Operator's Manual

Precision Applicator
4400

Operator's Manual - Translation of the Original Version
for the following products

Family
4400

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1 Introduction

1.1 Instructions

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

> **Danger!**
> **Draws your attention to an exceptionally grave, impending danger to your health or life.**

> **Warning!**
> **Indicates a hazardous situation that could lead to injuries or material damage.**

> **Attention!**
> **Draws attention to possible dangers, material damage or loss of quality.**

> **Notice!**
> **Gives you tips. They make a working sequence easier or draw attention to important working processes.**

> Environment!
> Gives you tips on protecting the environment.

▶ Handling instruction

▷ Reference to section, position, illustration number or document.

∗ Option (accessories, peripheral equipment, special fittings).

Zeit   Information in the display.

1.2 Intended Use

- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to the life and limb of the user or third parties and/or damage to the device and other tangible assets can arise during use.
- The device may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in the operating manual.
- The device applicator mounted on a cab printer of the Hermes or Hermes-A series is intended exclusively for applying suitable materials that have been approved by the manufacturer. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.
- Usage for the intended purpose also includes complying with the operating manuals of applicator and printer, including the manufacturer's maintenance recommendations and specifications.

> **Notice!**
> **The complete documentation can also currently be found in the Internet.**

1.3 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 jewelry 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.

- Perform only those actions described in this operating manual.
  Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions.
- Other unauthorized work on or modifications to the device can also endanger operational safety.
- Always have service work done in a qualified workshop, where the personnel have the technical knowledge and tools required to do the necessary work.
- There are various warning stickers on the device. They draw your attention to dangers.
  Warning stickers must therefore not be removed, as then you and other people cannot be aware of dangers and may be injured.

1.4 Safety Marking
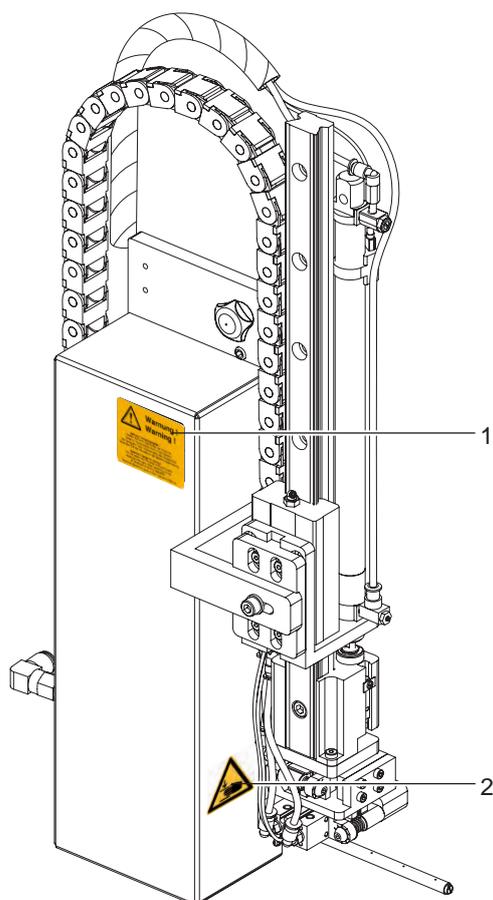
1: Risk of injury by moved parts

2: Danger of bruise by the moving tamp.

Fig. 1   Safety marking

1.5 Environment

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

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

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

▶ Send the parts for recycling.

2 Product Description

2.1 Function

The Precision Applicator 4400 is an optional device to use with cab printers of the Hermes or Hermaes-A 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 compressed-air driven pneumatic cylinder.

- In the starting position, the label is picked up from the printer.
- Sensors 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 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 sensors (labelling position sensor and a sensor on a mini slide cylinder).
- 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.

The label can be applied with three different methods :

- **Stamp on**
  The label is pressed directly onto the product.

2.2 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.
- 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.

2.3 Technical Data

Label transfer method		Stamp on
Label width in mm		4-110
Label height in mm		4-80
Cylinder stroke in mm		100-400
Compressed air pressure		0,5 MPa (5 bar)
Product surface		plane
Sound pressure level		under 70 dB(A)
Product height	variable	■
	fixed	-
Product	fixed	■
	linear movement	-
	rotate	■

Table 1   Technical Data

2.4 Device Overview

Front view 1

Front view 2

Rear view
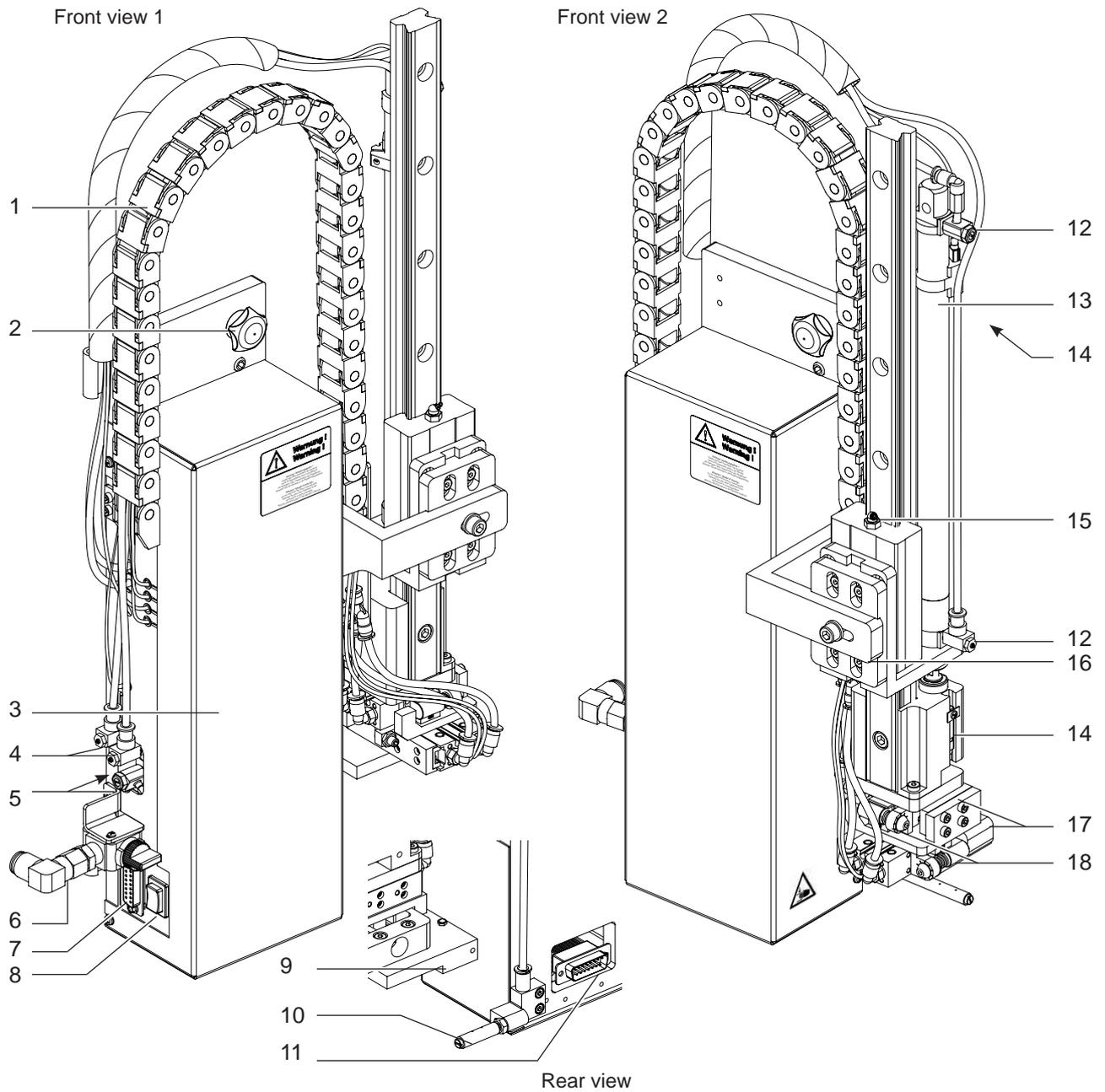
Fig. 2   Device Overview

1	Energy track	10	Blow tube (customized)
2	Knurled screw	11	Connector applicator-printer
3	Cover	12	Throttle valve lift cylinder
4	Throttle valve mini slide cylinder	13	Lift cylinder
5	Throttle valve supporting air and vacuum	14	Sensors (lift cylinder)
6	Connector compressed air	15	Lubrication cup
7	PLC-interface	16	Cross bearer
8	Pre dispense key	17	Mini slide cylinder
9	Pad (customized)	18	Stopper mini slide cylinder

2 Product Description

2.5 Contents of Delivery

1 Precision applicator
2 Hinges and Screws, 2 Sets
3 Blow tube (customized - suitable to pad)
4 Pad (customized)
5 Screws 2x
  (in scope of delivery of pad)

- Documentation
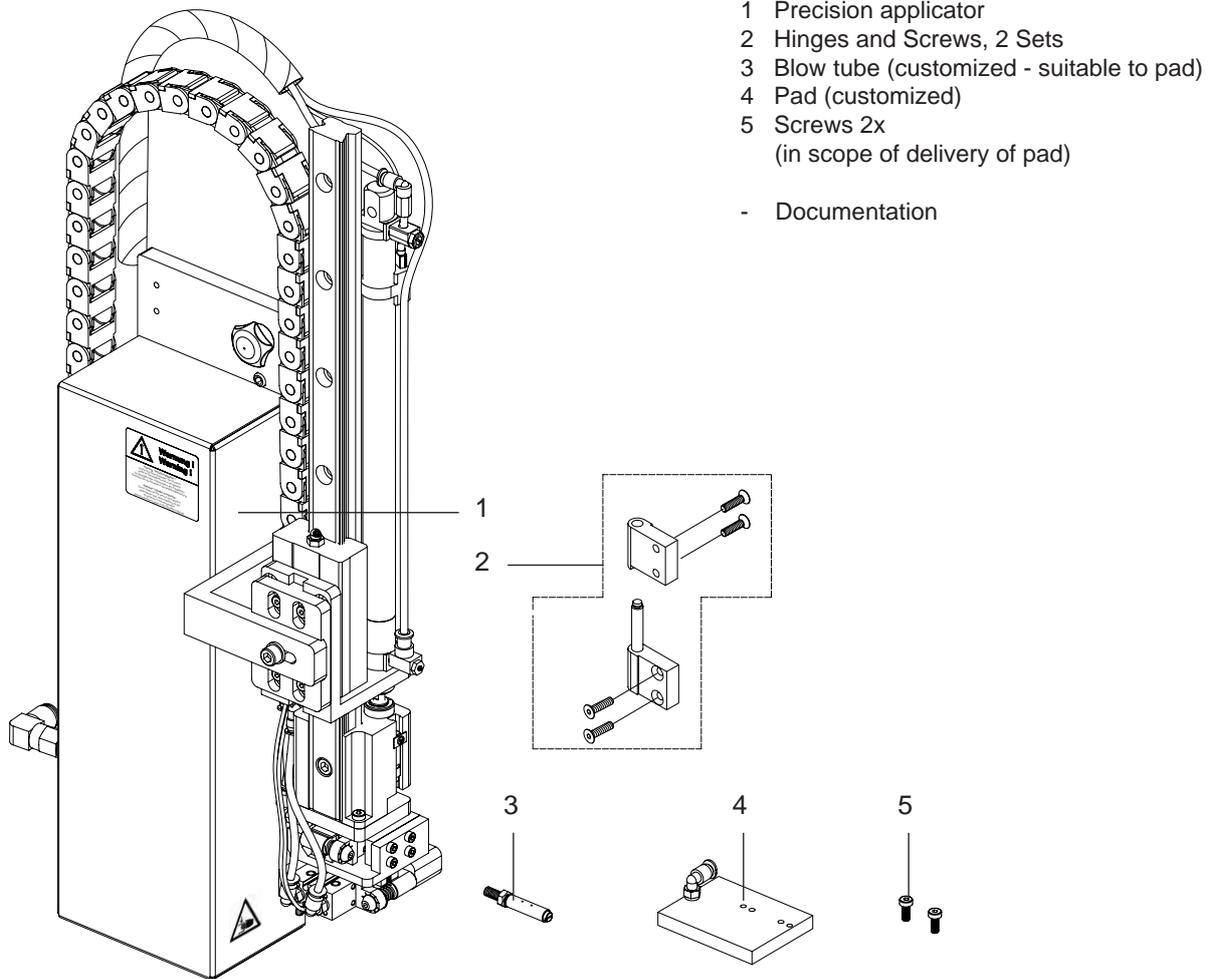
Fig. 3   Contents of delivery

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

Attention!
The device and printing materials will be damaged by moisture and wetness.
▶ **Set up label printer with applicator only in dry locations protected from splash water.**

3.1 Mounting

> ⚠️ **Warning!**
> **Risk of injury trough uncontrolled movement of the applicator.**
> **Mount the applicator only when the printer is switched off and the compressed air is disconnected.**

> ⚠️ **Warning!**
> **Risk of injury and damage in case of using the applicator appropriate.**
> **Use the applicator only secure mounted at a Hermes or Hermes-A printer.**

3.1.1 Mounting the Applicator at the Printer
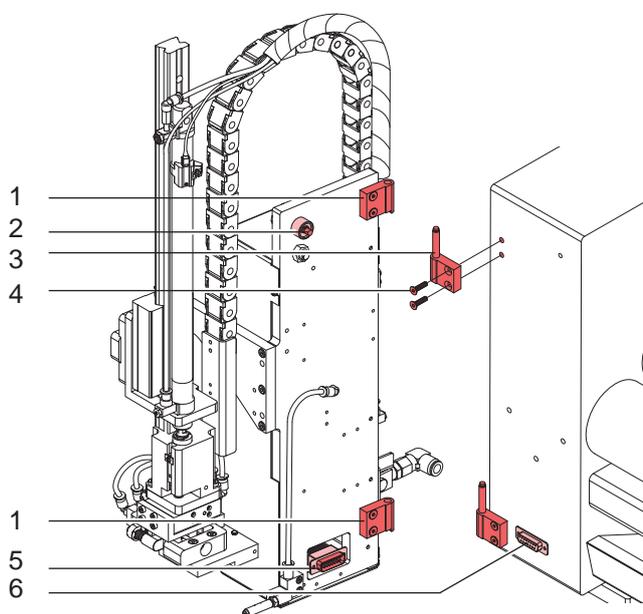
Fig. 4   Mounting and Connections

1. Mount hingis (1 and 3) like in Fig. 4 .
2. Hang applicator with the female parts (1) of hinges at the printer mounted hinges parts (3).
3. Plug the SUB-D15 applicator-printer interface (5) into the connector (6) of the printer.
4. Swing the applicator to the printer and tighten the knurled screw (2) at the printer.

3.1.2   Mounting Pad
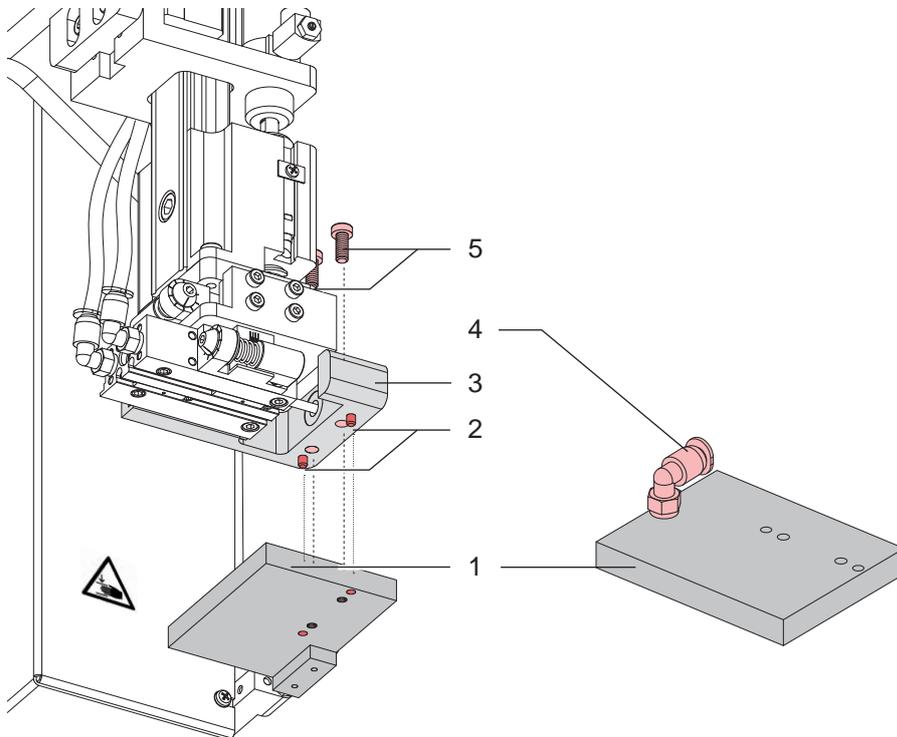
Fig. 5   Mounting pad

> ⚠ **Warning!**
> **Mount the pad only when the printer is switched of and the compressed air disconnected.**

1. Disconnect tubes from adapter (4).
2. Move the pad (1) to the pad holder (3). On the pad holder (3) integrated pins (2) must be into the propper holes at the pad (1).
3. Fix the pad (1) by the screws (5) on the pad holder (3).
4. Put the vacuum tube in the L-fitting connector.

> **!** **Achtung!**
> ▶ **To avoid a collision of the pad with other parts of printer or applicator make a first adjustment of the pad in all directions before the printer switched on and the compressed air will be connected.**   **(▷ "Mechanical Adjustments").**

3.2   Connections
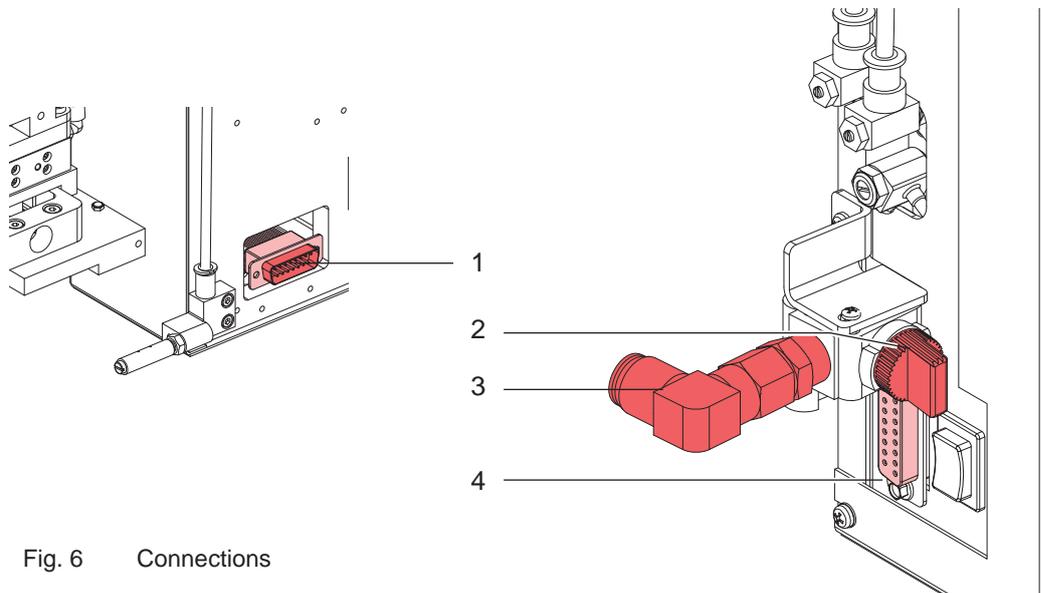
Fig. 6   Connections

1. Connect SUB-D 15 male connector (1) to the female connector (Fig. 4-6) of the printer.
2. Swing the applicator to the printer and tighten the knurled screw (4-2) at the printer.
3. Check the vertical position of the stop valve (2) . (stop valve closed)
4. Attach compressed air at the fitting (3) .
5. Connect the PLC-interface (4) via 15-pin female connector.   (▷ PLC-interface)

> **Warning!**
> **The pad will move promptly from the bottom up after opening the compressed air supply and switch-on the printer! Risk of bruise!**
> ▶ **Don't touch in the area of moving parts and secure hairs, loose clothes and jewelry.**

> **Warning!**
> **Guide bar can move over the fix mounted parts of the system.**
> **Risk of crush!**

4   Adjustments

4.1   Mechanical Adjustments

4.1.1   Adjustment the Pad Orientation in the Takeover Position

The exact adjustment of the pad in the takeover- (or start-) position is necessary to get a faultless transfer of labels between printer and applicator.
To adjust the pad, put in the material like the operator's manual of the printer.
Look for the right size of labels to the pad.
The printer side of the pad (1) must be parallel and approx. 1mm over the dispense plate edge (2).
Also adjust the pad in a vertical distance of approx. 1mm to the dispense plate edge (2).
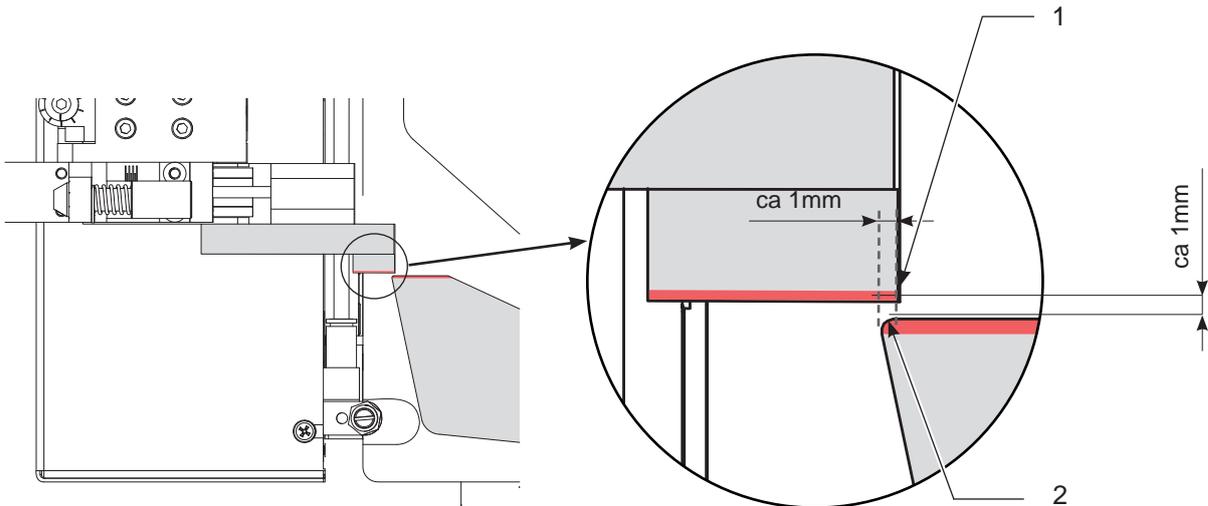
Fig. 7   Tamp orientation to the dispence plate of the printer

To achieve this position:

1. Put in the material into the printer in dispense mode (▷ Operator's manual of printer)

2. Open compressed air and switch on the printer to move the pad of the applicator in takeover position.

3. Loosen knurled screw (3) and counter nut (5) of the setting screw (4) .

4. Press the applicator against the printer and adjust with the setting screw (4) the pad in a line to printer dispence plate.

5. Tighten the counter nut (5) and fix the applicator with the knurled screw (3) .

6. With loosening the screws (6) you can adjust the pad in a vertical direction.

7. With loosening the screws (7) you can adjust the pad in a horizontal direction across to the printer.

8. A fine adjustment in horizontal print direction is possible with the setting screw (8) . Move the pad for adjustments to the printer.
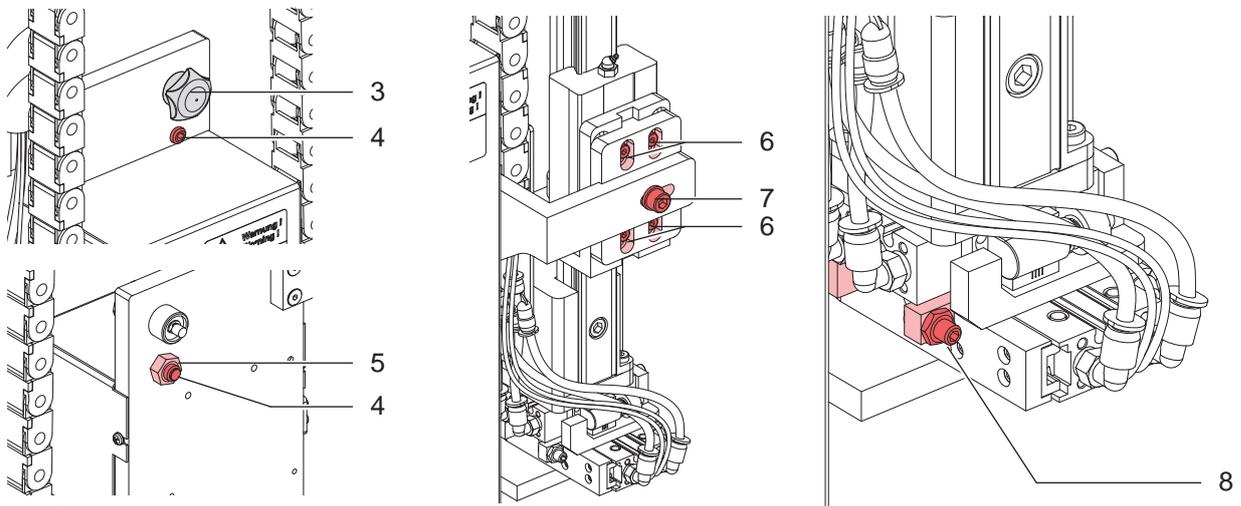
Fig. 8   Adjustment the pad orientation - Label takeover position

4.1.2   Adjustment the Pad Orientation in the Labelling Position

At the precision applicator it's possible to change the pad orientation in the labelling position in two directions (horizontal). So it's possible to find the exact label position in relation to the product.

Setting screw (1) change the position across the print direction.
Setting screw (2) change the position in print direction.
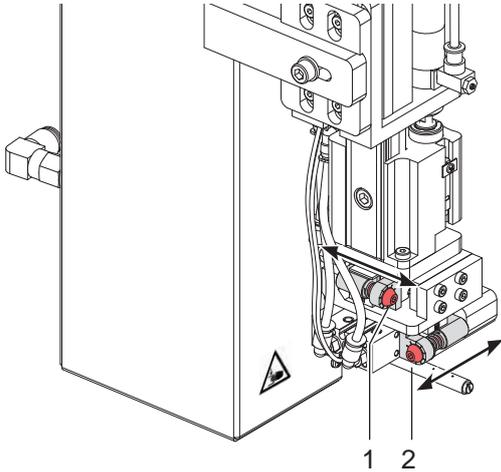
Fig. 9   Adjustment the pad orentation - labelling position

4.1.3   Setting the Blow Tube

It's possible to change the direction of supporting air by rotation the air tube (3).
I case of a smaller label the airstream direction must be near the dispense edge (1).

1. Hold the slotted screw (4) with a screw winder and loosen counter nut (2).
2. Adjust the tube (3) by rotation until the air current is aligned with the dispense edge (1) of the printer.
3. Tighten the counter nut (2).
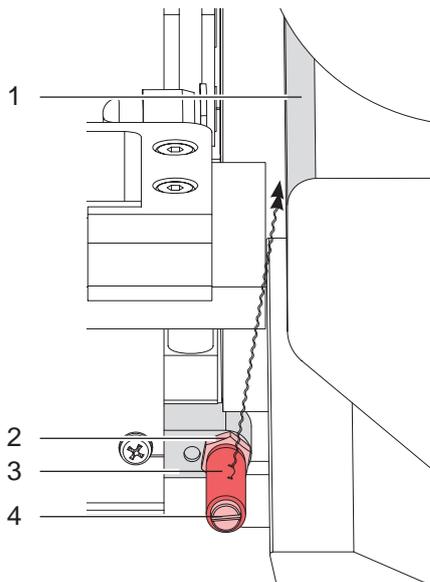
Fig. 10   Adjust the blow tube

4.2   Pneumatic Adjustments

4.2.1   Function Control Valves

Except valve (1) for control the lift cylinder all valves are mounted at the valve block.
These valves will triggered by electrical signals in normal operation.
Its also possible to trigger the valves by hand via a micro switches (5) at the valves for tests.
The manually control of valve (1 - lift cylinder) and valve (2 - mini slide cylinder) is possible only in case of a switched off printer.
To reach the valves at the valve block it's essential to dismount the cover.
(▷ 5.1 Operation)

- Valve (1)   to control the lift cylinder
- Valve (2)   to control the mini slide cylinder
- Valve (3)   to control the supporting air
- Valvel (4) to control the vacuum
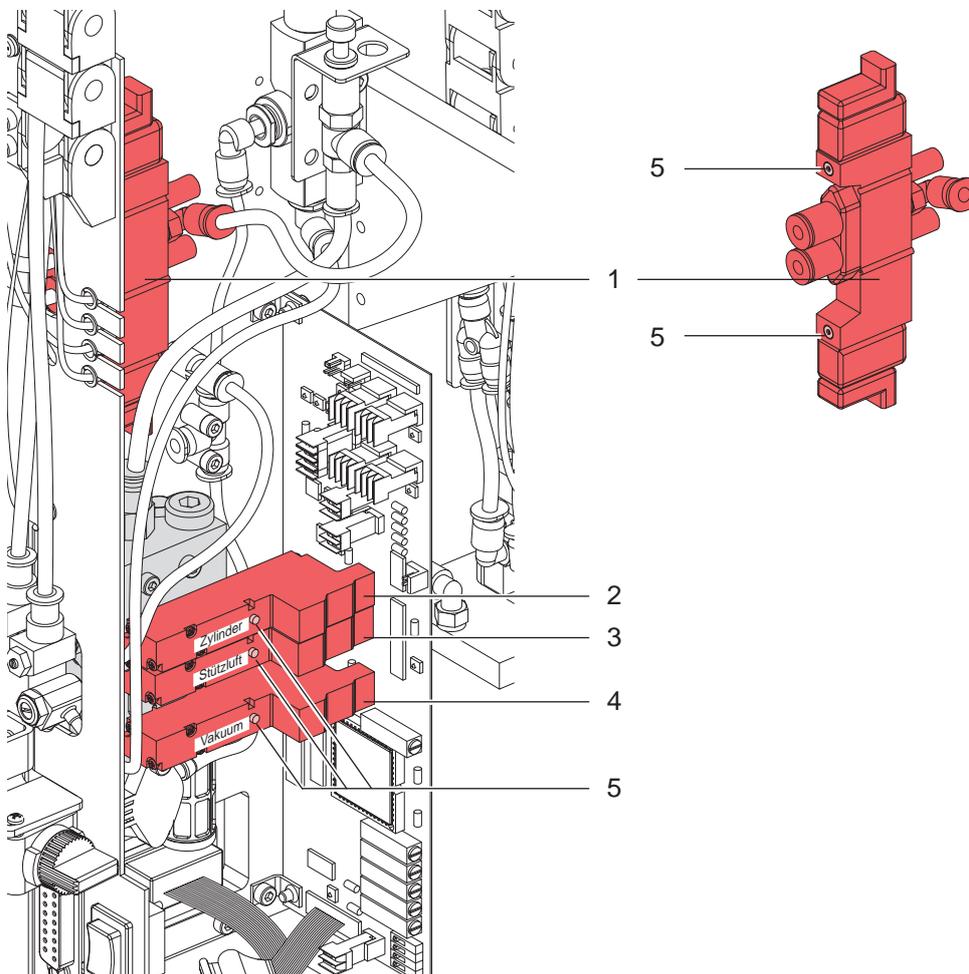
Fig. 11   Pneumatic control valves

4.2.2   Throttle Valves at the Valve Block

ℹ Notice!
In case the cylinder movements needs longer then 2 seconds the system break up the operation and produce an error message.

Fig. 12   Throttle valve at the valve block

Throttle valve - mini slide cylinder run-in movement (1) (destination: labelling position)

Over the throttle valve (1) the run-in speed can be changed.
Both slide cylinder are supported parallel with compressed air and can't regulate at once.
The valve is adjusted trough the throttle screw.
Turn in clockwise direction the valve will close and the movement will be slow.

Throttle valve - mini slide cylinder run-out movement (2) (destination: takeover position)

Over the throttle valve (1) the run-out speed can be changed..
Both slide cylinder are supported parallel with compressed air and can't regulate at once.
The valve is adjusted trough the throttle screw.
Turn in clockwise direction the valve will close and the movement will be slow.

Throttle valve - supporting air (3)

Over the throttle valve (3) the supporting air can be changed.
The valve is adjusted trough the throttle screw.
Turn in clockwise direction the valve will close.
The valve has to be tuned in such a way, that the label is blown onto the pad without turning or swinging.

Throttle valve - vacuum (4)

With this valve (4) 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.

4.2.2   Throttle Valve at the Cylinder

ℹ   **Notice!**
In case the cylinder movements needs longer then 2 seconds the system break up the operation and produce an error message.
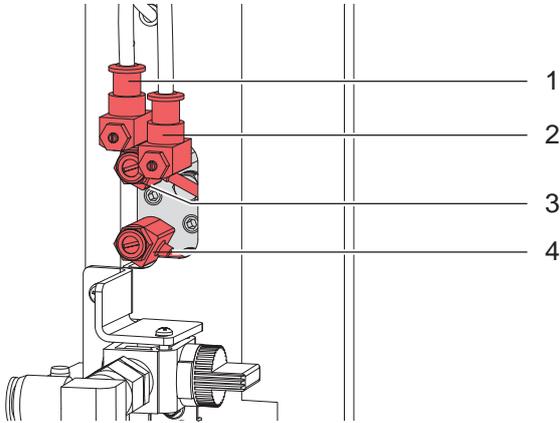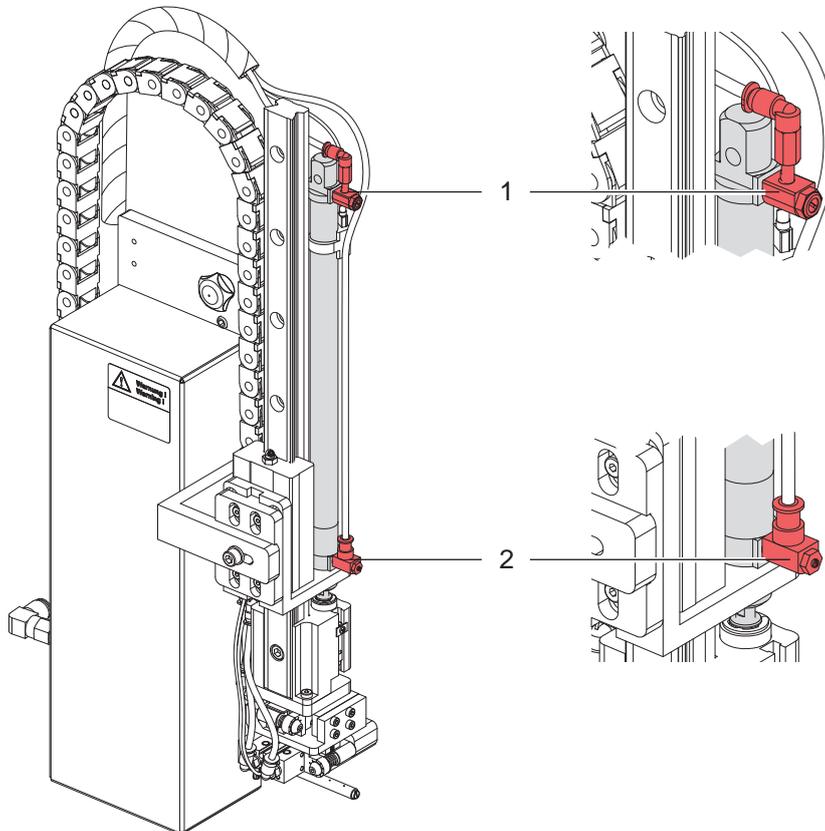

Fig. 13   Throttle valve at the cylinder

Throttle valve cylinder - run-in movement (1) (destination: takeover position)

Over this valve the speed of cylinder movement (drive-out direction/up) can be changed.
The valve is adjusted at the throttle screw.
Turn in the clockwise direction closes the valve. The speed will be reduced.

Throttle valve cylinder - run-out movement (2) (destination: labelling position)

Over this valve the speed of cylinder movement (drive-in direction/down) can be changed.
The valve is adjusted at the throttle screw.
Turn in the clockwise direction closes the valve. The speed will be reduced.

5.1 Setting the Operating Mode and Delay Times

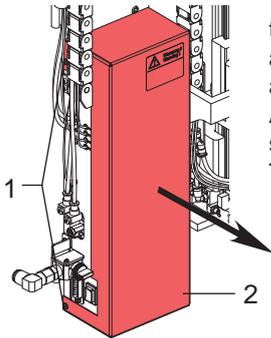

Fig. 14   Cover

t is possible to use the applicator in different operating modes. This modes are different in apply the label to the product (stamp/blow) and the sequence of operation (print/apply or apply/print).

After removing the cover (2) of the manifold, 6 potentiometers (Figure 17) as well as 4 DIP switches (Figure 16) become accessible by which the parameters can be set.

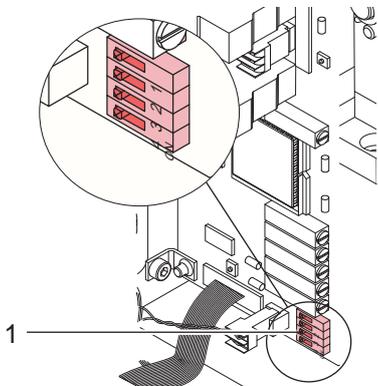To remove the cover (2) loosen screws (1).

5.1.1 DIP-Switches

Fig. 15   DIP-switches

DIP-switch	Parameter	ON	OFF
1	stand by position (only if DIP-2 : OFF and DIP-3 : OFF)	up	down
2	no function	-	-
3	operating mode	print/apply	apply/print
4	save values of potentiometers (▷ 5.3 Read settings of potentiometers)	no	yes

Table 2   Parameter of DIP-switches

If switch No. 4 is OFF the setting of the potentiometers is automatically stored in the Hermes A when switched on. There fore, in case the applicator has been changed (e.g. incase of an accident) the settings are still saved and can be transferred to a replacement. (▷ Read settings of potentiometers)

5.1.2 Potentiometer

ⓘ Notice!
In case of changing a parameter by a potentiometer, the value of this parameter will displayed at the printer display for short time.
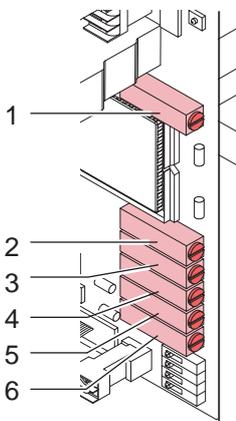
Fig. 16   Potentio-meter

Potentiometer 1 is sealed. Certain voltage settings are pre-adjusted from the factory and not to be changed by the user.

Potentiometer 2 : t_B - blowing time   0...2.5 s
For the precision applicator 4400 it has no function. But the complete application process extended on the setting value.

Potentiometer 3 : t_{SA} - switch-off delay supporting air   0 ... 2.5 s
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 silicon liner. This may affect the accuracy of the label positioning or even cause labelling faults. Therefore, switching off the supporting air delayed may be useful to separate the label from the carrier ribbon and place it neatly on the surface of the pad.

Potentiometer 4 : s_{SE} - switch-on delay supporting air   0 ... 20 mm
The supporting air from the blow tube is not immediately switched on when the print of the label is released but delayed, when the label has covered a certain distance s_{SE}.
This delay helps to prevent a turning or swinging at the front of the label and, consequently, avoids faults when the label is picked up from the printer.
The parameter measures the distance covered by the label before the supporting air is switched on, and does not depend on the print speed. This way, the position of the label may be determined until the air is switched on.

Potentiometer 5 : t_{SP} - locking time   0 ... 2.5 s

All start signals coming in following the first start signal are ignored when they arrive within the locking time t_{SP}. It's used for debouncing of the start signal.

Potentiometer 6 : t_{VS} - start delay   0 ... 2.5 s

The parameter t_{VS} determines the time period between the start signal and the start of the labelling 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 labelling place.

5.1.3   Read Settings of Potentiometers

Sometimes it's necessary to change the setting of parameters in case of changing the operation enviroment or other. Would you change the applicator it's possible the applicator values to save into the printer.

ℹ️   **Notice!**
In case the applicator has been changed (e.g. in case of an malfunction) the stored parameters can be viewed as described above and the new device can be adjusted accordingly. For that purpose the DIP-switch 4 at the new applicator has to be 'ON' during switching on the device the first time.

The takeover the values of a changed applicator will be manually by comparison with the saved values.

1. Read values - press and hold pressed the key ⎡MODE⎤ of the printer's navigator pad. After approx. 3 seconds it will displayed the 'short status'. To got back the main menu press the key ⬅ .
2. The setting of the five delay times is displayed by pressing the key ⬇ or the key ⬆ .
3. Change the value at the corresponding potentiometer.
    The current value will displayed at the printer display.
4. To read an other value start again from step 1.
5. Are the settings finished, switch the DIP-switch 4 of the new applicator at the position 'OFF' to record possible later settings.

5.1.4   Operating Mode

The operation of the applicator can warden while maintaining the operational sequence in principle by parameter attitudes in control electronics modified.
Moreover exist a special mode for setting by using the pre dispense key.

Operating mode 'printing / labelling'

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 labelling position. A sensor signals when the labelling position is reached. Following, the vacuum is switched off and the label is placed onto the product by the pressure of the stamp. After that, the lift cylinder is driven to move the pad back into the starting position. Thus, the labelling cycle is finished.

Operating mode 'labelling / printing'

Before starting the mode 'labelling / printing' the printing and picking up of the first label has to be released separately by a special signal (via PLC interface). The pad with the printed label is in the starting position. The vacuum on the pad is switched on. By an external start signal the lift cylinder is driven to move the pad down into the labelling position. The sensor signals when the labelling position is reached. In the following, the vacuum is switched off and the label is placed onto the product by the pressure of the stamp. After that, the lift cylinder is driven to move the pad back into the starting position. The print of the next label is released. At the same moment the vacuum on the pad as well as the supporting air are switched on. When the label is printed and picked up, the supporting air is switched off. Thus, the labelling cycle is finished.
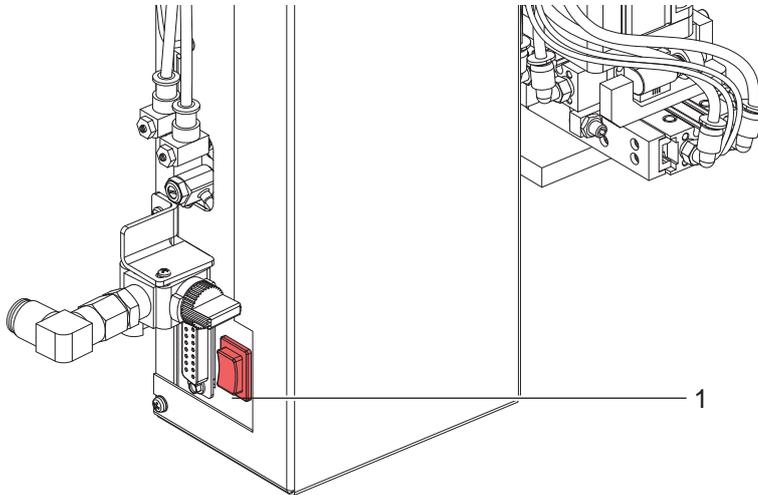
5.2 Pre-Dispense Key

Fig. 17   Pre-dispense key

Without print job

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

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

If the printer has no print job, pressing the key respectively 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 labelling position. A sensor signals when the labelling 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.

With print job

By pressing the pre-dispense key (1), half cycles of the labelling 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 labelling position. The sensor signals when the labelling 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.

5.3   Peel Position

To set the peel position, the accurate position of the label to take over the label from printer to the pad, the system offers two possibilities.

i   **Notice!**
The two-part procedure to set the peel position is very important for a restart after put in material and after troubleshooting. It's possible that if so the software setting of peel position don't respond.

Peel position in the printer configuration

The first option to adjust the peel position offers the printer configuration. ($\triangleright$ Operators manual of the printer). This option should be the first step and generate the basic adjustment.
The whole labelling process can be simulated without the need of a print job or a connection to a computer by alternately pressing the key FEED and the pre-dispense key.

Peel position in the software

A second peel-off parameter is available in the software. The
software value does not replace the value of the printer configuration but it serves the fine adjustment of the peel position for the current print job. The values from printer configuration and from software are added together for execution.
The **P-command** (Set **P**eel-Off Mode) is described in the programmer manual.

Check the adjustment of the peel position in the software by printing out test prints with the label to be applied. Adjust the software parameter with a real print job in such a way, That the printed labels are totally peeled-off from the liner.

5.4   Normal Operation

1. Check all external connections before starting to print.
2. Load the media corresponding to the instructions in the operator's manual of the Hermes A (chapter 'Media Loading'). Make sure that the locking system (printhead) is locked.
3. Open the shutoff valve.
4. Switch on the printer.

i   **Notice!**
Make sure that the pad is not covered.

5. Before starting the first print job press the key FEED on the printer. This generates a synchronous running. Remove the processed labels manually. After a few seconds the printer carries out a brief rewind 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 CANCEL or open and close the print head locking system.
6. Start the print job.

i   **Notice!**
It is not necessary to make a synchronous run in case the printhead of the printer wasn't opened. Also when the printer was switched off.

7. Start the labeling process via PLC interface.

If an error occurs while the applicator is operating, this is reported in the display of the Hermes A.
($\triangleright$ Error message)

For use in a net worked 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 has a 15 pin SUB-D connector.
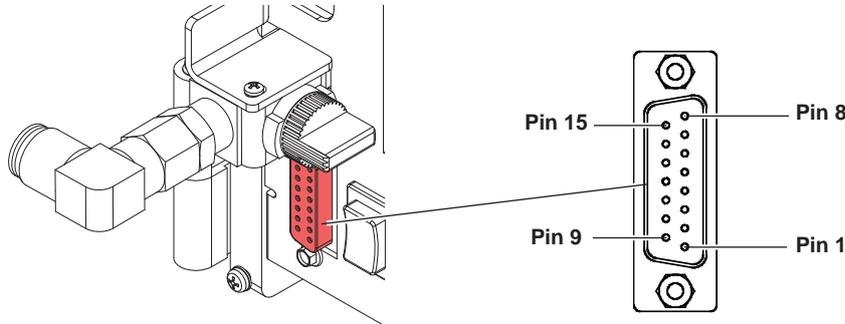

Pin 15 — — Pin 8

Pin 9 — — Pin 1

Fig. 18   Female connector of the PLC interface

> **⚠ Attention!**
> **To avoid faulty signals use a shielded cable for an external control system.**

6.1   Comments on the Signals

Pin	Signal	Description	Activation / Active state
1	XSTRT	Start signal Signal run the labelling process	It is active when +24V between PIN 1 and PIN 9.
2	XSTP	Stop signal It releases following functions : • to finish the print of a label and its picking-up by the pad • to interrupt or to stop the beginning of the labelling process • to make the pad moving back into the starting position • to command the disregard of all following signals • if the stop signal has been activated during the labelling phase, the display will show the message 'Host stop/ error' (does not show message during print process).	It is active when +24V between PIN 2 and PIN 10.
3	XDREE	Print first label **'Labelling / Printing'** When the labelling process is started by the XSTRT signal within the operation mode 'Labelling / Printing', the cylinder will start to place the label onto the product at once. Only after that, a new label is printed. Therefore, the provision of the first label has to be assigned by a separate signal. **'Printing/Labelling'** Signal has no function	It is active when +24V between PIN 3 and PIN 11.
4	XDNB	Printer not ready This is an error message of the printer. The details and type of error can be learnt from the printer display. ('Ribbon out'; 'Paper out'; 'No label') After troubleshooting, the print of the last label will be repeated.	Contact between PIN 4 and PIN 14 (RUEL) is opened.

Table 3   PLC - connector pin assignment

Pin	Signal	Description	Activation / Active state
5	XEDG ⊝▶	No existing print job State message. There is no print job currently available.	Contact between PIN 5 and PIN 14 (RUEL) is opened.
6	XSAA ⊝▶	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. This signal is important in case that only one error signal of the applicator can be analyzed from the system control.	Contact between PIN 6 and PIN 14 (RUEL) is opened.
7	XSOE ⊝▶	Pad in starting position The signal is active when the pad is in the starting position where it picks up the label from the printer.	Contact between PIN 7 and PIN 14 (RUEL) is opened.
8	GND ⊝▶	Grounding	0V
9	XSTRTR ⊝◀	Reverse line to the start signal XSTRT	
10	XSTPR ⊝◀	Reverse line to the stop signal XSTP	
11	XDREER ⊝◀	Reverse line to the 'print first label' signal XDREE	
12	XSUE ⊝▶	Pad in labelling position The signal is active when the pad is in its labelling position where the label is removed from the vacuum plate and positioned onto the product.	Contact between PIN 12 and PIN 14 (RUEL) is opened.
13	XETF ⊝▶	Applicator fault This is an error message of the applicator. This message is shown when one of the following errors occurs at the applicator : - pad has not reached the labelling position within 2s after the movement of the cylinder - pad has not reached the starting position within 2s after the movement of the cylinder - a printed label has not been picked up by the pad properly or it fell down during the movement of the cylinder (message of the vacuum sensor) - the label is still on the vacuum plate of the pad when the cylinder 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 occurred will not be repeated.	Contact between PIN 13 and PIN 14 (RUEL) is opened.
14	RUEL	Reverse line (for all output signals)	
15	24P ⊝▶	Operating voltage +24V, Si T 100mA	

Table 3   PLC - connector pin assignment (continuance)

⚠ **Attention!**
Never apply any external voltage on PIN15!

6.2   Circuit Diagrams of Inputs and Outputs

The **inputs** are optical couplers with a current limiting resistor of 2.4kΩ in the input circuit. For each signal X[IN] there is a separate reverse line X[IN]R via the plug connector.
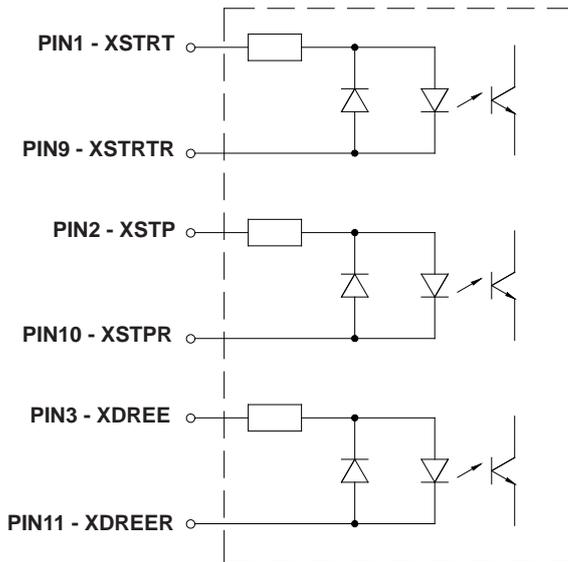From that, the following matching pairs of signals result :

Fig. 19   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 RÜL signal. The switch function of the outputs is to open or close the contact between the joint line RÜL and the respective output.

Electrical requirements : U_{max} = 42V
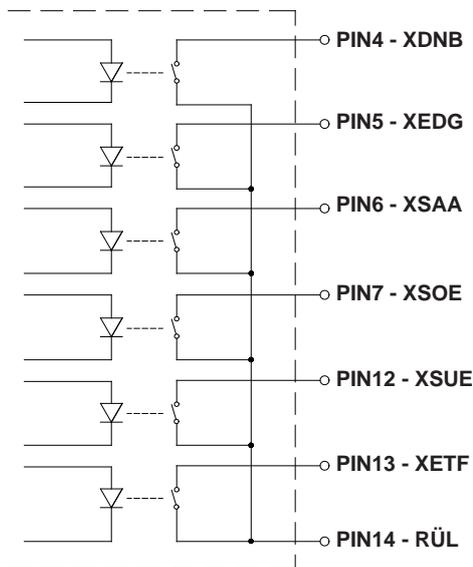 I_{max} = 100mA

Fig. 20   Circuits of the Outputs

6.3   Examples for Circuits to Creating an External Start Signal

> **!   Attention!**
> **Should be exploit applicator data external, so it is to use an external voltage (24V) for signals.**
> **It's necessary that the external system and the printer/applicator system are electrically isolated.**
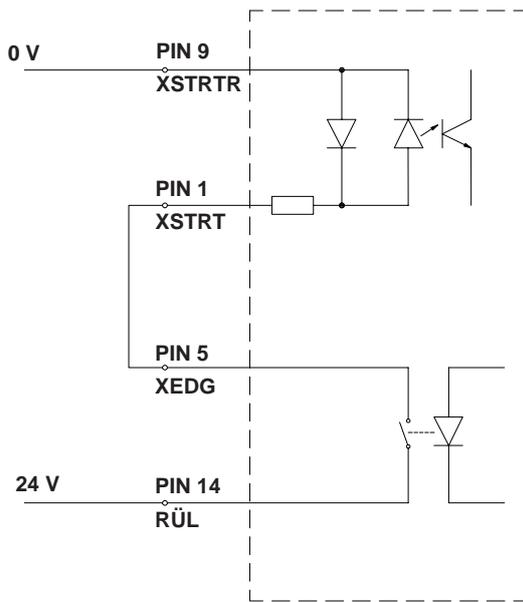

Fig. 21   Example for start of the print- and labelling procedure for one label in case of an existing print job.
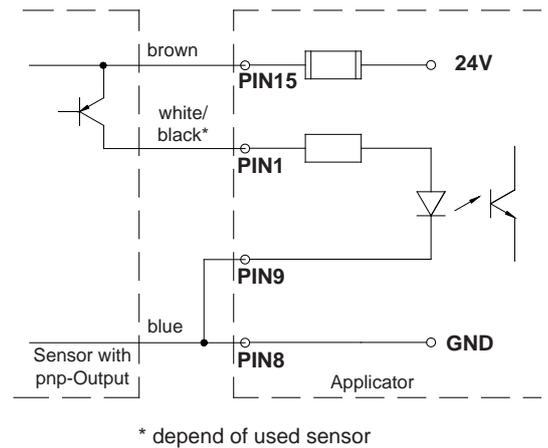

* depend of used sensor

Fig. 22   Example for an optical sensor with pnp-output

Fig. 23   Example with releasing switch

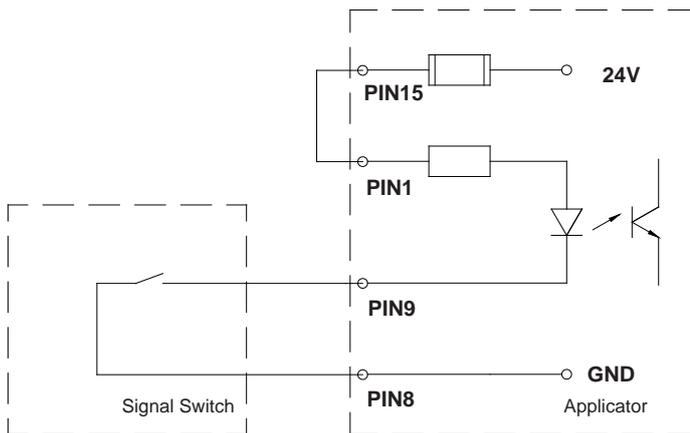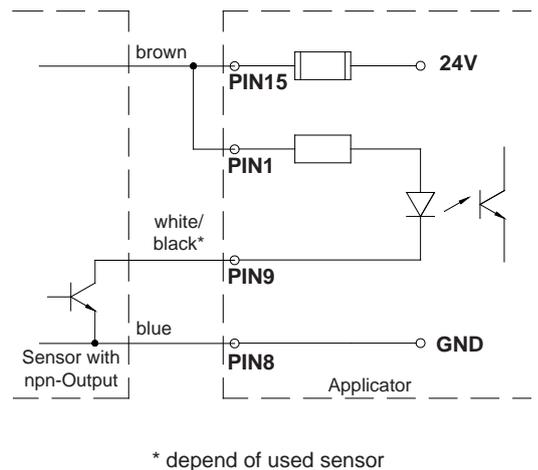* depend of used sensor

Fig. 24   Example for an optical sensor with npn-output

7.1   Printer Error Messages

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

ⓘ **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 PAUSE , an additional label feed has to be released using the key FEED . This synchronizes the process of printing and labelling. Possibly dispensed blank labels have to be removed manually. After quitting the error message the label caused the error will be printed once more

7.2   Applicator Error Messages

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

| Error message	Possible cause of error	Error handling
Label not deposit	Label has not been placed onto the product; after the lift cylinder has moved back the label still sticks on the vacuum plate of the pad	Manually labelling of the product Check the labelling position of the pad
Upper position	Pad has not reached the starting position within 2s after the lift has moved back; or Pad has left the starting position unauthorized	Check the pneumatic adjustments (esp. the upper throttle valve of the cylinder); Manually labelling of the product Check the sensor start-position and the sensor of the mini slide cylinder out (service)
Host stop error	Labelling process has been interrupted by an XSTP stop signal via PLC interface	Manually labelling of the product if necessary
Reflex sensor faulty	There has been no change of the switch state at the upper control sensor (at the cylinder) between the start of the labelling process and the signal from the labelling position sensor	Check the sensors (service)
Vacuum 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)
Lower position	Pad has not reached the labelling position within 2s after the movement of the cylinder	Check the pneumatic adjustments (esp. the lower throttle valve of the cylinder); Make sure that the securing device has been unlocked; Check the applicator for heaviness of its mechanics; Check the labelling position sensor and the sensor of the mini slide cylinder in (service); Label the product manually

Table 4   Error messages of the applicator
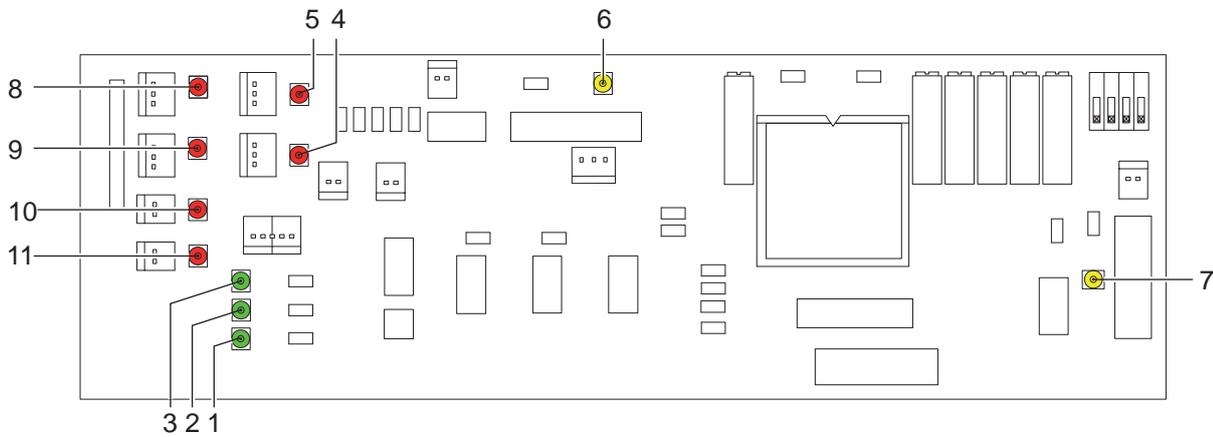
Fig. 25   LED's on the PCB

LED-No.	Colour	Function	Active state
1	green	PLC-signal XSTRT	ON
2	green	PLC-signal XSTP	ON
3	green	PLC-signal XDREE	ON
4	red	Upper position sensor	ON
5	red	Labelling position sensor	ON
6	yellow	Label on the pad	ON
7	yellow	Oparation voltage 5V	ON
8	red	Mini slide cylinder in	ON
9	red	Mini slide cylinder out	ON
10	red	no function	-
11	red	no function	-

Table 5   LED's on the PCB

9.1 EC Declaration of Incorporation

cab

Gesellschaft für Computer-
und Automations-
Bausteine mbH & Co KG
Wilhelm-Schickard-Str. 14
D-76131 Karlsruhe,
Germany

EC Declaration of Incorporation

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

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

The „partly completed machinery" additionally complies with the Directive 2004/108/EC relating to electromagnetic compatibility.

In the event of any alteration which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

Device:	**Applicator**
Type:	**4400**
Applied EC Regulations and Norms:	
Directive 2006/42/EC on machinery	• **EN ISO 12100-1:2003**
	• **EN ISO 12100-2:2003**
	• **EN ISO 14121-1:2007**
	• **EN 60950-1:2006**
Person authorised to compile the technical file :	**Erwin Fascher** **Am Unterwege 18/20** **99610 Sömmerda**
Signed for, and on behalf of the Manufacturer : **cab Produkttechnik Sömmerda** **Gesellschaft für Computer-** **und Automationsbausteine mbH** **99610 Sömmerda**	**Sömmerda, 25.01.2010** *[signature]* **Erwin Fascher** **Managing Director**

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

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

Declaration of Conformity according Directive 2004/108/EC relating to electromagnetic compatibility on the next page

9.2 EC Declaration of Conformity

Gesellschaft für Computer-
und Automations-
Bausteine mbH & Co KG
Wilhelm-Schickard-Str. 14
D-76131 Karlsruhe,
Germany

EC Declaration of Conformity

We declare herewith that as a result of the manner in which the device designated below was designed, the type of construction and the devices which, as a result have been brought on to the general market comply with the relevant fundamental regulations of the EC Rules for Safety and Health. In the event of any alteration which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

Device:	**Applicator**
Type:	**4400**
Applied EC Regulations and Norms:	
Directive 2004/108/EC relating to electromagnetic compatibility	• **EN 55022:2006**
	• **EN 55024:1998+A1:2001+A2:2003**
	• **EN 61000-3-2:2006**
	• **EN 61000-3-3:1995+A1:2001+A2:2005**
Signed for, and on behalf of the Manufacturer : **cab Produkttechnik Sömmerda Gesellschaft für Computer- und Automationsbausteine mbH 99610 Sömmerda**	**Sömmerda, 25.01.2010** **Erwin Fascher** **Managing Director**