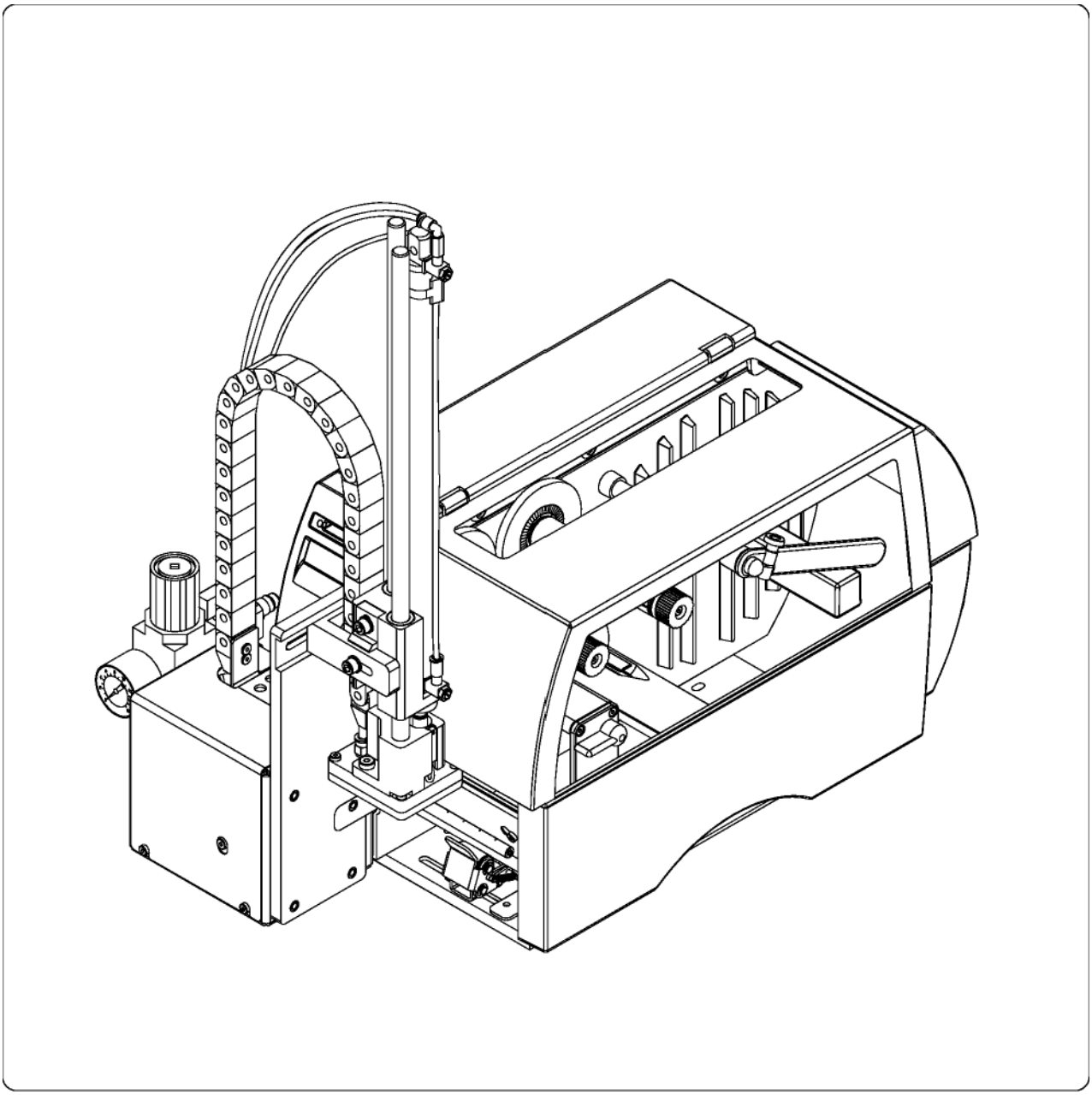
ULT-PA3000*XT* Applicator

User Manual



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1. Product Description

Function

The Tamp Applicator is an optional device to use with the **P, A3/300P, A4/300P** and **A4/600P** printers 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 labeling position, by a compressed-air driven pneumatic cylinder.
In the starting position, the label is picked up from the printer by the pad. 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 plate 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 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 labeling position, which is confirmed by another sensor (labeling position sensor). Here, the label is transferred onto the product.

The label can be applied with three different methods :

1. **Tamp on**
   The label remains in a fixed position. The label is pressed directly onto the product.
2. **Blow on**
   The pad moves to a pre-adjusted position approximately 10mm away from the product. The labels 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.
3. **Roll on**
   The label is dispensed and moved until touching the roller of the roll on pad. At the labeling position the roller is pressed onto the product. Then the label is applied and rolled on by the movement of 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.

Important Features

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 operating pressure for the cylinder is reduced in comparison to the main pressure of the applicator. So the risk of injury is reduced as far as possible.

To avoid contamination within the vacuum channels these are cleaned by air pressure impulse at the end of each application.

For operation in a networked system the 15-pin or 25-pin applicator's PLC (programmable logic control) interface with potential free inputs and outputs can be used.

Technical Data

	Tamp on	Blow on	Roll on
Label width in mm	25 - 116	25 - 100	25 - 116
Label height in mm	25 - 150	25 - 100	80 - 150
Cylinder stroke in mm	220/300		
Stroke of tamp below printer in mm	70/150		
Compressed air press.	5 bar		
Product surface	flat		

Table 1 Technical Data

Tamp Pads

Universal tamp pads (Type A1112 or Type A1312) are available in different standard sizes. At the universal pads the holes in the pad are covered by a foil. 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.

Universal tamp pad A1112

Standard size **70x60**
Standard size **90x90**

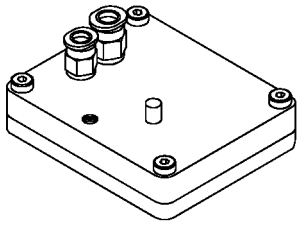


Fig.1a Universal tamp pad A1112 70x60

Universal tamp pad A1312

Standard size **116x102**
Standard size **116x152**

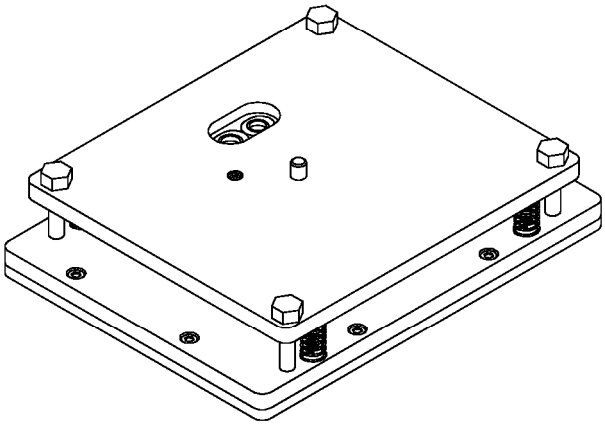


Fig 1b Universal tamp pad A1312 116x152

Blow Pads

Blow pads (Type A2111) are only produced on request customized to the label size.

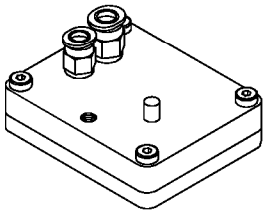


Fig. 1c Blow pad A2111 bxh

Roll-on Pads

Roll-on pads (Type A1411) are only produced on request customized to the label size.

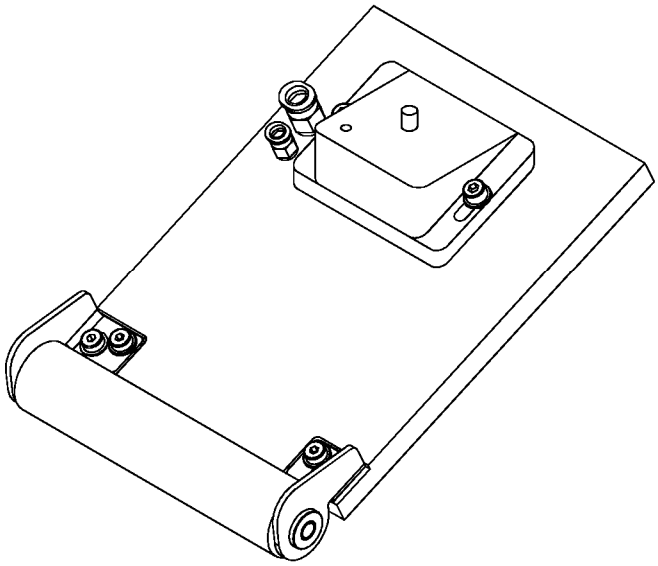


Fig. 1d Roll-on pad A1411 bxh

2. Delivery Contents

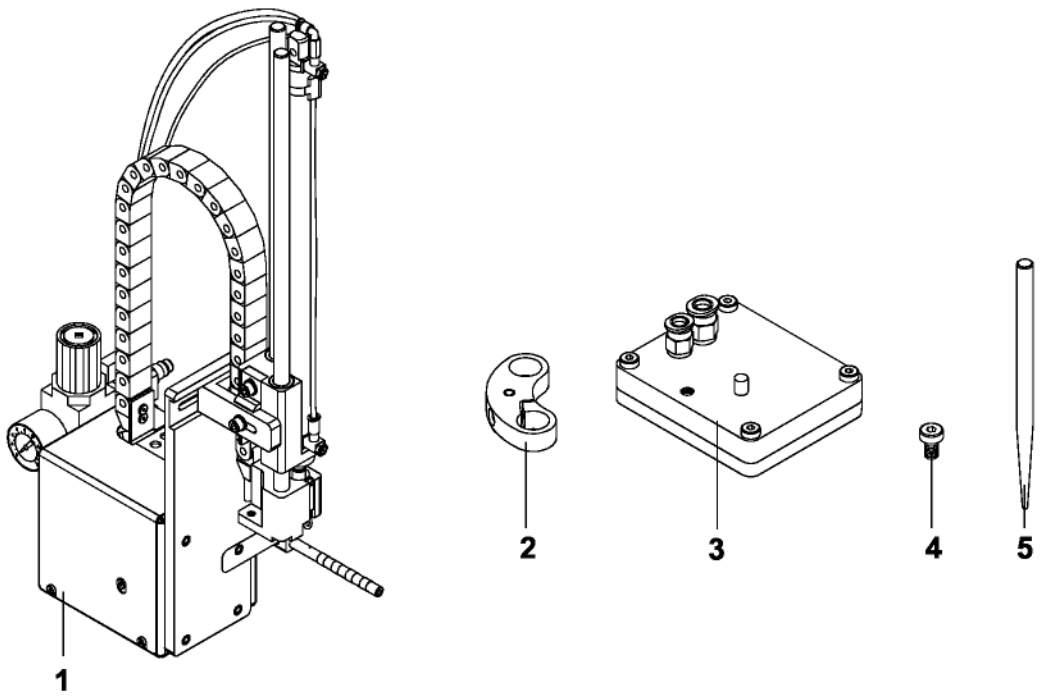


Fig. 2 Delivery contents

1 - Tamp applicator A 1000

2 - Stopper for the operation mode "Blow on"

3 - Pad (as ordered)

4 - Cylinder screw (part of the pad)

5 - Piercing pin (at universal tamp pads only)

3. General Safety Instructions

CAUTION !

Make sure that the printer is disconnected from the power supply and the shutoff valve at the applicator is closed, while installing the delivered components.

CAUTION !

In operation, moving parts are easily accessible.
This applies especially for the sector, where the pad is moved between the starting and the labeling position.
During operation do not reach into that sector and keep long hair, loose clothes, and jewellery distant. Before any manipulations in those areas, close the shutoff valve.

CAUTION !

Do not try to manipulate or repair parts that are not described in the manuals of the tamp applicator or the printer.

4. Applicator Component Location

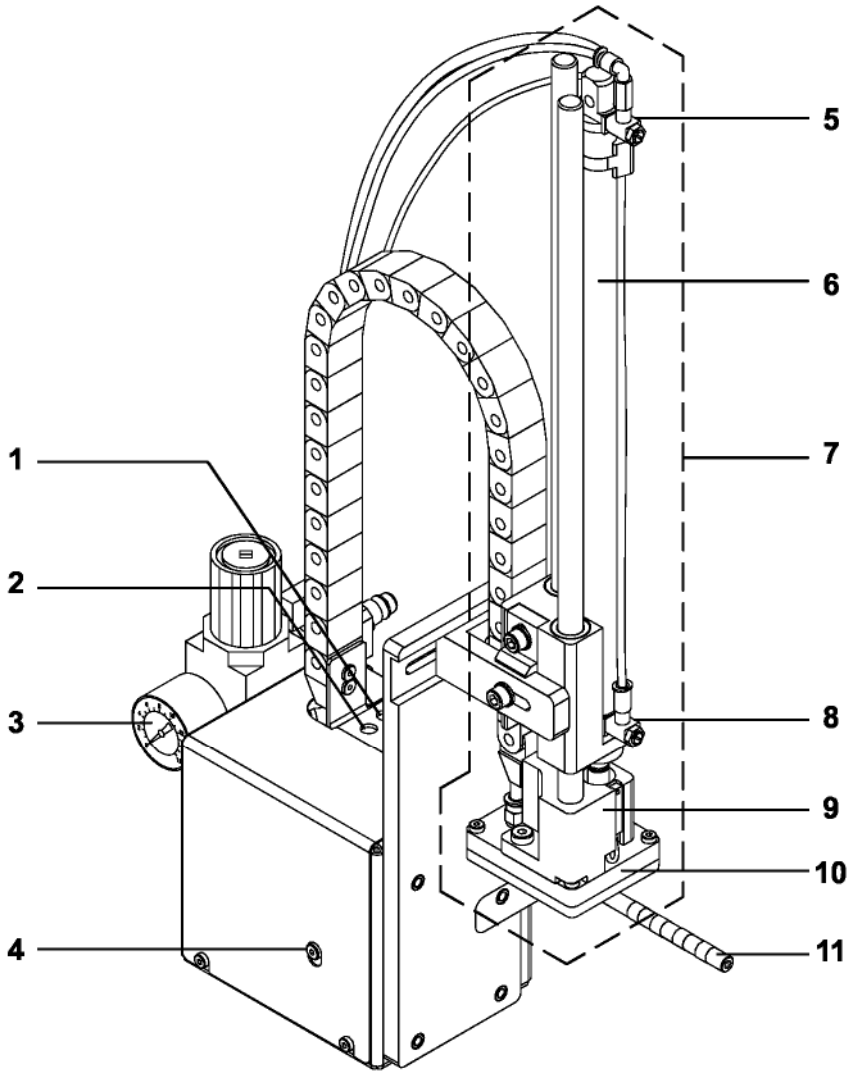


Fig. 4a Front view A 1000

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

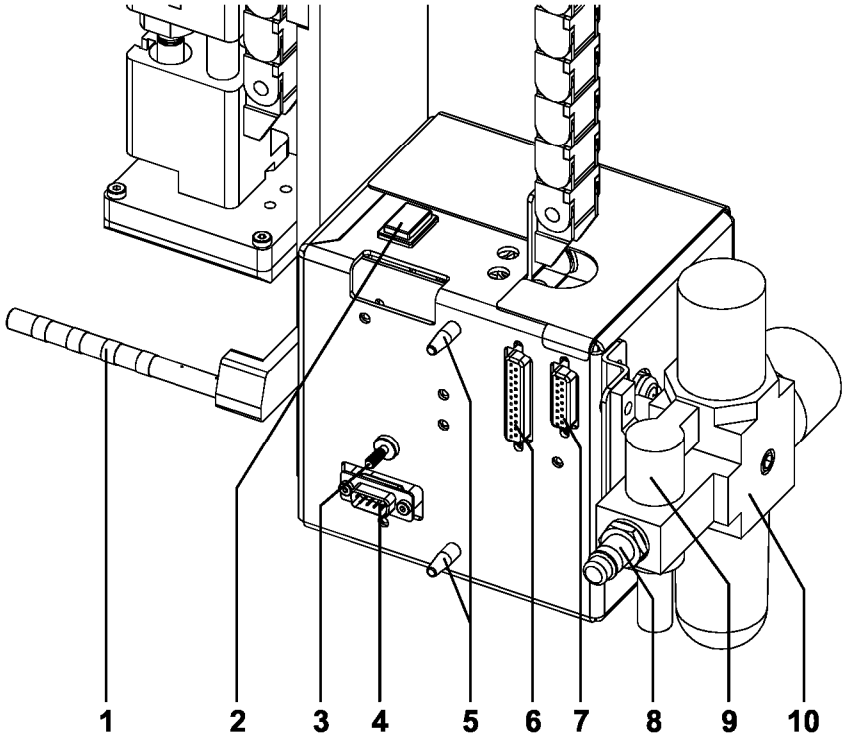


Fig. 4b Rear view A 1000

1 - Blow tube for supporting air
2 - Pre-dispense key
3 - Knurled screw for attaching the applicator to the printer
4 - Interface to the printer
5 - Pins
6 - 25 pin PLC interface connector
7 - 15 pin PLC interface connector
8 - Connector for the compressed air
9 - Shutoff valve
10 - Service unit

5. Mounting

Mounting the Applicator on the Printer

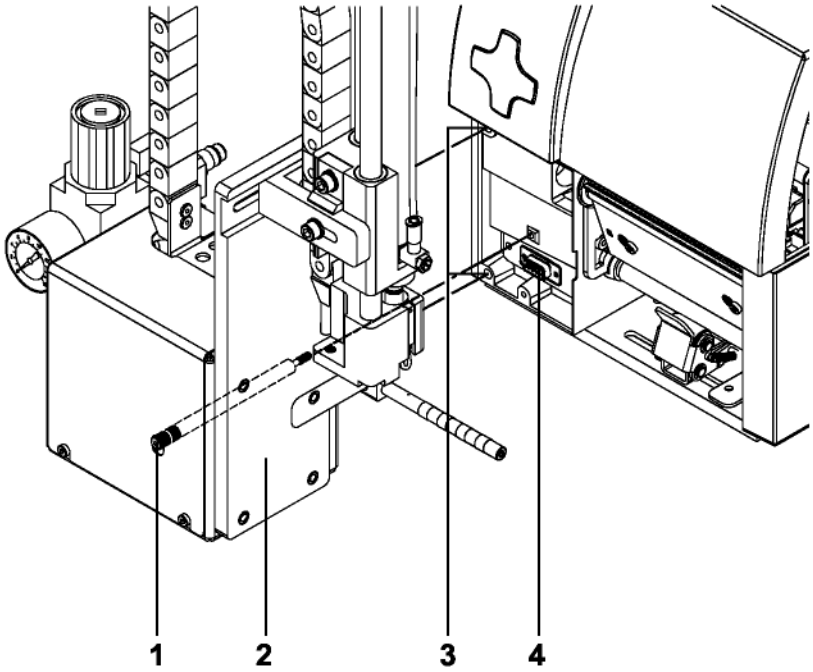


Fig. 5a Mounting the applicator

CAUTION !
Make sure that the printer is switched off before mounting the applicator !

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

2. Secure the applicator (**2**) with the screw (**1**).

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 a foil and must be opened according to the label size. For that purpose a piercing pin is included in the delivery contents.

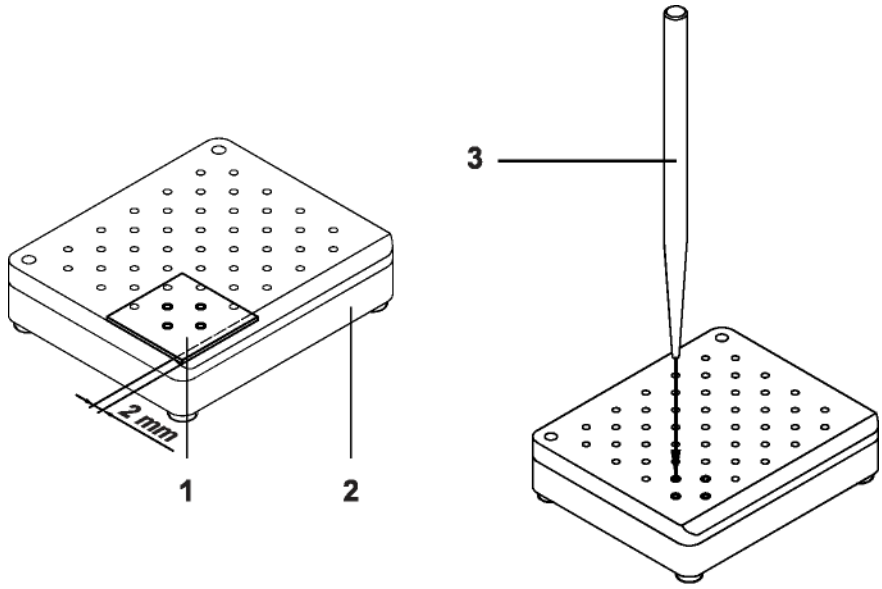


Fig. 5b Piercing the sliding foil (holes to be opened are bold)

1. Place a label **(1)** to be operated on the bottom side of the pad **(2).** The label must be aligned to the side edge and stand over the rear edge of the pad by 2 mm.

2. Open all the holes, which are certainly covered by the label. Open the holes completely by turning the piercing pin **(3)** inside the holes.

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

Preparing the Applicator for Using a Tamp Pad Type 1312

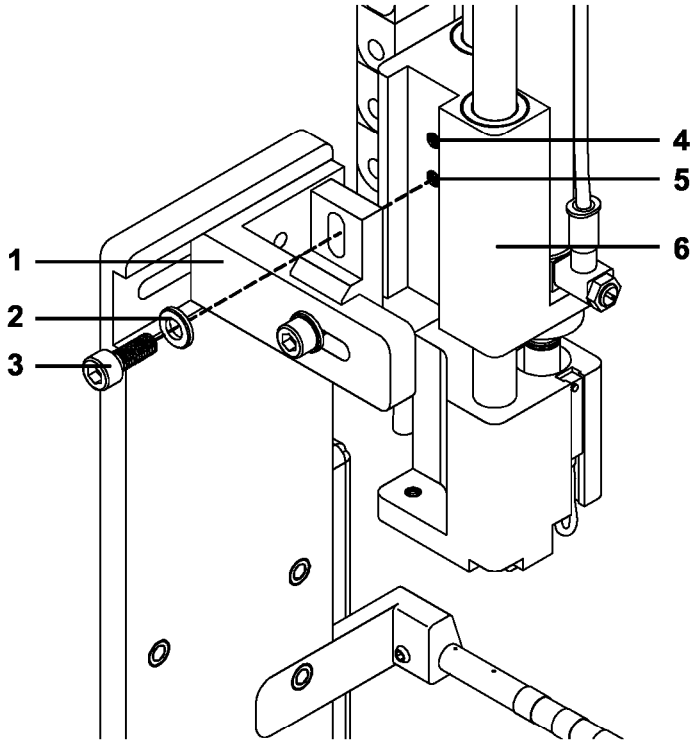


Fig. 5c Changing the attachment of the cylinder unit

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.
If you want to use an universal tamp pad type **A1312** the fitting of the cylinder unit must be changed.

1. Loosen the screw (**3**) with washer (**2**) and remove the cylinder unit from the bracket (**1**).

2. Fix the cylinder unit with screw (**3**) and washer (**2**) by using the lower threaded hole (**5**).

Mounting the Pad

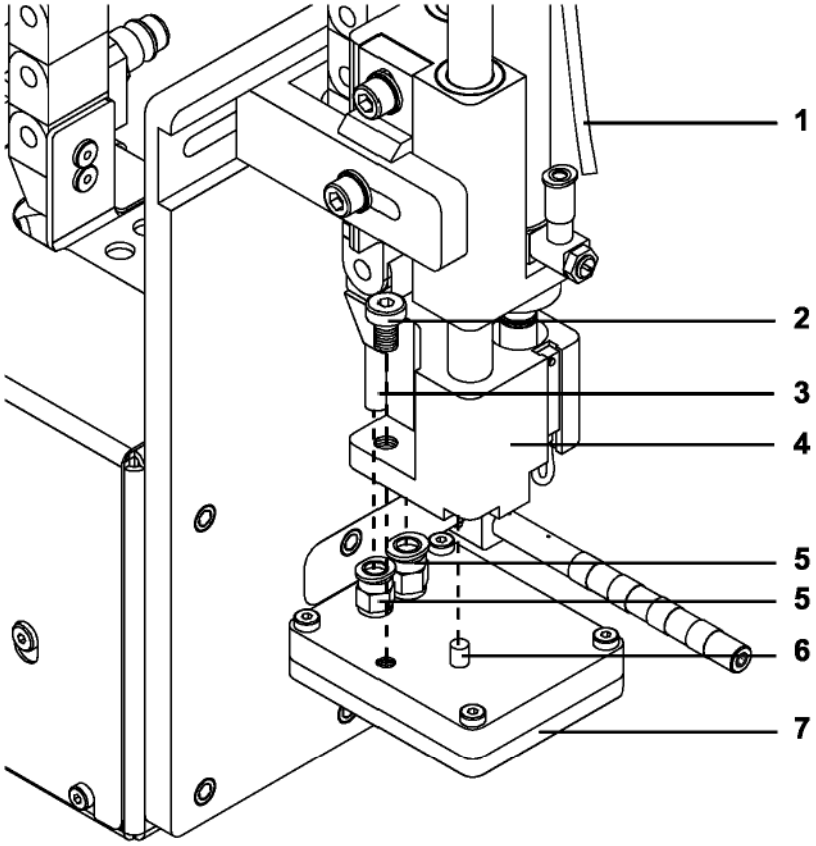


Fig. 5d Mounting the pad

1. Pull the tube (**1**) out of the push-in-fitting
2. Insert the pin (**6**) on the pad (**7**) into the hole on the bottom side of the pad holder (**4**).
3. Fix the pad (**7**) with the screw (**2**) at the pad holder (**4**).
4. Insert the vacuum tube (**3**) an the blow-air tube into the appropriate push-in-fittings (**5**) of the pad.
5. Insert the tube (**1**) into the appropriate push-in-fitting (**5**) on the cylinder.

CAUTION !
To avoid possible collisions of the pad with other parts of the printer-applicator system, please roughly align the pad in all directions (see "Mechanical Adjustments") before connecting the applicator to the compressed air supply !

Mounting the Stopper for the Operation Mode "Blow On"

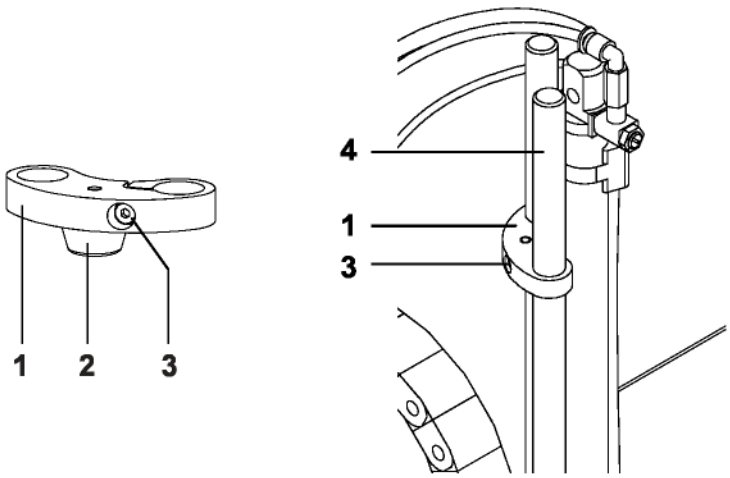


Fig. 5e Mounting the stopper

The delivery contents of the applicator include a stopper (**1**). With this stopper the labelling position for the operation mode "Blow on" can be adjusted.

1. Loosen the screw (**3**) at the stopper (**1**).
2. Slide the stopper (**1**) with the rubber buffer at the bottom side onto the rods (**4**).
3. Tighten the screw (**3**).

For more information on the stopper adjustment see chapter "Mechanical Adjustments".

6. Connections

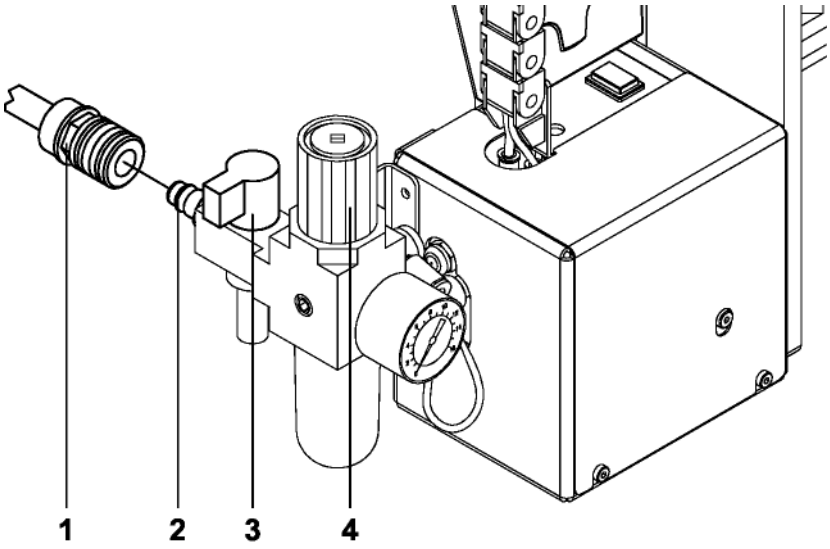


Fig. 6 Connections

1. Prepare the connections to the power supply and to the computer as described in the manual of the printer.

2. To contact the PLC interface use the 15-pin or 25-pin connector (for more details see appendix A).

3. Make sure that the shutoff valve **(3)** is closed (lever at the valve is turned across the air flow direction).

4. Connect the applicator to the compressed air supply.

   The connector **(2)** for the compressed air supply is located at the service unit. The connector is suitable for a 1/4" coupling plug **(1).**

5. The air pressure for operating the applicator is pre-adjusted to 5 bar. Check the pressure at the manometer of the service unit. Correct the adjustment if necessary : - Pull knurled knob **(4)** up.
   - Turn knob to tune required operating pressure of 5 bar.
   By turning knob clockwise the pressure rises. -
   Push knob down.

6. Open the shutoff valve. **(3**/ lever is turned in the air flow direction) 7.

Switch on the power supply of the printer.

CAUTION !

The pad will immediately be moved in the starting position !

7. Printer Configuration

The tamp applicator, with its standard components, can be operated in different ways. While the original process stays the same, the operation mode can be chosen within the printer configuration. The most important setting is the selection between the operation modes "Stamp on", "Blow on" and "Roll on". Additionally the applicator has different application modes concerning the order of printing and applying within one labeling cycle.

	Stamp on	Blow on	Roll on
Print / Apply	x	x	x
Apply / Print Waiting position up	x	x	x
Apply / Print Waiting position down		x	

Table 7a Operation and application modes

Further all operating modes can be adjusted by setting different time delays.

Standard Method for Changing the Printer Configuration

NOTICE !
Please note the detailed information about the printer configuration in der Operator's Manual of the printer !

1. Switch to the Offline Menu by pressing the _____ key.

3. The parameters are arranged in a tree like structure. Pressing the key as well as the key will scroll between the secondary menus. By pressing the key, the selected secondary menu will be chosen.

2. Continue to press the ↑ key or the ↓ key until you reach the "Setup" menu. Press the ↵ key.

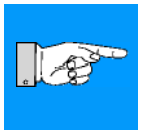
4. The parameters for the applicator configuration can be found under "Setup" -> "Machine parameters" -> "Applicator".

5. Make the parameter setting as necessary.

6. Press the key several times if necessary to return to the "Online" mode.

Quick Mode for Adjusting the Delay Times

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 changings affect directly the current print job.

1. Switch to the quick mode by pressing the _____ key and keep it pressed down for at least 2 seconds.

2. The first delay time appears on the display. Adjust the delay time by pressing the key or the key.
3. To switch between the different delay times press the key.

4. Press the _____ key to leave the quick setup mode. The selected delay times are stored in the printer.

7. Printer Configuration

Configuration Parameter for the Applicator

Setup		
Machine param.		
Parameter	**Meaning**	**Selection**
Applicator		
Mode of oper.	Setting the operation mode Default : **Stamp on**	Stamp on Blow on Roll on
Mode of appl.	Setting the application mode Default : **Print-Apply**	Print-Apply Appy-Print
Waiting position	Waiting position of the pad with dispensed label for **Blow on + Apply-Print** only Default : **up**	up down
Blow time	Setting the blow time Parameter only appears in the operation mode **Blow on** Default : **0 ms**	0 ... 2500 ms in steps of 10 ms
Roll-on time	Setting the roll-on time Parameter only appears in the operation mode **Roll on** Default : **0 ms**	0 ... 5000 ms in steps of 10 ms
Support delay on	Setting the switch-on delay for the supporting air Default : **0 ms**	0 ... 2500 ms in steps of 10 ms
Support del. off	Setting the switch-off delay for the supporting air Default : **270 ms**	0 ... 2500 ms in steps of 10 ms
Delay time	Setting the start delay Default : **0 ms**	0 ... 2500 ms in steps of 10 ms
Lock time	Setting the locking time Default : **0 ms**	0 ... 2500 ms in steps of 10 ms
Peel position	Shift the position of the dispensed label relative to the dispense plate Default : **0,0 mm**	+9,9 ... -9,9 mm in steps of 0,1 mm
Vacuum control	Setting of the vacuum control Default : **EIN**	On Off

Table 7b Applicator parameters

Mode of operation

With that parameter the methods for applying the labels on to the product (Tamp, Blow, Roll on) can be selected.

Mode of application

The tamp applicator can be operated in two different ways referring the order of printing and labeling within one labeling cycle.

"Print/Apply"

The print of a label is released by an external start signal (via PLC interface). At the same moment the vacuum on the pad as well as the supporting air from the blow tube are switched on. When the label is printed and picked up from the carrier ribbon, the supporting air is switched off. Then the lift cylinder is driven to move the pad down towards the labeling position. A sensor signals when the labeling position is reached.
Following, the vacuum is switched off and the label is placed onto the product. After that, the lift cylinder is driven to move the pad back into the starting position. Thus, the labeling cycle is finished.

"Apply/Print"

Before starting the cyclic operation the printing and picking up of the first label has to be released separately by a special signal via PLC interface.
Thus at the start of the cyclic operation when sending the start signal via PLC, 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. Thus, the labeling cycle is finished.

7. Printer Configuration

Waiting position

NOTICE !
That parameter is available only when the operation mode "Blow on" and the application mode "Apply/Print" are selected.

Waiting position up
At the cyclic operation the pad with the printed label waits in the starting position near the dispense plate of the printer for the start signal.

Waiting position down
At the cyclic operation the pad with the printed label waits in the labeling position for the start signal. So the cycle starts directly with blowing the label on to the product.

Blow time

That parameter is available when the operation mode **"Blow on"** is selected. The time period can be adjusted, when the blowing air for the transfer of the label onto the product is switched on.

Roll-on time

That parameter is available when the operation mode **"Roll on"** is selected. The time period can be adjusted, when the roll-on pad remains in the labeling position.

Support delay on

The supporting air from the blow tube is not immediately switched on when the print of the label is released but delayed. The air is switched on, when 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 the printer.

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 carrier ribbon. This may affect the accuracy of the label positioning or even cause faults in the labeling. Therefore, switching off the air blow delayed can be useful to separate the label from the carrier ribbon and neatly place the label on the surface of the pad.

Delay time

The parameter determines the time period between the start signal and the start of the labeling process. This delay makes it possible to release the start of the process controlled by a sensor, for instance, when a sensor is located within an assembly line in front of the labeling place.

Lock time

All start signals coming in following the first start signal are ignored when they arrive within the lock time.

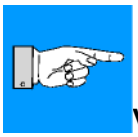
Peel position

This parameter allows the adjustment of the presentation position of the printed label on the dispense plate. Peel position with the initial offset value of “0“ causes the printed label to be peeled off from the liner leaving approximately a .1“ (2mm) wide strip of the label still adhering to the liner. The amount of label left adhering to the liner can be altered with this parameter.

Positive offset values cause more of the label surface to protrude past the dispense plate.

In the software an extra peel offset value is available. The offset values from “Peel position“ and from software are added together for execution. The software value does not replace the “Peel position“ value, but temporarily adjusts it for the current job.

NOTICE !



The parameter of the printer configuration should be used for the basic adjustment to optimize the labeling operation in the test mode using the _____ key and the pre-dispense key (see chapter "Test mode"). Adjustments for the several print jobs should be done with the software parameter.

Vacuum control

The label transfer from the printer to the applicator is checked by a vacuum sensor. If the transfer failes, the sucking holes on the pad will not be covered by the label. Therefore no vacuum can originate on the pad. Following the error message "Vacuum plate empty" will be shown and the label strip will be fed back. If the parameter "Vacuum control" is disabled, the error treatment described above will not be carried out. This can be helpful especially during adjustments, because the immediate backfeed will be cancelled. That way it is more easy to check the reasons for the faulty transfer.

For standard operation enable the vacuum control.

8. Adjustments

8.1. Mechanical Adjustments

The mechanical adjustments should be made in two steps.
To avoid possible collisions of the pad with other parts of the printerapplicator system, please roughly align the pad in all directions before connecting the applicator to the compressed air supply. The sensitive adjustment to optimize the labeling process must be made with the compressed air switched on.

Adjusting the Pad in the Print Direction

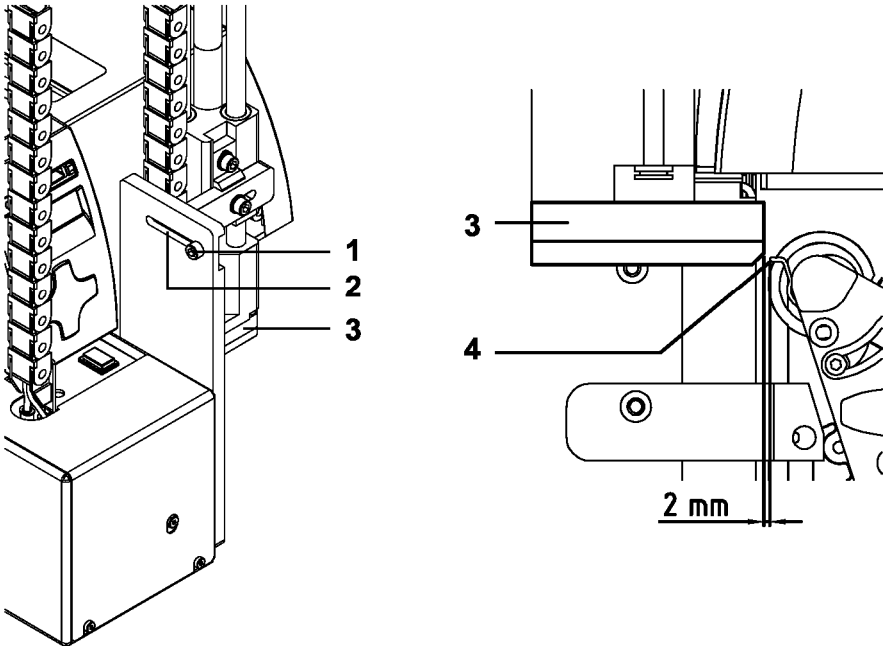


Fig. 8.1a Adjusting the pad in the print direction

The pad **(3)** can be shifted in the print direction to adjust the distance between pad and the dispense edge **(4)** of the printer.

1. Loosen the screw **(1).**

2. Shift the cylinder unit including the pad **(3)** inside the elongated hole **(2).**
   The distance between the pad and the dispense edge should be about 2mm.

3. Tighten the screw **(1).**

Adjusting the Level and the Sides of the Cylinder Unit

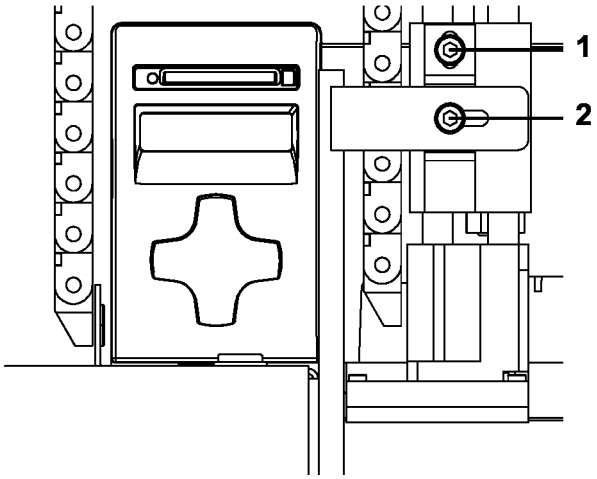


Fig 8.1b Adjusting the level and the sides of the cylinder unit

Adjusting the sides

1. Loosen the screw (**2**).
2. Move the cylinder unit sidewards until the dispensed label is aligned centrally to the pad respectively to the open holes in a universal pad.
3. Tighten the screw.

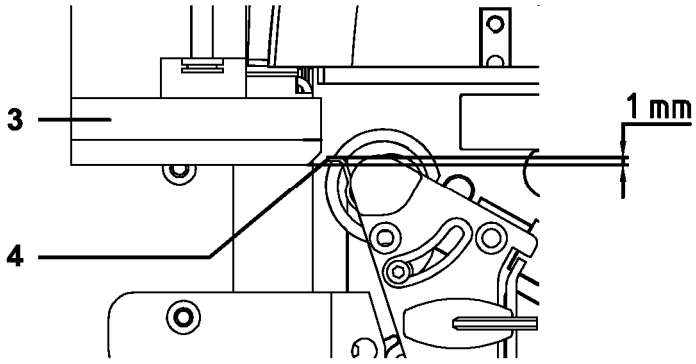


Fig 8.1c Adjusting the level

Adjusting the level

1. Loosen the screw (**1**).
2. Move the cylinder unit until in its upper (starting) position the lower rear edge of the pad is located slightly below the dispense edge of the printer. The distance between the pad and the dispense edge is recommended to be around 1 mm.
3. Tighten the screw.

Aligning the Pad to the Dispense Edge

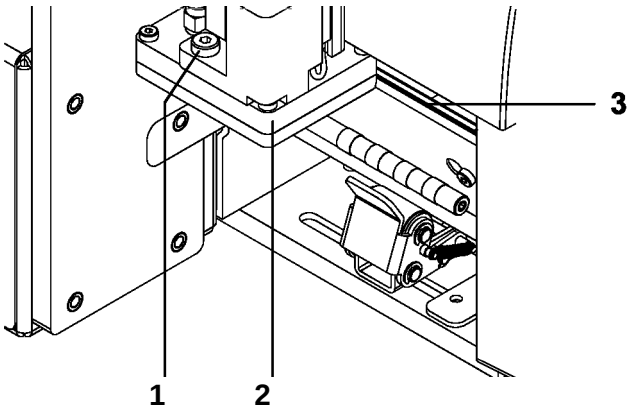


Fig. 8.1d Aligning the pad to the dispense edge 1.

Loosen the 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 the screw.

Opening the Holes on the Blow Tube

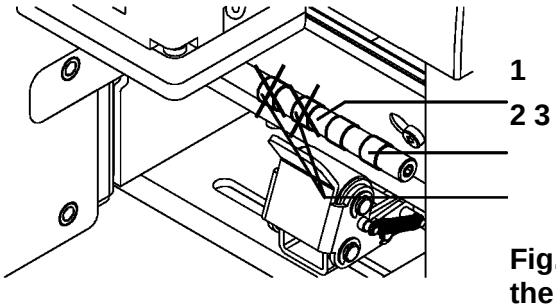


Fig. 8.1e Opening the holes on the blow tube

The blow tube **(1)** for the supporting air is designed for labels with a width of 120 mm. In regular distances of 15 mm the blow tube has six holes for the supporting air.
When the applicator is delivered only the two inner holes are open. The other four holes are closed by plastic rings **(2).**
To adjust the supporting air to the label width, the plastic rings can be removed from the holes.
Open all holes **(3),** which affect certainly the area of the label.

Tuning the Blow Tube

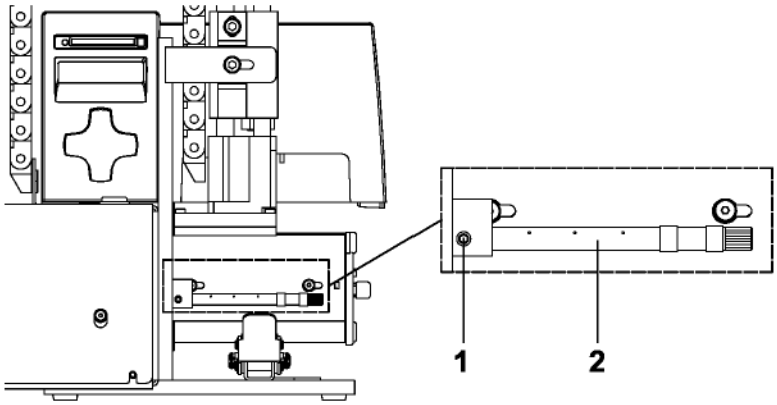


Fig. 8.1f Tuning the blow tube I

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

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

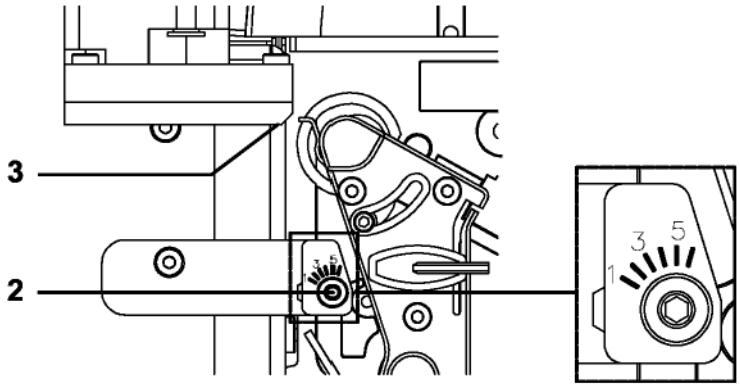


Fig. 8.1g Tuning the blow tube II

NOTICE !
For small labels adjust the tube until the air current is aligned to the dispense edge (3) of the printer. That matches with setting 3 or 4 at the scale.
With increasing label length the supporting air direction must be adjusted away from the dispense edge to setting 1 at the scale.

3. Tighten the screw (**1**).

Adjusting the Stopper for the Operation Mode "Blow on"

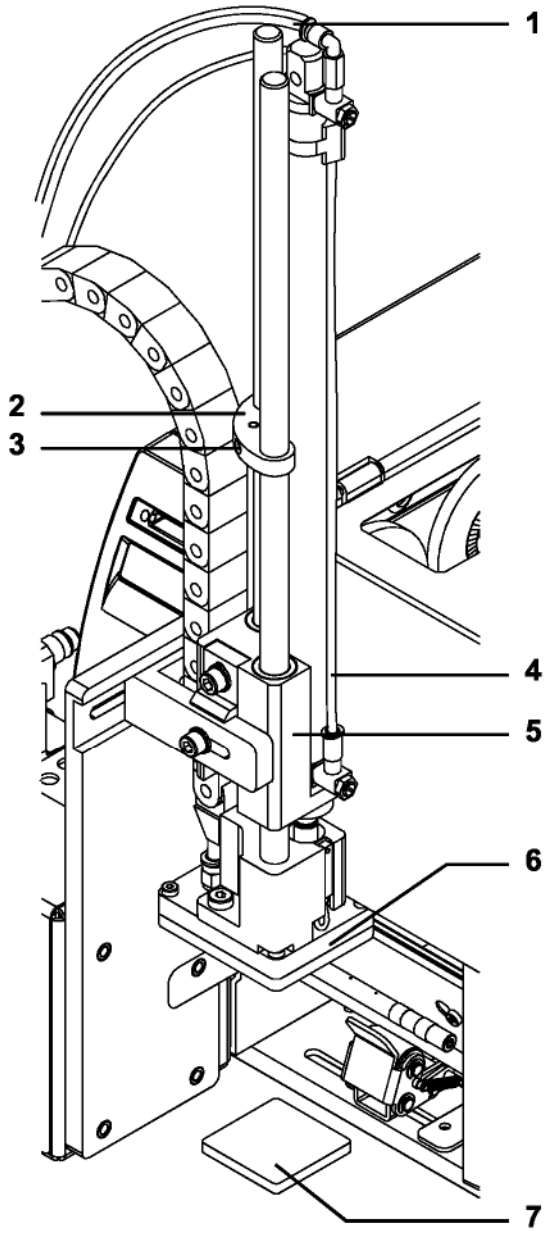


Fig. 8.1h Adjusting the stopper

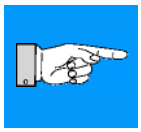
NOTICE !
Switch off the printer and close the shutoff valve for the compressed air at the service unit.

1. Place a product sample **(7)** at the labeling point.

2. Loosen the screws **(3) enough** so that you can move the stopper **(2)** along the guide bars.

3. Pull the tubes **(1,4)** out of the push-in-fittings

4. Move the pad manually in the required labeling position.



NOTICE !
The distance between the blow pad (6) in the labeling position and the product surface (7) must not exceed 10 mm.

5. Move the stopper **(2)** against the guide block **(5)** and tighten the screw **(3).**

6. Insert the tubes **(1,4)** into the appropriate push-in-fittings on the cylinder.

7. Open the shutoff valve and switch on the printer.

8.2. Pneumatic Adjustment

Control Valves

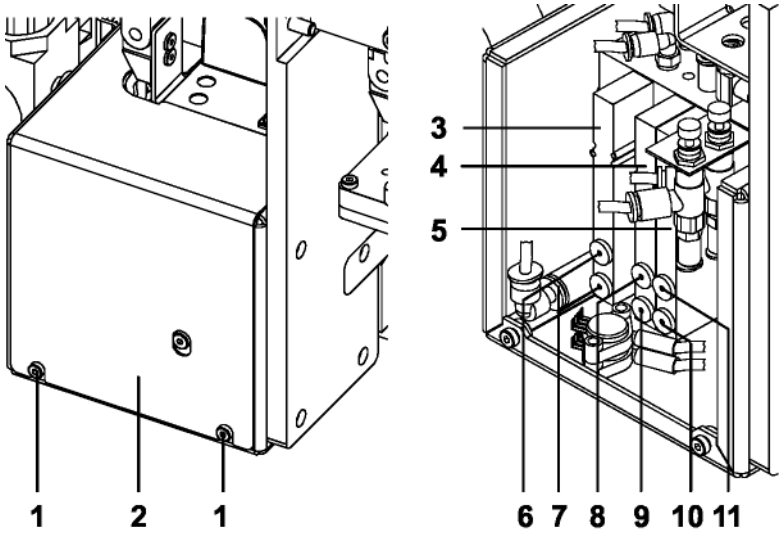


Fig. 8.2a Control valves

For adjusting the applicator, some functions can be released directly by operating the control valves **(3, 4, 5).** To reach the control valves, loosen two screws **(1)** on the front and remove the cover **(2).**
That way, three electric switchable control valves for compressed air become accessible. For manual tuning, the valves can also be operated by integrated keys.

Valve **(3)** to control the lift cylinder

When the printer is turned on, the pad is kept in the starting position. Switching the valve will move down the pad into the labeling position. Normally the back-switching of the valve is controlled by the signal of the labeling position sensor.

NOTICE !
A manual release of the valve by pressing the integrated keys is only possible with the printer switched off !

When the key **6** is pressed, the pad moves down as far as possible and stays in that position. When operated manually, there is no controlling by the labeling position sensor. When the key **7** is pressed, the pad moves up.

Double valve **(4)** to control the blow air

This valve controls the blow air on the pad.
In the operation mode **"Blow on"** the label will be blown on to the product by switching on the valve. In the operation 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 functions described above, both internal valves are switched on.
By pressing the keys **8** or **9** the blow air is only switched on by one of internal valves.

Double valve **(5)** to control vacuum and supporting air

One of the internal valves operates the vacuum nozzle and, consequently, controls the vacuum on the pad for picking up the label. The other valve controls the switch-on of the supporting air at the blow tube.
By pressing the key **10** the supporting air is switched on. Pressing the key **11** activates the vacuum on the pad.

Pressure Reducing Valves

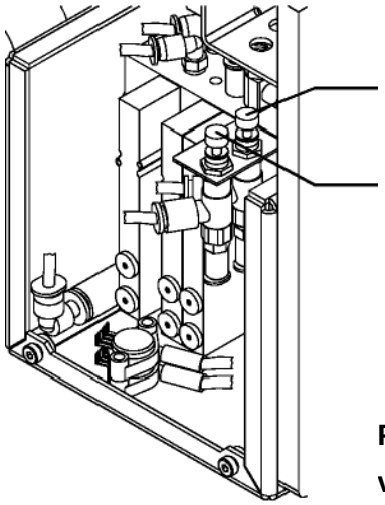


Fig. 8.2b Pressure reducing valves

The pneumatic control of the applicator contains two pressure reducing valves **(1,2).** Using those valves the pressure for the two air chambers of the cylinder can be limited in comparison to the main pressure.
The setting of the valve **1** adjusts the pressure for the upper chamber and affects mainly the downward movement of the pad. Valve **2** limits the pressure for the lower chamber and the speed for the upward pad movement.

NOTICE !
When the applicator is delivered, the pressure reducing valves are adjusted to 2.5 bar and sealed. That way the pad speeds are limited and the risk of injury is minmized.
On the other hand this setting guarantees a certain operation also when heavy pads are used.

For that reason do not change the settings of the pressure reducing valves !

Throttle Valves at the Cylinder

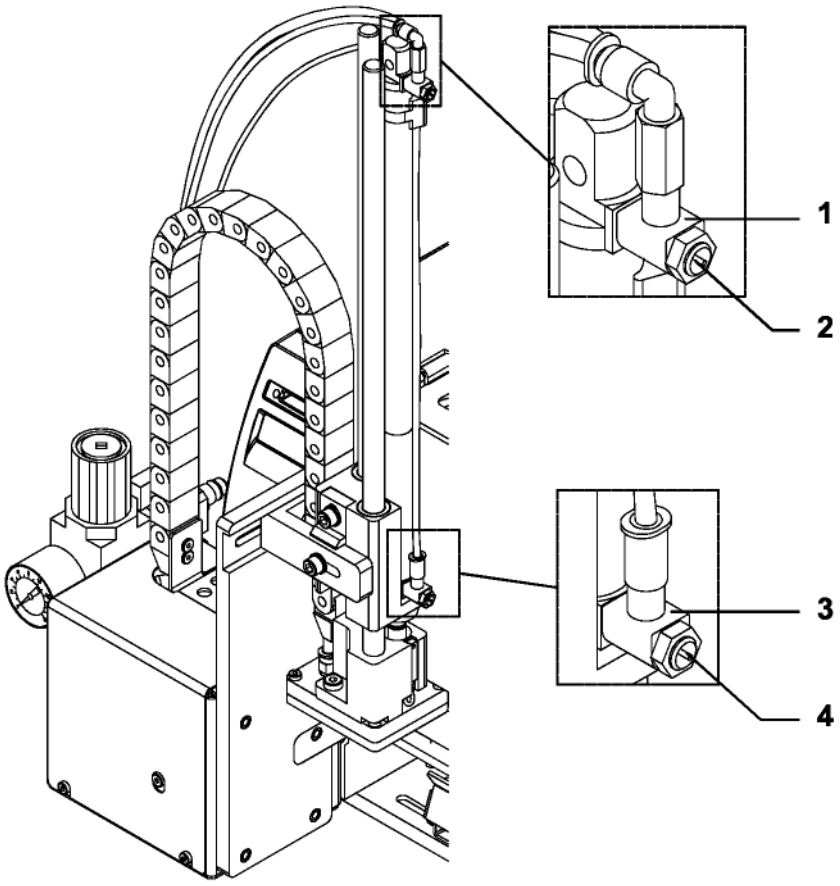


Fig. 8.2c Throttle valves at the cylinder

The speed of the pad movement can be regulated via two throttle valves **(1, 3)** on the cylinder. Those valves regulate the **output** speed of the compressed air from the concerning cylinder chambers.
The valves are adjustable by turning the throttle screws **(2, 4).** Turning clockwise will close the valves.

Opening the bottom valve **(3)** speeds up the pad moving down, opening the top valve **(1)** accelerates the upward movement.

NOTICE !
The application pressure of the pad is mainly dependendon the downward speed of the pad.
In order to reduce the application pressure turn clockwise the screw (4). That way the downward speed of the pad will be reduced. But the speed reduction is limited. The time for the downward movement of the pad may not exceed 2 seconds.

Throttle Valves at the Manifold

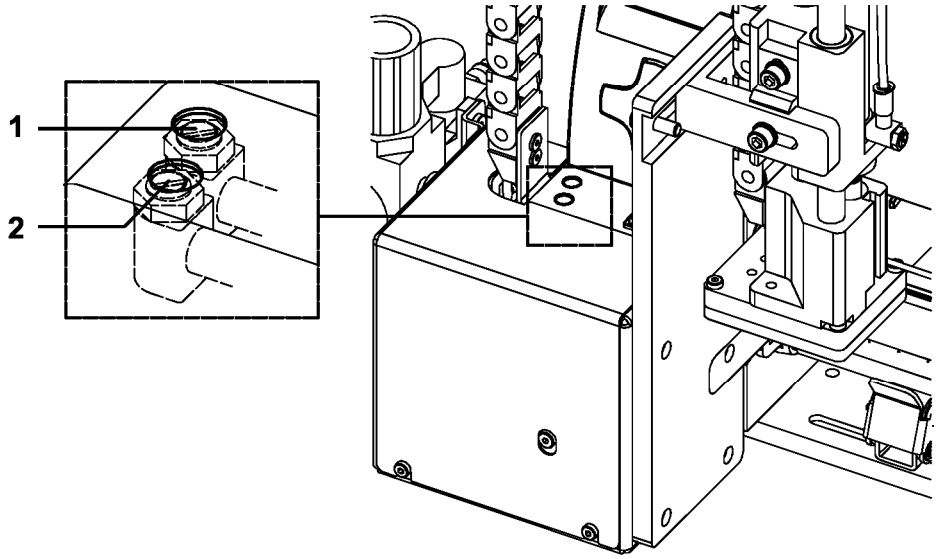


Fig. 8.2d Throttle valves at the manifold

Throttle valve (**1**) to regulate the vacuum

With this valve the vacuum to suck the label onto the pad can be adjusted.
Turn the throttle screw to adjust the valve. Turning clockwise will close the valve.
With the vacuum setting the final position of the label on the pad can be adjusted.

Throttle valve (**2**) to regulate the supporting air

With this valve the supporting air to blow the label onto the pad can be adjusted.
Turn the throttle screw to adjust the valve. Turning clockwise will close the valve.
The valve has to be tuned in such a way, that the label is blown onto the pad without whirling.

9. Operation

Loading Labels and Transfer Ribbon

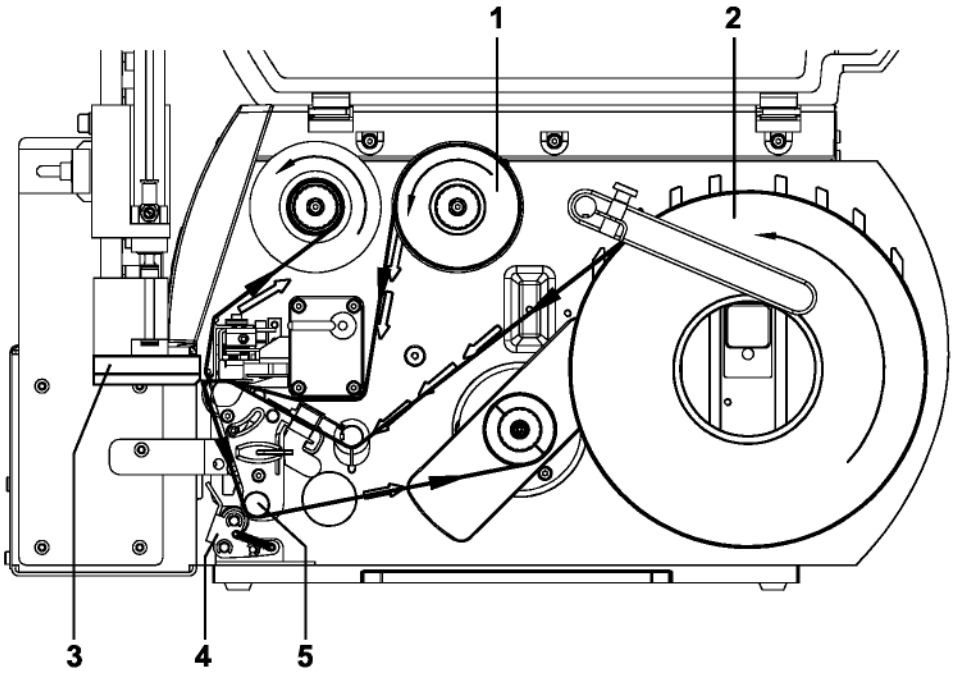


Fig. 9a Label and transfer ribbon feed path

Insert transfer ribbon (**1**) and labels (**2**) as shown in figure 9a.
For detailled instruction see the Operator's Manual of the printer.

CAUTION !
Swing the locking system (4) against the rewind assist roller as shown infigure 9a.
Otherwise the pad (3) would collide with the locking system (4) during operation.

Notice about Programming

NOTICE !
To operate the applicator the peel-off mode must be activated in the software !
For direct programming use the P-command (see Programming Manual)!

Test Mode Using the Pre-dispense Key without Print Job

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 key and the pre-dispense key **(1).**

NOTICE !

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

If the printer has no print job, pessing the key will release the feed of a blank label. At the same moment 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.

Pressing the pre-dispense key **(1)** will drive the lift cylinder to move the pad down into the labeling position. A sensor signals when the labeling position is reached.
Following, the vacuum is switched off and the label is placed onto the product. Then, the lift cylinder is driven to move the pad back into the starting position.

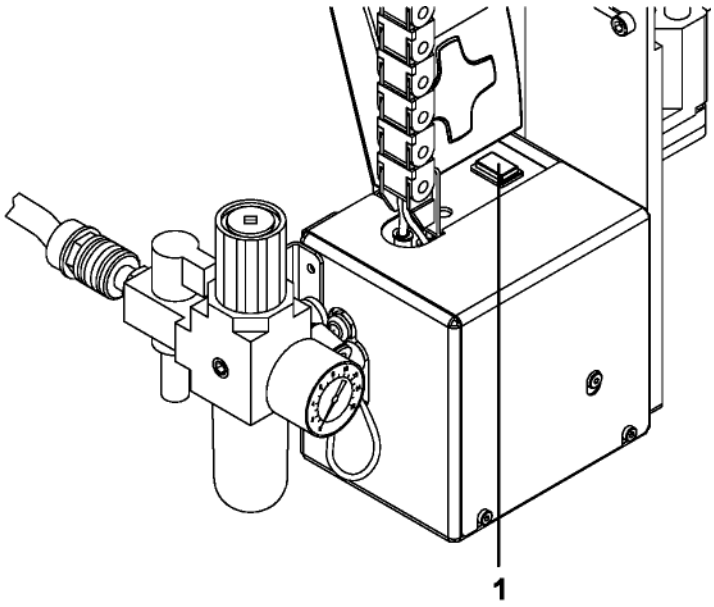


Fig. 9b Pre-dispense key

9. Operation

Test Mode Using the Pre-dispense Key with Print Job

By pressing the pre-dispense key **(1),** half cycles of the labeling process can alternately be released, provided that there is a print job.

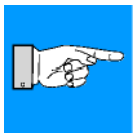
1(st) half cycle

Pressing the key will release the print of one label. At the same moment the vacuum at the pad as well as the supporting air (blow tube) are switched on. After the label has been printed and picked up by the pad, the supporting air is switched off.

2(nd) half cycle

Pressing the key will drive the lift cylinder to move the pad down into the labeling position. The sensor signals when the labeling position is reached.
Following, the vacuum is switched off and the label is placed onto the product. Then, the lift cylinder is driven to move the pad back into the starting position.

NOTICE !
If the label is removed from the pad manually after the first half cycle of the labeling process, the print process will be repeated when the pre-dispense key is pressed again.



9. Operation

Adjusting the Peel Position

To optimize the taking-over of the labels by the pad there are two different parameters available for adjusting the peel position.

CAUTION !
A two-step method to adjust the peel position is described below. It is very important to follow that procedure for a certain start after label loading and for the re-start after error treatment !

1. Peel position in the printer configuration

First the parameter "Peel position" in the printer configuration must be adjusted (see chapter "Printer Configuration"). That parameter should be used to compensate tolerances between different printers. The setting of the parameter will be stored on the printer. Adjust the **printer** parameter "Peel position" in such a way, that the blank labels are totally peeled-off from the liner. For the adjustment use the test mode without print job and simulate the application process with the key and the pre-dispense key.

2. Peel position in the software

A second peel-off parameter is available in the software. The software value does not replace the “Peel position“ value of the printer configuration, but temporarily adjusts it for the current job. The offset values from “Peel position“ and from software are added together for execution.

NOTICE !
Please make sure, that the basic adjustment described above was made before adjusting the software peel-off parameter.

Adjust the **software** parameter with a real print job in such a way, that the printed labels are totally peeled-off from the liner. It is recommended to operate the applicator in the test mode with the pre-dispense key.

Standard Operation

1. Check all external connections before starting.

2. Load the material corresponding to the instructions in the chapter "Loading labels and transfer ribbon". Make sure that the locking system is locked.

3. Open the shutoff valve. 4.

Switch on the printer.

NOTICE !
Make sure that the pad is not covered by a label when switching on the printer-applicator system.

5. Before starting the first print job, press the _____ key on the printer. This generates a synchronous running. Remove the processed labels manually. After a few seconds the printer carries out a brief reverse feed and the edge of the next label is positioned at the print line.
This synchronizing also has to be carried out when the print job has been interrupted with the_____ key.

NOTICE !
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.

7. Start the labeling process via PLC interface.

If an error occurs while the applicator is operating, this is shown in the display of the printer (for types of errors and how to treat them see appendix B).

9. Operation

Appendix A - PLC Interface

For use in a networked system the applicator is equipped with a PLC interface to start and interrupt the labelling process. It also passes on state information as well as error messages of the applicator to the system control.
The interface is placed at the backside of the applicator has a 15 pin as well as a 25 pin SUB-D connector.

NOTICE !
The 15 pin connector has the identical pin assignment as the PLC interfaces of the Apollo an Hermes applicators.

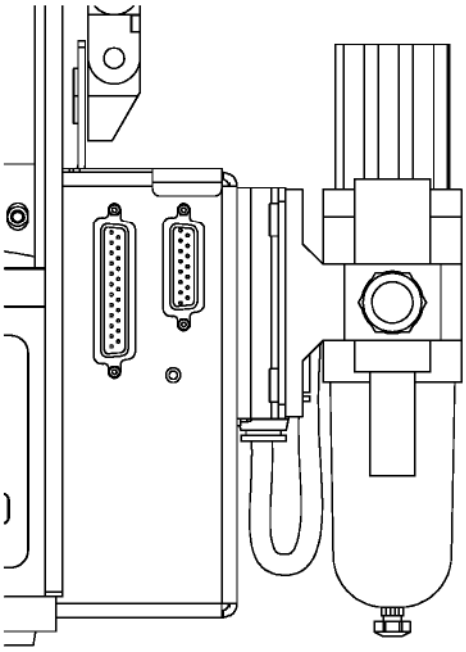


Fig. A-1 PLC interface connectors

Appendix A - PLC Interface

Pin Assignment of the PLC Interface Connectors

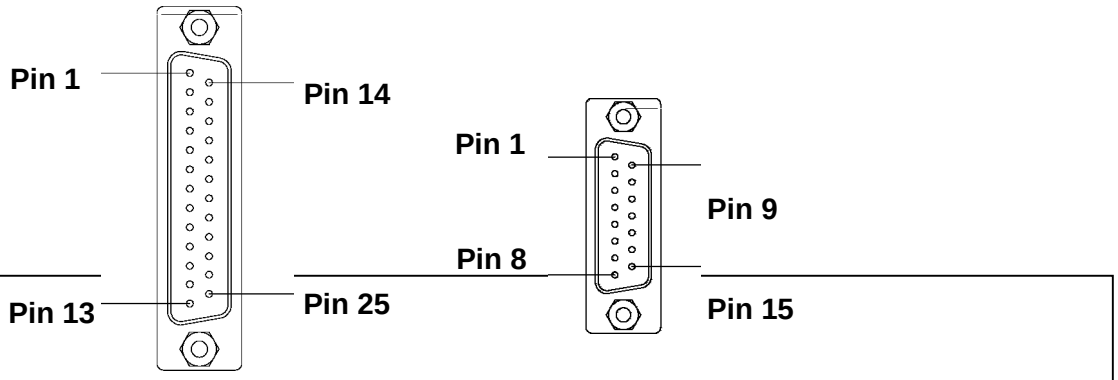


Fig. A-2 Pin Assignment of the PLC Interface Connectors

Pin 25 pin	Pin 15 pin	Signal	Signal old *	Direction	Function
1	1	E0.1 (+)	XSTRT	Input	Start signal
2	2	E0.2 (+)	XSTP	Input	Stop signal (external error)
3	3	E0.3 (+)	XDREE	Input	Print first label
4	4	A0.1	XDNB	Output	Printer not ready
5	5	A0.2	XEDG	Output	No existing print job
6	6	A0.3	XSAA	Output	General error message
7	7	A0.4	XSOE	Output	Pad in starting position
8	8	GND	GND	Output	Ground (0V) of the printer
9		A0.5	XEDST	Output	Special signal X command
10					not used
11		E0.5 (-)	XRSR	Input	External RESET (reverse line)
12					do not connect
13					do not connect
14	9	E0.1 (-)	XSTRTR	Input	Start signal (reverse line)
15	10	E0.2 (-)	XSTPR	Input	Stop signal (reverse line)
16	11	E0.3 (-)	XDREER	Input	Print first label (reverse line)
17	12	A0.7	XSUE	Output	Pad in labeling position
18	13	A0.8	XETF	Output	Applicator fault
19	14	COM	RÜL	Output	Common potential (for all outputs)
20	15	24V (Out)	24P	Output	Operating voltage +24V, Si T 100mA
21		A0.9	XESP	Output	Special signal X command
22					not used
23		E0.5 (+)	XRS	Input	External RESET
24					do not connect
25		A0.10	/XSOE	Output	Pad in starting position (inverted)

Tabelle A-1 Pin Assignment of the PLC Interface Connectors * Signal names at Apollo and Hermes applicators

Comments on the Signals

NOTICE !
The numbers in the brackets concern to the 15 pin connector !

Pin 25 pin	Pin 15 pin	Signal	Comment	Activation / active state
1	1	E0.1 (+)	Start signal To start the cyclic labeling process.	Switch on +24V between pin1 and pin14 (9)
2	2	E0.2 (+)	Stop signal (external error) The following functions are released - to finish the print of a label and its picking-up by the pad - to interrupt or to stop the beginning of the labeling process - to make the pad moving back into the starting position - to disregard of all following start signals - if activated during the labeling phase, the display will show the message 'Host stop/ error'. (no message during print process)	Switch on +24V between pin2 and pin15 (10)
3	3	E0.3 (+)	Print first label for application mode **"Apply/Print"** only : to release the print of the first label and its picking-up by the pad	Switch on +24V between pin3 and pin16 (11)
4	4	A0.1	Printer not ready Error message of the printer. The error type is shown on the display. After error correction, the print of the last label **will be repeated.**	Contact between pin4 and pin19 (14) is open.
5	5	A0.2	No existing print job. State message. There is no print job currently available.	Contact between pin5 and pin19 (14) is open.

Table A-2 Comments on the signals

Pin 25 pin	Pin 15 pin	Signal	Comment	Activation / active state
6	6	A0.3	General error message General error message of both, printer and applicator. This message is shown when one of the two errors either XDNB or XETF occurs. Important in case that only one error signal of the applicator can be analysed from the system control.	Contact between pin6 and pin19 (14) is open.
7	7	A0.4	Pad in starting position The pad is in the starting position where it picks up the label from the printer.	Contact between pin7 and pin19 (14) is open.
8	8	GND	Ground (0V) **CAUTION !** **Pin 8 must not be connected with the ground of the PLC. Otherwise the dc decoupling would be lost.**	
9		A0.5	Special signal x command (bit 0) is controlled by the X command in the direct programming for detailed description of the X command see the programming manual	if bit 0 is set : Contact between pin9 and pin19 is closed.
10				
11		E0.5 (-)	Reverse line of the external RESET signal	
12				
13				
14	9	E0.1 (-)	Reverse line of the start signal	

Table A-2 Comments on the signals (continuation)

Pin 25 pin	Pin 15 pin	Signal	Comment	Activation / active state
15	10	E0.2 (-)	Reverse line of the stop signal	
16	11	E0.3 (-)	Reverse line of the signal "Print first label"	
17	12	A0.7	Pad in labeling position The pad is in the position where the label is applied to the product	Contact between pin17(12) and pin19 (14) is open.
18	13	A0.8	Applicator fault Signal is active after one of the following errors occured : - pad has not reached the labeling position within 2s after the start of the downward movement - pad has not reached the starting position within 2s after the start of the upward movement - a printed label has not been picked up by the pad properly or it fell down during the movement of the pad (message of the vacuum sensor) - the label is still on the pad when the pad moves back up (message of the vacuum sensor) The type of fault is shown in the display of the printer. After fault correction, the print of the last label printed before the fault occured **will not be repeated.**	Contact between pin18(13) and pin19 (14) is open.
19	14	COM	Line with common potential for all output signals (may be connected with 24V or GND)	

Table A-2 Comments on the signals (continuation)

Pin 25 pin	Pin 15 pin	Signal	Comment	Activation / active state
20	15	24V(Out)	Operating voltage +24V, Si T 100mA The applicator system provides an operation voltage of 24 V **CAUTION !** **You must not apply any external voltage on pin 20(15) !** The operating voltage allows the use of the applicator without being part of a networked system. Example : To generate the start signal by a foot switch.	
21		A0.9	Special signal x command (bit 3) is controlled by the X command in the direct programming for detailed description of the X command see the programming manual	if bit 3 is set : Contact between pin21 and pin19 is closed.
22				
23		E0.5 (+)	External RESET to reset printer and applicator	Switch on +24V between pin23 and pin11
24				
25		A0.10	Pad in starting position (inverted) The pad is in the starting position where it picks up the label from the printer.	Contact between pin25 and pin19 is closed.

Table A-2 Comments on the signals (continuation)

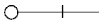
Circuit Diagrams of Inputs and Outputs

The **inputs** are optocouplers with a current limiting resistor of 2.4k~ in the input circuit for an operating voltage of 24V.
For each signal [IN (+)] there is a separate reverse line [IN (-)] at the plug connector. From that, the following matching pairs of signals result :

Pin1 - E0.1 (+)

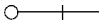
Pin14/(9) - E0.1 (-)

Pin2 - E0.2 (+)



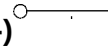
Pin15/(10) - E0.2 (-)

Pin3 - E0.3 (+)



Pin16/(11) - E0.3 (-)

Pin23 - E0.5 (+)



Pin11 - E0.5 (-)

Fig. A-3 Circuit of the inputs

All **outputs** are realized through solid state relays which outputs are connected among one another one-sided. The joint line is lead to the plug connector as COM signal.
The switch function of the outputs is to open or close the contact between the joint line COM and the respective output.

Electrical requirements : U_{max} = 42V
I_{max} = 100mA
Resistance of the closed contact : R <= 25Ω

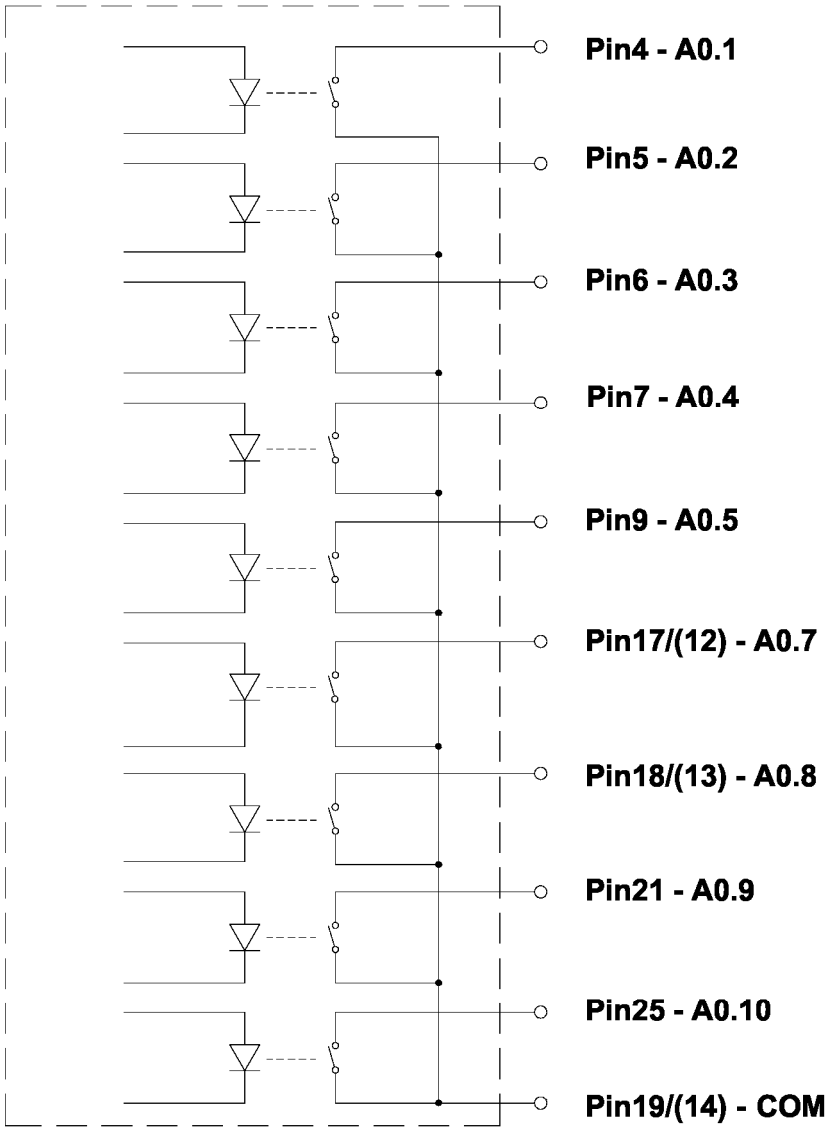


Fig. A-4 Circuit of the outputs

Examples for External Circuits

NOTICE !
The numbers in the brackets concern to the 15 pin connector !

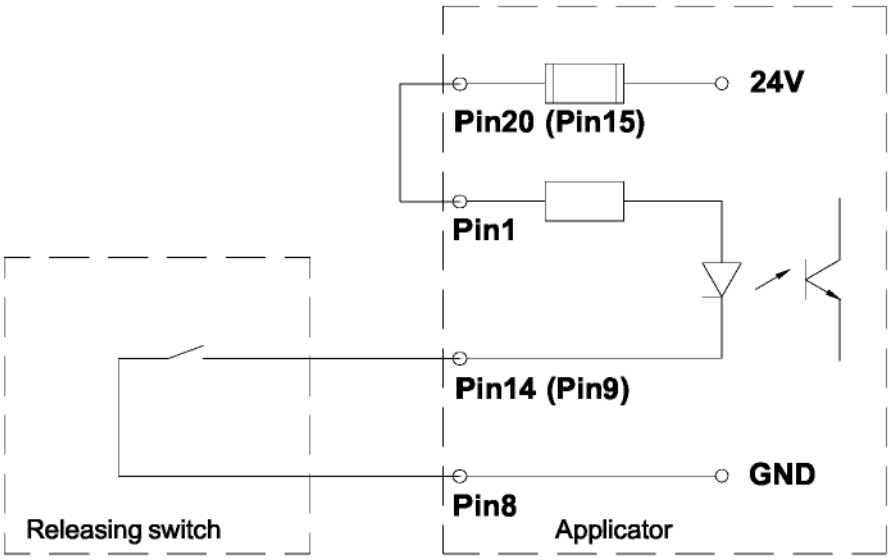
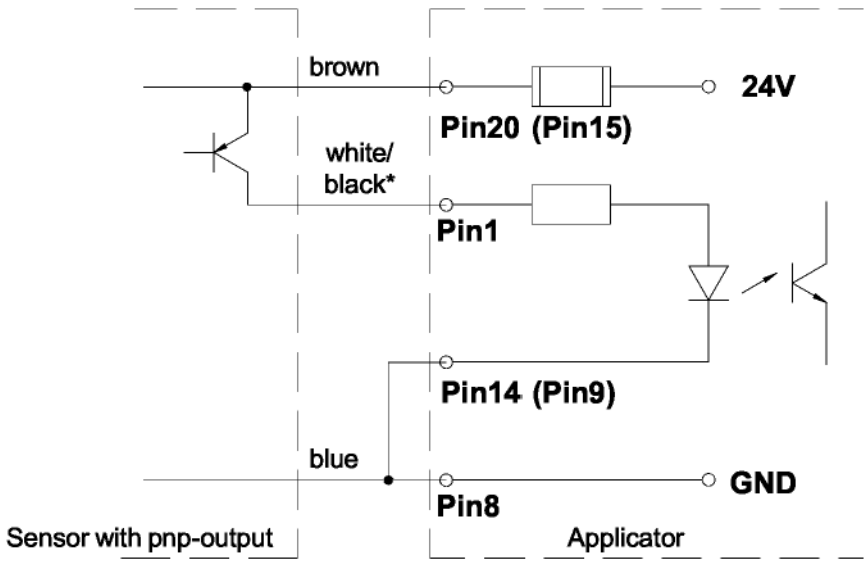
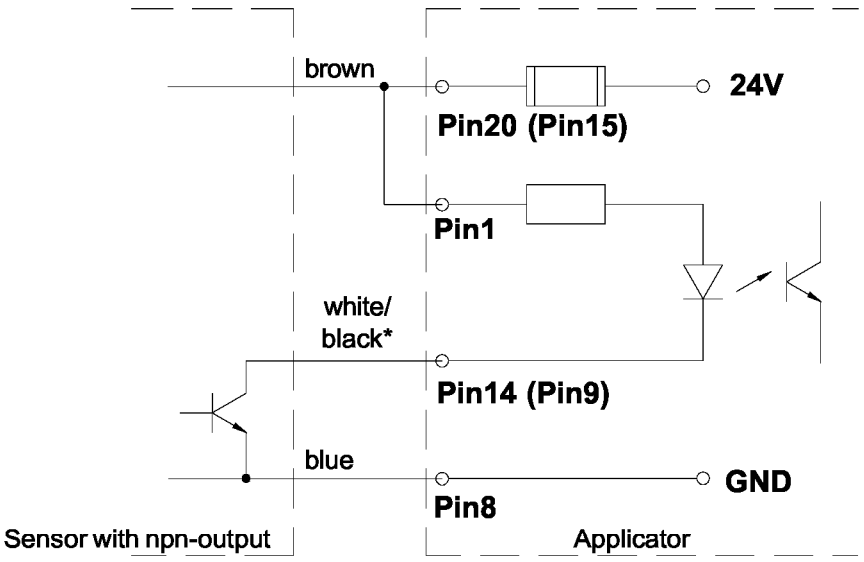


Fig. A-5 Example with releasing switch



* dependent on the used sensor

Fig. A-6 Example for an optical sensor with pnp-output



* dependent on the used sensor

Fig. A-7 Example for an optical sensor with npn-output

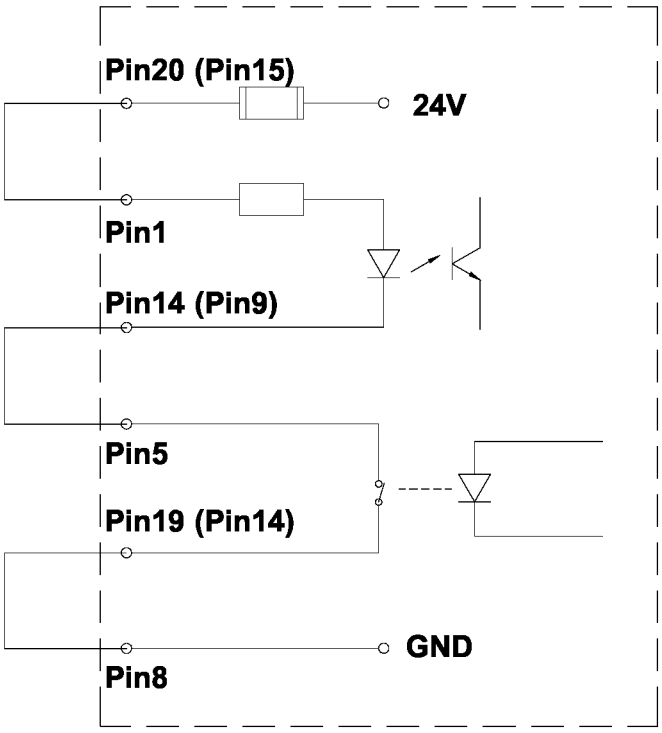


Fig. A-8 Example for automatic release of the start signal after sending a print job for jobs with label amount=1 only

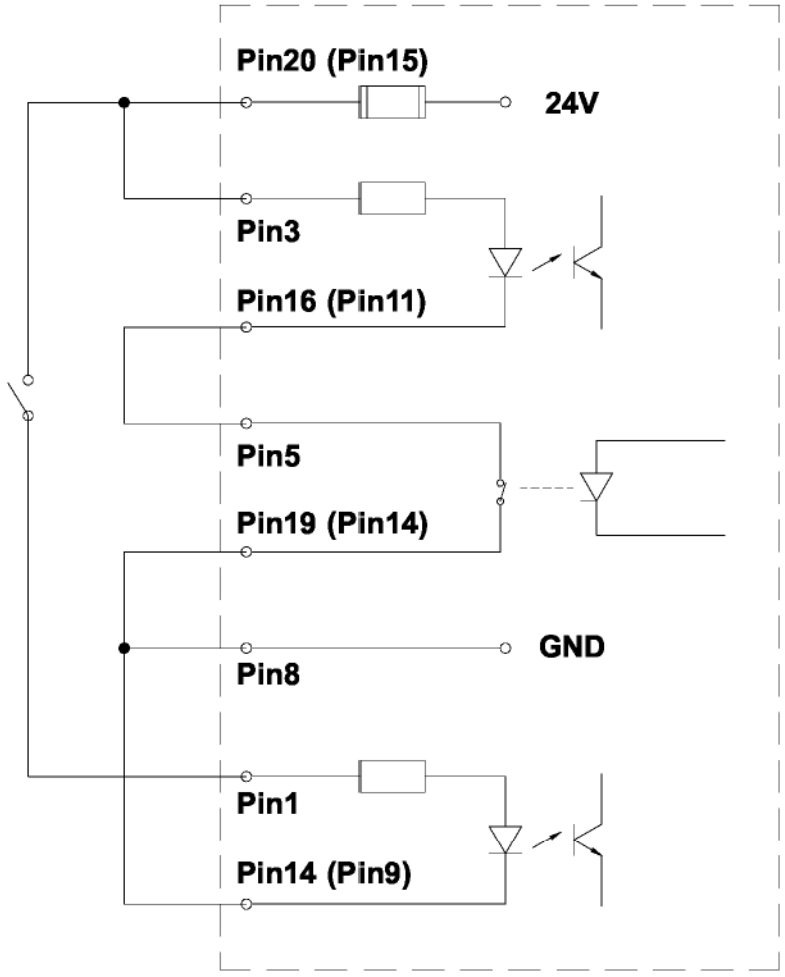


Fig. A-9 Example for automatic release of the signal "Print first label" after sending a print job (for application mode "Apply/Print")

CAUTION !
If you use the examples of the figures A-8 or A-9 and connect additional output signals to a PLC, the dc decoupling on the applicator side will be lost !
In that case the dc decoupling must be realized on the PLC side !

Appendix B - Error Messages

Error Messages of the Printer

Detailed information about printer errors (e.g. 'Paper out', 'Ribbon out', etc.), their causes and correction methods can be found in the Operator's manual for the printer (Appendix C).

NOTICE !
With the installation of an applicator the error treatment expands. This means in particular, that after correcting the error and before the correction is quit with the_____ key, an additional label feed has to be released using the_____ key.

This synchronizes the process of printing and labeling. Possibly dispensed blank labels have to be removed manually.
After quitting the error message the label caused the error will be printed once more.

Error Messages of the Applicator

The following table gives an overview of error messages and their possible causes. It also suggests methods to resolve the problem. After error correction, always quit the error message of the applicator with the _____ key.
To reprint the label where the applicator error occurred, a new print job has to be released.

Resuming the Operation in the Application Mode "Apply/Print"

In the application mode "Apply/Print" a printed label must be picked by the pad before starting the cyclic operation. Therefore after an error first the signal "Print first label" must be sent or the pre-dispense key must be pressed before the cyclic operation can be started.

Error Message	Possible cause	Fehlerbehandlung
Air pressure ins.	Compressed air is switched off.	Check the shutoff valve
Host stop/ error	Labeling process has been Interrupted by an stop signal via PLC interface	Label the product manually if necessary
Label not depos.	Label has not been placed onto the product; after the pad has moved back the label still sticks on the pad	Label the product manually
Lower position	Pad has not reached the labeling position within 2s after the movement of the pad	Check the pneumatic adjustments (esp. the lower throttle valve of the cylinder); Check the applicator for heaviness of its mechanics; Check the labeling position sensor (service); Label the product manually
Refl. sensor blk.	There has been no change of the switch state at the upper control sensor (at the cylinder) between the start of the labeling process and the signal from the labeling position sensor	Check the sensor (service)
Upper position	Pad has not reached the starting position within 2s after the pad has moved back; or pad has left starting position unauthorized	Check the pneumatic adjustments (esp. the upper the throttle valve of the cylinder); Label the product manually
Vac. plate empty	Label has not been picked up properly by the pad; or label fell off the pad before it could be placed onto the product	If possible, place the 'lost' label onto the product manually; Otherwise stop print job and start again with adapted parameters (e.g. count)

Table B-1 Error Messages of the Applicator

Appendix C - Function of the LEDs of the Electronics

PCB Applicator Control

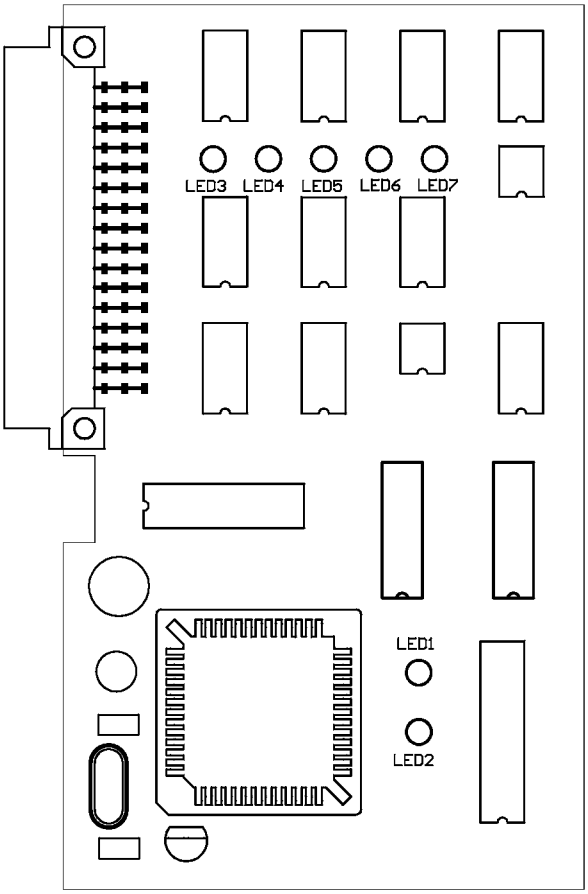


Fig. C-1 LED's on the Applicator Control PCB

LED No.	Colour	Function	Active state
1	yellow	Label on the pad	On
2	yellow	Operating voltage 5 V	On
3	green	PLC signal XSTRT	On
4	green	PLC signal XSTP	On
5	green	PLC signal XDREE	On
6	green	PLC signal XRS	On
7	green	not used	

Table C-1 LED's on the Applicator Control PCB

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