outputs

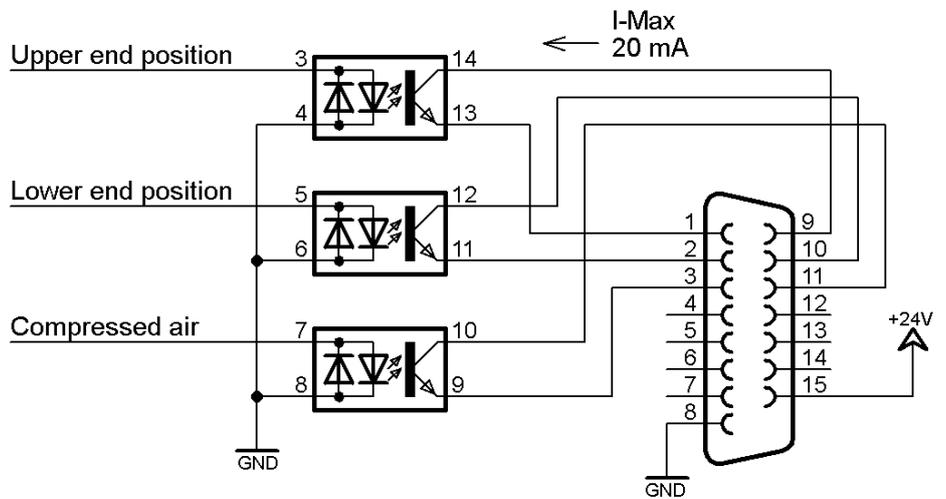


Figure 30

The outputs are realized by optocouplers.

With an active signal the collector emitter line of the optopoupler is conductive.

### 10.3 Signal Assignment D-Sub 15 pin

| <b>D-Sub 15 pin female connector APL 100</b> |   |  |   |
|--|---|--|---|
| Pin  | Signal                                      | Description  | Active state                            |
| 9  | Collector signal<br>Upper final<br>position | Tamp pad is in the final<br>position in which the<br>transfer of label from the<br>printer can be done | Collector<br>emitter line<br>conductive |
| 1  | Emitter signal<br>Lower final<br>position   |  |   |
| 10   | Collector signal<br>Lower final<br>position | Tamp pad is in the final<br>position in which the<br>transfer of label to the good<br>can be done.     | Collector<br>emitter line<br>conductive |
| 2  | Emitter signal<br>Lower final<br>position   |  |   |
| 11   | Emitter signal<br>Compressed-air            | Control of the applicators'<br>compressed-air supply   | Collector<br>emitter line<br>blocked    |
| 3  | Emitter signal<br>Compressed-air            |  |   |
| 15   | 24V   | Operating voltage<br>+24V/100 mA made<br>available by the applicator                                   |   |
| 8  | GND   | GND connection   |   |

## 11 Error Messages

### 11.1 Error Messages of the Printer

In case an error occurred the printer stops and the print order is interrupted. Information to causes and remedies of printer errors e.g. *no label found* are to be taken from the printer manual.

1. Clear the error.
2. Press the key  to synchronize the label feed.
3. Remove the peeled labels manually.
4. Press the key  to quit the error state.
5. Press the key  to continue the print order or press key  to cancel the print order.

### 11.2 Error Messages of the Applicator

| Error message      | Cause  | Remedy  |
|--------------------|--|---|
| Upper position     | The upper position (start position) was not reached.                     | Check final position switch for start position and compressed-air supply.<br>Adjust stroke timeout.   |
| Lower position     | The lower position (labelling position) was not reached.                 | Check final position switch for labelling position and compressed-air supply.<br>Adjust stroke timeout.                                       |
| Empty vacuum plate | Sensor does not recognize a label at the vacuum plate.                   | Check if all holes of the pad plate are covered from the label.<br>Check compressed-air supply.   |
| Print position     | At print start the pad is not in printing position (upper pad position). | Check the correct function and position of the final position switch for the upper position (start position).<br>Check the pneumati function. |



#### CAUTION!

The pad will immediately be moved in the starting position.  
Danger of crushing to hand and fingers by the moving pad.

- ⇒ Do not reach into the zone of the moving pad.
  - ⇒ Keep long hair, loose clothes and jewellery distant from the zone of the moving pad.
- Danger of striking by the moving rods.
- ⇒ Do not reach or bend into the zone of the moving rods.

After error correction, the print of the label causing the error cannot be repeated without re-start of the print order.



## 12 Declaration

### 12.1 Extended Declaration

|   |  |
|---|--|
|  <b>valentin</b><br>ETIKETTENDRUCKSYSTEME  | Carl Valentin GmbH<br>Neckarstr. 78-80<br>D-78056 VS-Schwenningen  |
| <b>Extended declaration of incorporation<br/>         of partly completed machinery</b><br>(Machinery Directive 2006/42/EC)   |  |
| Herewith declares the manufacturer:<br><b>Carl Valentin GmbH, Neckarstraße 78-82, D-78056 VS-Schwenningen, Deutschland</b>  |  |
| of the incomplete machine:  | <b>Pneumatic Applicator for Compa II</b>   |
| Machinery Type:   | <b>APL100A</b>   |
| Item Number:  | <b>92.52.50xA</b>  |
| Serial Number:  | <b>see type plate</b>  |
| <ul style="list-style-type: none"> <li>• Following basic Health and Safety Requirements according to Annex I of the above mentioned directive are applied and complied:           <ul style="list-style-type: none"> <li>General rules of operation No. 1, if applicable</li> </ul> </li> <li>• All relevant basic Health and Safety Requirements of directive 2006/42/EC are complied up to the described interfaces           <ul style="list-style-type: none"> <li>○ in the operating manual</li> <li>○ in the service manual</li> </ul> </li> <li>• The following harmonised standards were applied:           <ul style="list-style-type: none"> <li>○ DIN EN 60950-1:2006+A11:2009</li> <li>○ EN ISO 12100-1 :2003</li> <li>○ EN ISO 12100-2 :2003</li> <li>○ EN ISO 14121-1 :2007</li> </ul> </li> <li>• An operating manual was prepared and is attached to the incomplete machine</li> <li>• The specified technical documents according to Annex VII B have been generated</li> <li>• I will transmit the above mentioned documents to the responsible authority in form of files</li> <li>• The person authorised to compile the relevant technical documentation:           <p style="margin-left: 40px;">Carl Valentin GmbH<br/>             Herr Horst Gunkel, Abt. QM<br/>             Neckarstraße 78-82<br/>             D-78056 VS-Schwenningen</p> </li> <li>• The conformity with the regulations of the following further EC directives           <ul style="list-style-type: none"> <li>○ EC EMV Directive (2004/108/EC)</li> </ul> </li> <li>• The partly completed machinery 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 Directive 2006/42/EC on Machinery.</li> </ul> |  |
| Place:  | Villingen-Schwenningen   |
| Date:   | 18. Januar 2011  |
| Signature of manufacturer:  | <br>_____<br>Erwin Tisler |
| Position of signatory:  | - General Manager -  |

## 12.2 EC-Declaration of Conformity

|   |   |
|---|---|
|  <b>valentin</b><br>ETIKETTENDRUCKSYSTEME  | <b>Carl Valentin GmbH</b><br>Neckarstr. 78-80<br>D-78056 VS-Schwenningen  |
| <b>EC-Declaration of Conformity</b>   |   |
| <p>We herewith guarantee that the printer named as follows is conform to the below mentioned requirements of the CE-guidelines.<br/>In case of modification, not agreed with the Carl Valentin company, this declaration is not longer valid.</p> |   |
| <b>Designation of Device:</b>   | <b>Pneumatic Applicator for Compa II</b>  |
| <b>Typ:</b>   | <b>APL100A</b>  |
| <b>Device-No.:</b>  | <b>92.52.50xA</b>   |
| <b>Corresponding EC-guidelines:</b>   | EC-directive behaviour towards electromagnetic fields (2004/108/EC)   |
| <b>Applied and harmonised Industry standards:</b>   | EN 61000-6-4: 01-2007 Industrie<br>EN 55022: 05-2008 Class A<br>EN 61000-3-2: 04-2006<br>EN 61000-3-3: 09-2008<br>EN 61000-6-2: 08-2005 Industrie<br>EN 61000-4-2: 03-2009<br>EN 61000-4-3: 05-2006, ENV 50204: 03-1995<br>EN 61000-4-4: 12-2004<br>EN 61000-4-6: 03-2009 |
| <b>Date:</b>  | 18. January 2011  |
| <b>Signature of manufacturer:</b>   |     |
| <b>Details of signer:</b>   | <div style="display: flex; justify-content: space-around;"> <div data-bbox="695 1377 879 1424">           E. Tisler<br/>- General Manager -         </div> <div data-bbox="994 1377 1193 1424">           E. Hauser<br/>- Technical Manager -         </div> </div>       |
| <b>Remarks:</b>   |   |

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