Assembly Instructions



Air-Jet Box

HQ 6114

Made in Germany

Assembly Instructions
for the following products

Family	Type
Air-Jet Box	HQ 6114 L
	HQ 6114 R

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Germany
cab Produkttechnik GmbH & Co KG
Karlsruhe
Phone +49 721 6626 0
www.cab.de

USA
cab Technology, Inc.
Chelmsford, MA
Phone +1 978 250 8321
www.cab.de/us

Taiwan
cab Technology Co., Ltd.
Taipei
Phone +886 (02) 8227 3966
www.cab.de/tw

Singapore
cab Singapore Pte. Ltd.
Singapore
Phone +65 6931 9099
www.cab.de/en

France
cab Technologies S.à.r.l.
Niedermodern
Phone +33 388 722501
www.cab.de/fr

Mexico
cab Technology, Inc.
Juárez
Phone +52 656 682 4301
www.cab.de/es

China
cab (Shanghai) Trading Co., Ltd.
Shanghai
Phone +86 (021) 6236 3161
www.cab.de/cn

South Africa
cab Technology (Pty) Ltd.
Randburg
Phone +27 11 886 3580
www.cab.de/za

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1 Introduction

1.1 Instructions

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



Danger!
Draws attention to an exceptionally great, imminent danger to your health or life due to hazardous voltages.



Danger!
Draws attention to a danger with high risk which, if not avoided, may result in death or serious injury.



Warning!
Draws attention to a danger with medium risk which, if not avoided, may result in death or serious injury.



Caution!
Draws attention to a danger with low risk which, if not avoided, may result in minor or moderate injury.



Attention!
Draws attention to potential risks of property damage or loss of quality.



Note!
Advice to make work routines easier or on important steps to be carried out.



Environment!
Gives you tips on protecting the environment.

▶ Handling instructions.

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

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

Time Information in the display.

1.2 Intended Use

- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to 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 manual.
- The device is designed to use on a cab printer of the HERMES Q series. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.
- Usage for the intended purpose also includes complying with the manual.



Note!
The complete and current version of the documentation can be found in the Internet.

1.3 Safety Instructions



Attention!
Initiation, adjustments and changing of parts are to be performed by qualified service personnel only.

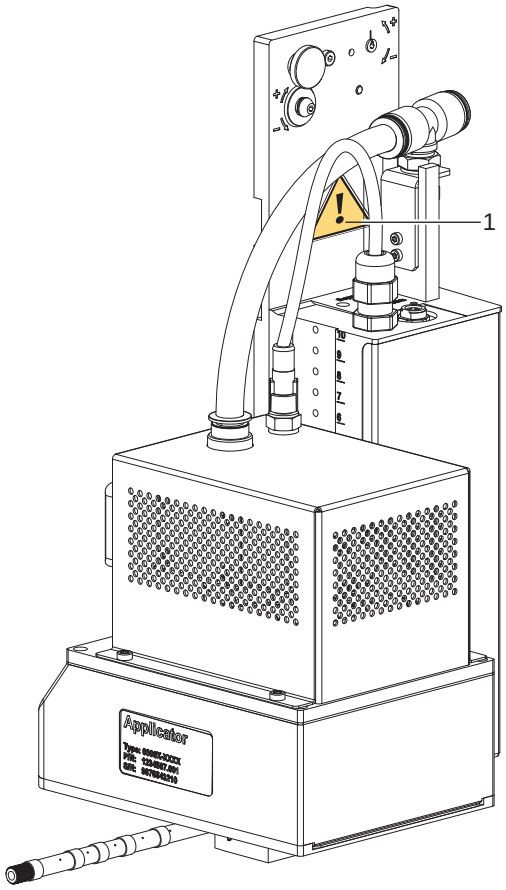


Warning!
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- Before mounting the delivered components disconnect the printer from the power supply and close the shutoff valve of 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.

- The device may only be used in a dry environment, do not expose it to moisture (sprays of water, mists, etc.).
- Do not use the device in an explosive atmosphere.
- Do not use the device close to high-voltage power lines.
- Perform only those actions described in this manual.
  Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions.
- Other unauthorized work on or modifications to the device can also endanger operational safety.
- Always have service work done in a qualified workshop, where the personnel have the technical knowledge and tools required to do the necessary work.
- There are various warning stickers on the device. They draw your attention to dangers. Warning stickers must therefore not be removed, as then you and other people cannot be aware of dangers and may be injured.

1.4 Safety Markings



1: Caution! Compressed Air!

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

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 applicator enables it to be easily disassembled into its component parts.

▶ Send the parts for recycling.

2 Product Description

2.1 Important Features

- The supporting air and the vacuum is adjustable. Thus the applicator can be adjusted to different label materials and sizes.
- For operation in a system the I/O interface of the printer can be used.

2.2 Technical Data

Air jet box			**HQ 6114 L/R**
Label widths	HERMES Q4/Q4.3	mm	50 -114 smaller sizes can be provided on request
Label heights		mm	50 -125 smaller sizes can be provided on request
State of a package		at rest	■
at the moment a label is applied		in motion	■
Label applications			from the top, from below, from the side
Package heights		variable	■
Distance of a package to the peel-off plate		up to mm	200
Weight of air jet box		packaging excluded kg	4
Consumption of power		W max.	90
Compressed air		bar	4.5
Cycle rate[1)]		labels/min up to	100

[1)] calculated using labels 50 mm high, a print speed of 250 mm/s, a blast of air lasting 100 ms, with packages located 100 mm to the peel-off plate.

Table1 Technical Data

2.3 Overview

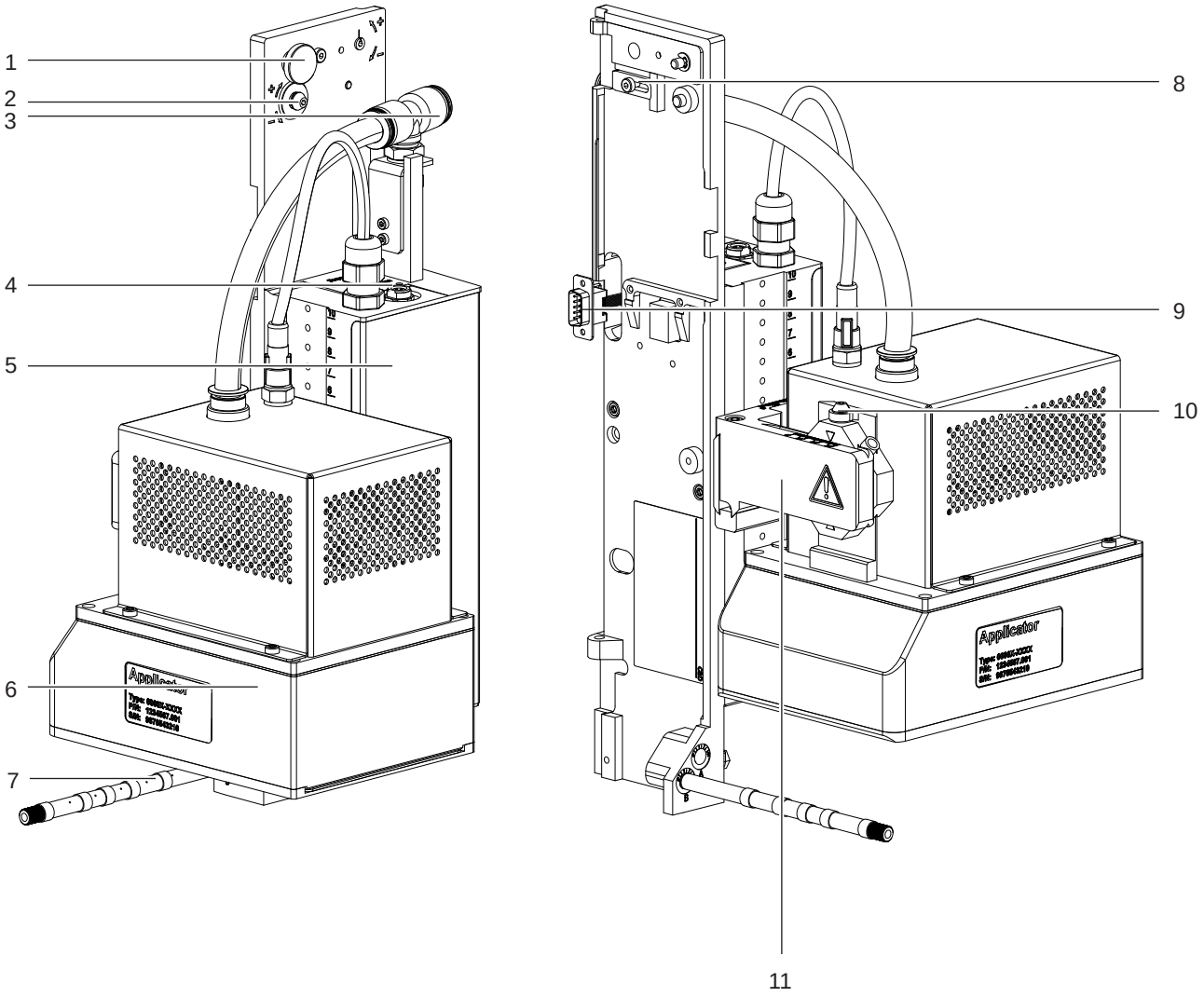
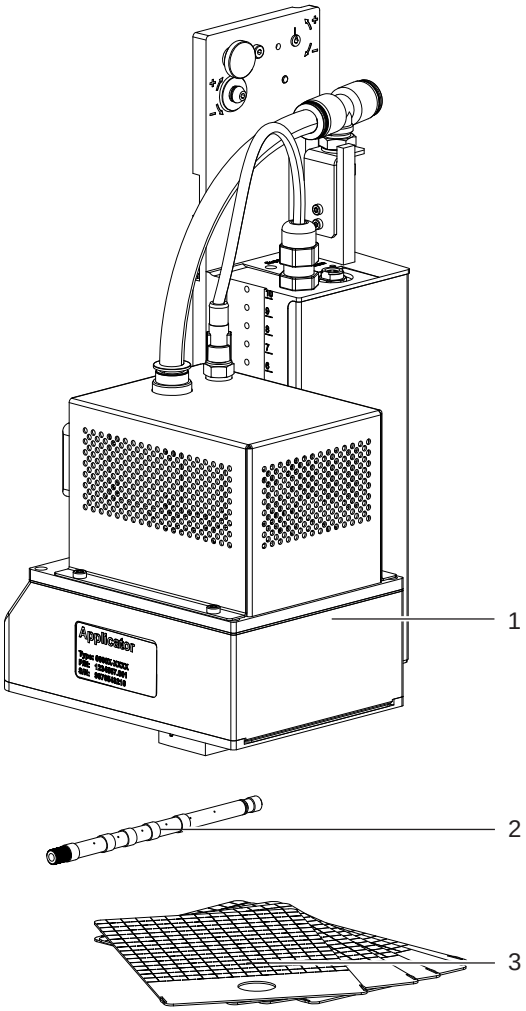


Fig. 2 Device overview

1 Knurled screw for attaching the Air-Jet Box to the printer
2 Setting screw for adjustment to the printer
3 Compressed air connector
4 Interface for external sensor
5 Base plate with the control unit
6 Blow nodule
7 Blow tube
8 Locking for hinges
9 SUB-D 9 plug interface to the printer
10 Blow tube
11 Setting screw for fine adjustment height
12 Crossbeam

2.4 Contents of Delivery



1 Air-jet module
2 Bow tube (as ordered)
3 Former plate (5x)

Documentation

Fig. 3 Contents of delivery

Note!
Please keep the original packaging in case the Air-Jet Box must be returned.

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

- **Only set up the label printer with the Air-Jet Box in dry locations protected from moisture and water splashes.**

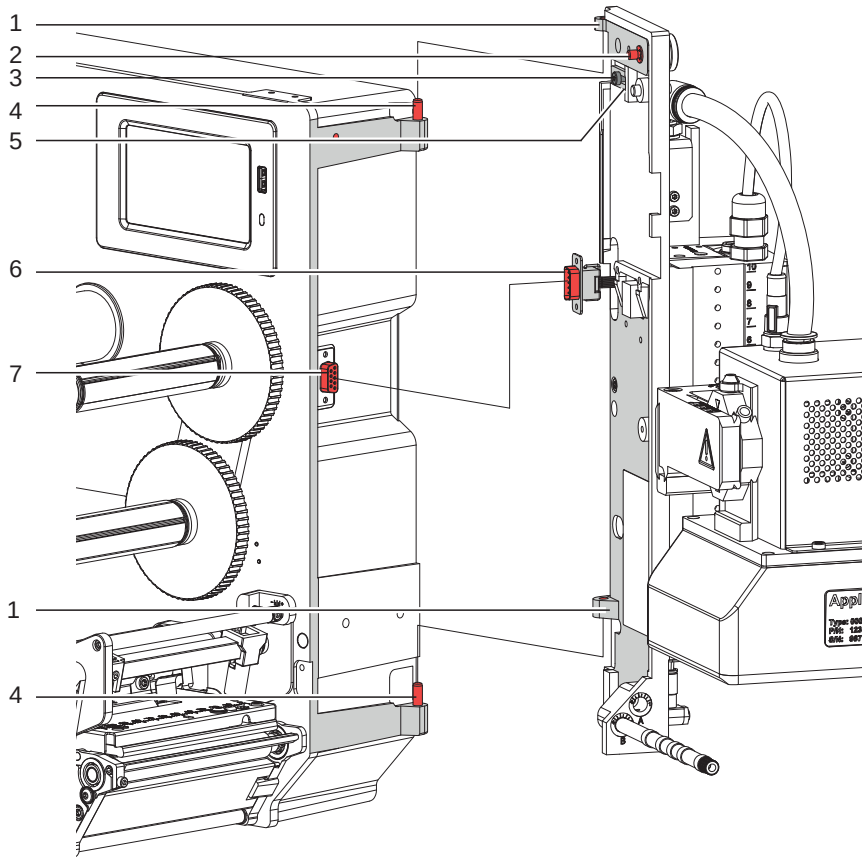


Fig. 4 Mounting the Air-Jet Box to the printer

Attention!
Initiation, adjustments and changing of parts is to be performed by qualified service personnel only.

Attention!
- ▶ **Disconnect the printer from the power supply before mounting the applicator!**
- ▶ **Ensure the printer is in a stable position!**
- ▶ **Connect the compressed air only after mounting the applicator to the printer!**

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

Mounting the applicator

1. Attach the applicator via the female part (1) of hinges to the male printer mounted hinges parts (2).
2. Connect SUB-D 15 male connector (6) to the female connector (7) of the printer.
3. To secure the applicator slide the locking plate (3) under the hinge and tighten the screw (4).
4. Swing the applicator to the printer and tighten the thumbscrew (5).

Turning away & dismounting the applicator

5. To turn away the applicator loosen thumbscrew (5) and swing the applicator to the side.
6. Disconnect SUB-D 15 male connector (6) from the female connector (7) of the printer.
7. Loosen screw (4) and move the locking plate (3) from the hinges.
8. Lift the applicator upward and off the printer.

In order to get the perfect label application it is necessary to set the jets of the applicator to the size and shape of the used label.

Ideally the settings will have been set by the manufacturer with predetermined labeling material.

Should this not be possible the following steps will assist with the initiation and/or adjustments.

4.1 Sizing the Former Plate

Take a former plate from the accessories kit.

dimensions in mm

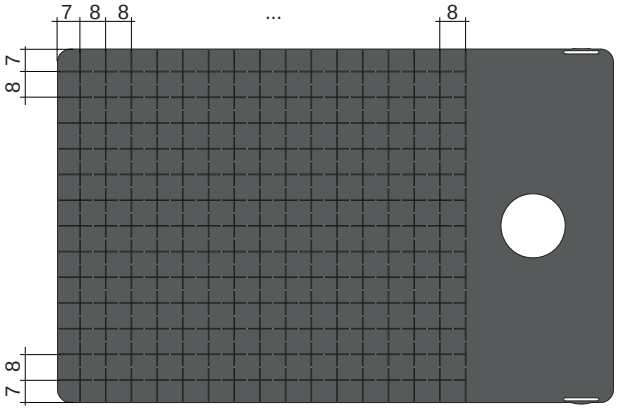


Fig. 5 Former plate

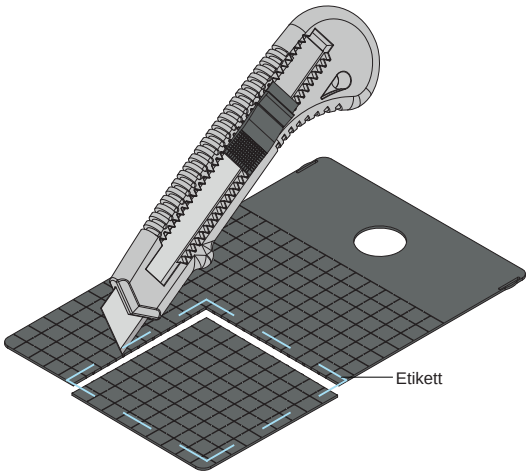


Fig. 6 Cutting the aperture

1. Place the label on the former plate. Use the front and a side edge as orientation.
2. Mark the label size on the on thefomer plate.
3. Cut the next inside perforation..

   The aperture must be smaller the the label.

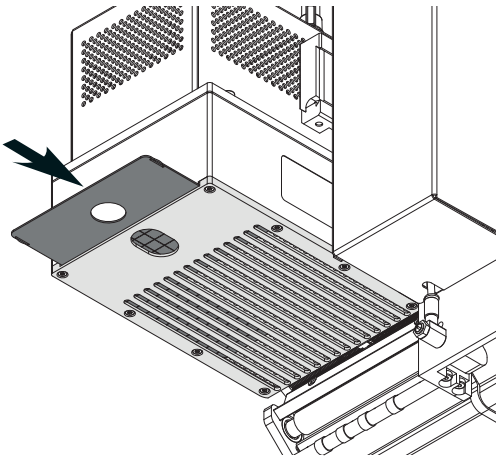


Fig. 7 Slide in the former plate

4. Slide the former plate complete into the blow module. The aperture must be on the base plate side.

4.2 Adjusting the Air-Jet Module

1. Send a label. ▷„4.9 Test Mode without a Print Job“ on page 16
2. Set Hand-over position. ▷„4.7 Setting the Hand-over Position“ on page 15
3. Move the air-jet module body (4) so that the labels move perpendicularly to it and has a row of holes preferably running along the edges on the base.

   - Loosen screws (3) to move the air-jet module (4) in the printing direction.
     Move air-jet module (4) and tighten screws (3).
   - Loosen screw (2) to move the air-jet module perpendicular to the printing direction.
     Move air-jet module (4) and tighten screw (2).

   Adjust the air-jet module so that the label is direct under the cut-out area of the former plate.
   ▷„4.1 Sizing the Former Plate“ on page 10

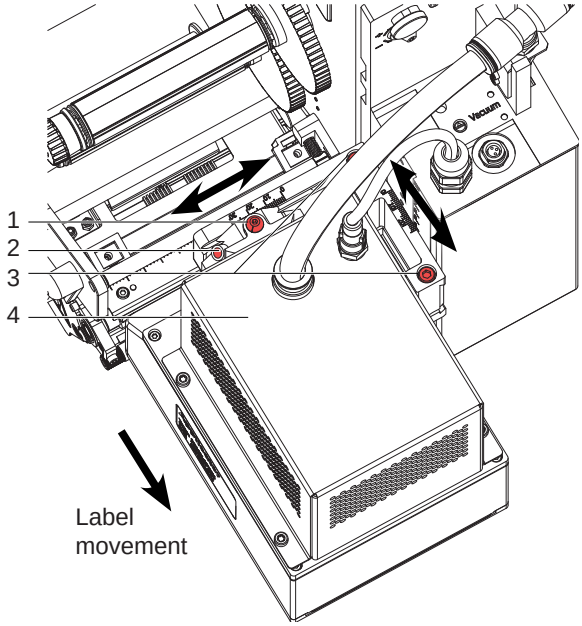


Fig. 8 Adjusting the air-jet module sidewise

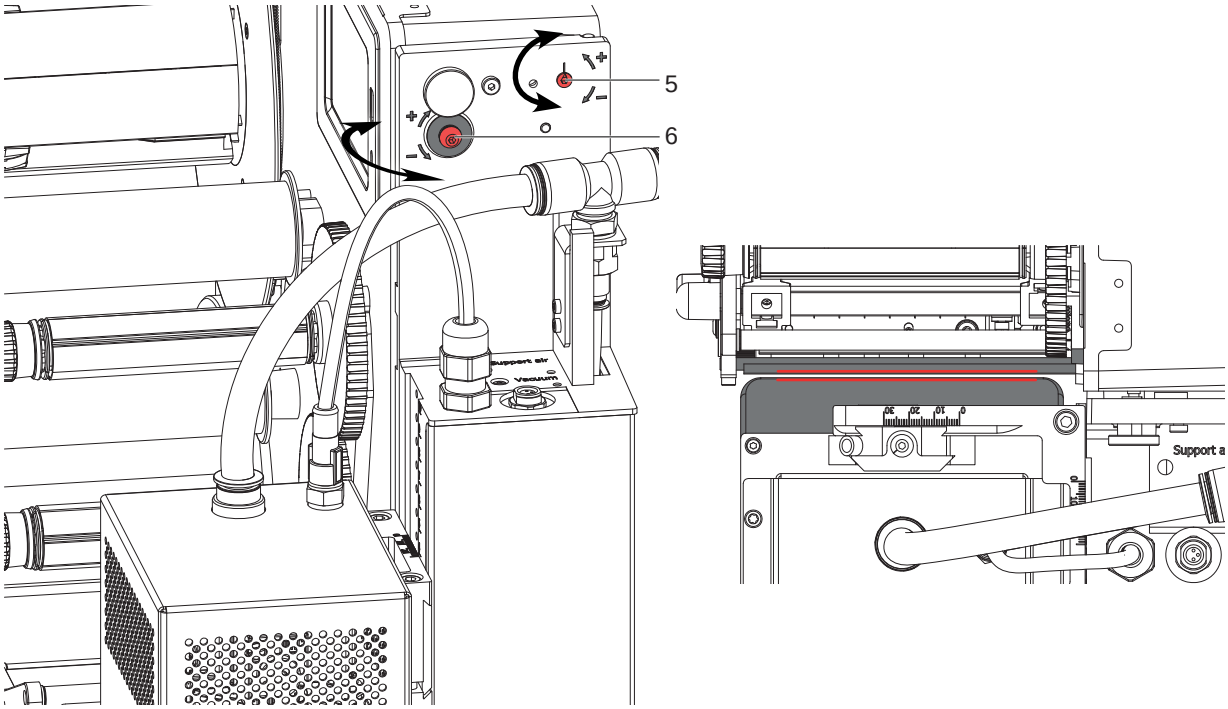


Fig. 9 Adjusting the Parallelism

4. Loosen knurled screw and press the applicator against the printer.
5. Adjust the angle between applicator suction plate edge and printer dispensing plate via the eccentric (5).
6. By turning setting screw (6) the suction plate assembly in a horizontal angle to the printer.
7. By turning setting screw (1) the suction plate assembly moves up or down. Turn the screw until the dispensing plate and the suction plate are about 1 mm apart.

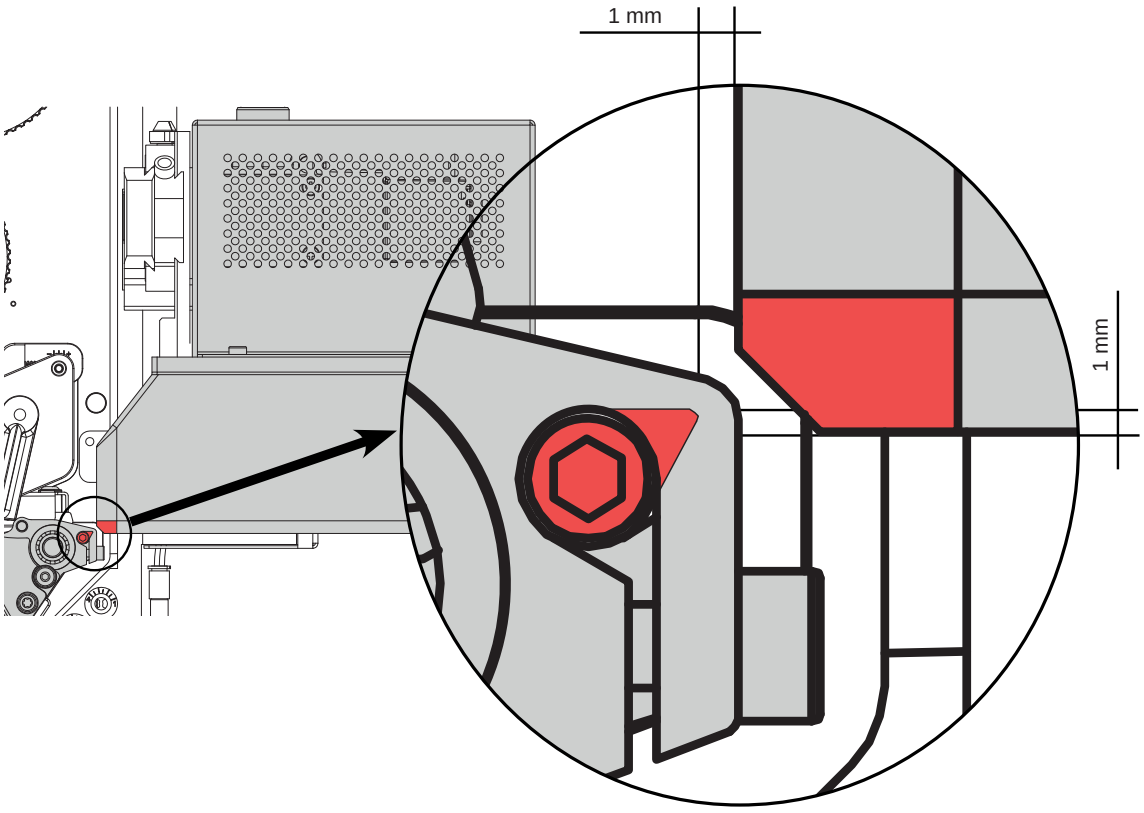


Fig. 10 Adjusting the height of the air-jet module

4.3 Vacuum Adjustments

The label will be held on the suction plate by a vacuum.

The vacuum needs to be set up in such a way that the label covers all the suction holes and is not hindered before it reaches its intended position on the suction plat.

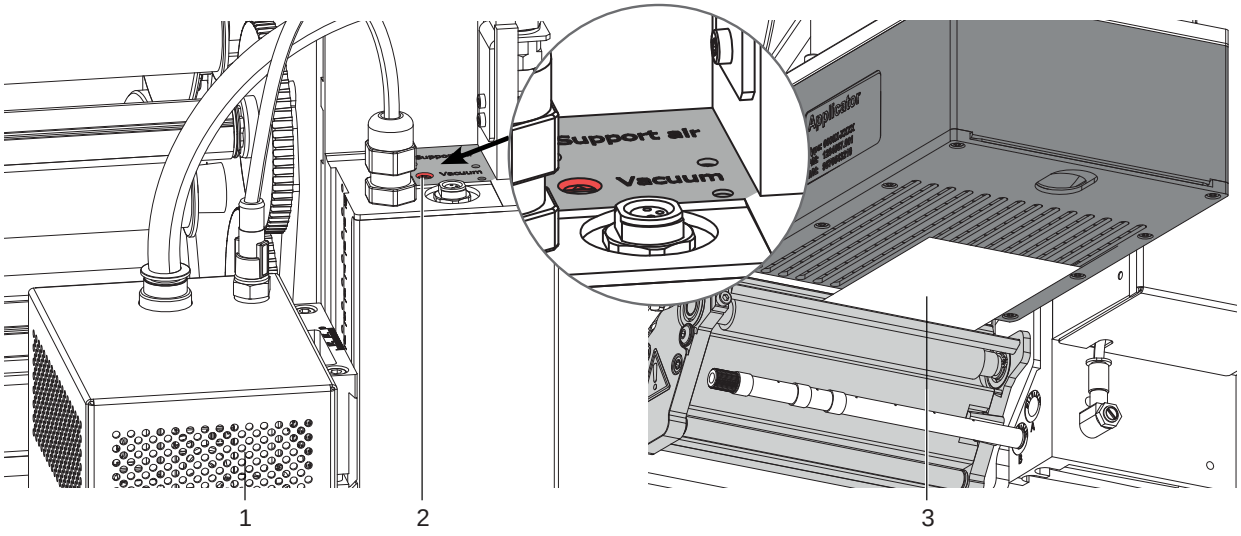


Fig. 11 Vacuum adjustments

- ▶ Adjust the vacuum on the potentiometer "vacuum" (2) so that the label (3) will be sucked up over its entire area.
- ▶ To increase the vacuum turn the potentiometer (1) counterclockwise to control the speed of the ventilator (1).

4.4 Adjusting the Blow Tube (Supporting Air)

The blow tube must be adjusted in such a way that the label takeover is unhindered by turbulence and the supporting air blows the label evenly against the suction plate.

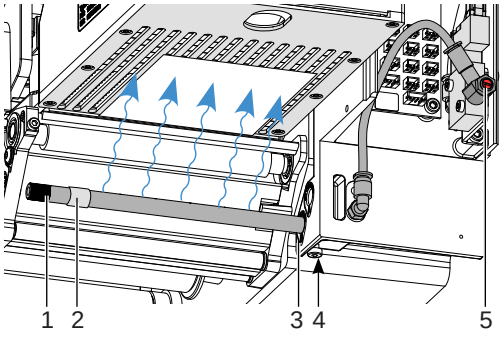


Fig. 12 Adjust the blow tube

The blow tube (4) for the supporting air can be rotated around its axis. That way the direction of the supporting air can be optimized.

1. Loosen screw (1).
2. Put the blow tube (3) into the tube adapter B (2).
   Turn the blow tube (2) in the direction that the air current can support the take up of the label.

- For small labels direct the air current more toward the dispensing edge (5) of the printer.
- For larger labels direct the air current away from the dispense edge (6).

  Use the graduation guide for orientation.

3. Open as many holes of the blow tube as are needed to cover the label width. Remove rings (4) if necessary.
   All holes outside the label width should be covered with the shrink tube rings provided.
4. Tighten screw (1).
5. To increase the support air turn the setting screw on the throttle valve (5) counterclockwise.

4.5 Settings in the Printer Menu

Note!

This guide only describes the specific contents of the *Labeling* menu.

More information about configuration ▷ Printer configuration manual.

▶ Start menu.

▶ Select *Setup* > *Labeling.*

Parameter	Meaning	Default
Device info	Provides device information, operational statistics and times in motion.	
Cycle sequence	Setting the application mode *Print-Apply / Apply-Print* *Print-Apply*: An external start signal releases the print of a label and following the application of the label. After a cycle is complete, the suction plate without label waits in the home position. *Apply-Print*: An extra signal starts the print of the first label and the transfer of the label to the suction plate. The external start signal releases the application of the label and following the print and transfer of the next label. After a cycle is complete, the suction plate with a label is in the waiting position.	*Print-Apply*
Automatic FSTLBL	∗ only with *Cycle sequence = Apply-print* The FSTLBL signal is triggered automatically in subsequence to a print job been started.	*Off*
Hand-over position	Shift the position of the dispensed label relative to the dispensing edge. The setting can also be adjusted by the software. The settings of configuration and software are added together.	*0.0 mm*
Support delay on	Setting the switch-on delay (max. 2,5 s) for the supporting air between print start and switching on the supporting air. The delay prevents swirling at the front of the label and, consequently, avoids faults when the label is being picked up from the printer.	*0 ms*
Support delay off	Setting the switch-off delay (max. 2,5 s) for the supporting air between the end of label forwarding and switching on the supporting air. The delay can be useful to separate the rear edge of the label from the carrier to avoid errors and to improve the accuracy of label positioning	*270ms*
Start delay	Delay (max. 2,5 s) between start signal and the start of an labelling cycle. Allows e.g. the use of product sensors at conveyors.	*0 ms*
Lock time	All start signals coming in following the first start signal are ignored when they arrive within the lock time (max. 2,5 s).	*0 ms*
Blow time	∗ Only at *Transfer mode = Blow on* Switch-on time (max. 2,5 s) of the blowing air for the label transfer	*100 ms*
START Mode	Define the condition for triggering the START signal. Edge: from low to high Level: high	*Edge*
	Speed of the fan 15% to 100%	*100 %*
	Switching on the fan: *- Always on* *- On with job*	*On with job*
Enable support air	Activation / Deactivation of the support air	*On*

Table2 Menu *Labelling*

4.6 Special JScript Commands

Some parameters of the menu *Setup* > *Labelling* can be changed or overridden by JScript commands in a print job.

Attention!

- **The meaning of the commands O Ax=y in the following table are valid for HQ 6114 only. For other applicators the meaning of these commands are different.**
- **The y-values must be set as shown in the table regarding blanks and case sensitivity.**
- **Numerical entries must be entered in increments of ten.**
- **The changes are valid for the current print job only.**

Command O Ax=y

x	Meaning	Value range y	Default	Example
0	Support delay on in ms	0-2500	0	O A0=500
1	Support delay off in ms	0-2500	270	O A1=500
2	Start delay in ms	0-2500	0	O A2=500
3	Lock time in ms	0-5000	0	O A3=500
4	Blow time in ms	0-100	20	O A4=10
10	Cleaning blow	on / off	on	O A10=on
18	START Mode	Edge / Level	Edge	O A18=Edge

Table3 O Ax commands

4.7 Setting the Hand-over Position

To optimize the transfer of the labels from the printer to the suction plate there are two different parameters available for adjusting the hand-over position.

Attention!

▶ **First adjust the parameter "Hand-over position" in the printer configuration.**

▶ **Then adjust the additional hand-over position in the software.**

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

Parameter "Hand-over position" in the printer configuration

▶ Check the basic settings in the printer setup. Perform labelling cycles by alternately pressing the  button and Enter button . ▷„4.9 Test Mode without a Print Job“ on page 16

▶ In the submenu  *Labelling* >  *Hand-over position* adjust the "Hand-over position" in such a way, that the blank labels are peeled-off completely from the liner
▷ „4.5 Settings in the Printer Menu“ on page 14

Hand-over position in the software

▶ Check the setting in the software. Perform labelling cycles by repeatedly pressing the Enter button .
▷ „4.10 Test Mode with a Print Job“ on page 16

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

4.8 Activation of Peel-off Mode

Note!

▶ **For labelling operation activate the peel-off mode in the software.**

▶ **For direct programming use the P command ▷ Programming manual.**

4.9 Test Mode without a Print Job

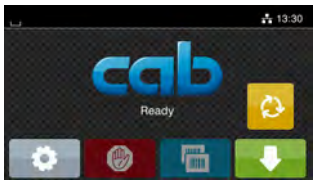


Fig. 13 Display

By alternating between buttons and on the display it is possible to simulate the labeling process without an active printing job.

▶ Push button .
A blank label is dispensed and taken by the suction plate.

▶ Push button .
The label is transferred to the product.

Note!

▶ **Use the printer configuration to find the best hand-over position for the initiation.**

4.10 Test Mode with a Print Job

This method allows testing of the labeling process with actual printing data by using the button.

▶ Send a print job.

The test mode is executed in two half cycles:

Half cycle 1

▶ Push the button.
A printed label is dispensed and taken over by the suction plate.

Half cycle 2

▶ Push the button again.
The label is transferred to the product.

Note!

▶ **If the label is removed by hand after half cycle 1 has been completed and the button is pressed, half cycle 1 will be repeated with the next label in the printing line.**

Note!

▶ **Use the software to find the best hand-over position for the initiation.**

Connection

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

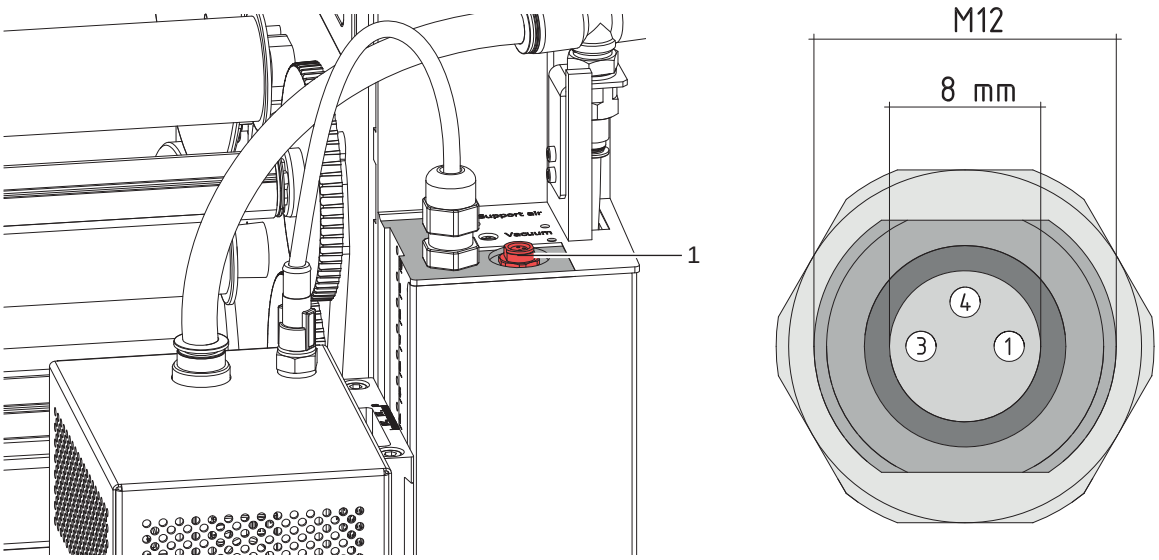


Fig. 14 Start signal connector on the applicator

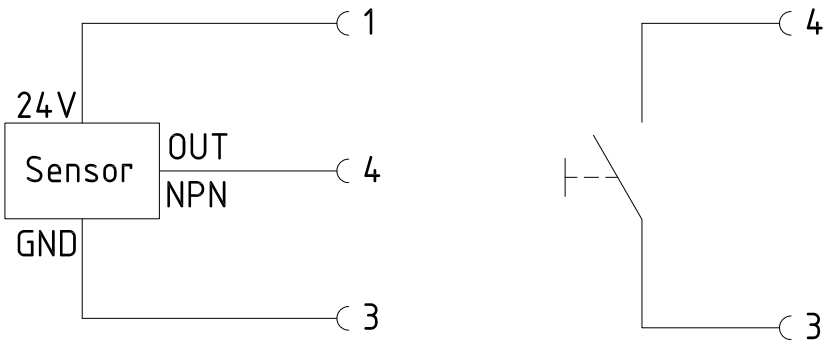


Fig. 15 Examples of connections of start sensors

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

Note!

Cycle sequence = Apply-Print

The printing of the first label continues via the printer's I/O interface using the FSTLBL signal

6.1 Standard Operation

- ▶ Check all external connections.
- ▶ Load the material. Ensure that the locking system is locked ▷ "Operator's Manual" of the printer.
- ▶ Open the shutoff valve.
- ▶ Switch on the printer.
- ▶ Press the  at the printer.
  A synchronization feed is released. The processed labels have to be removed manually. After a few seconds the printer carries out a short backfeed to position the front edge of the next label at the printing line.

Note!

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

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

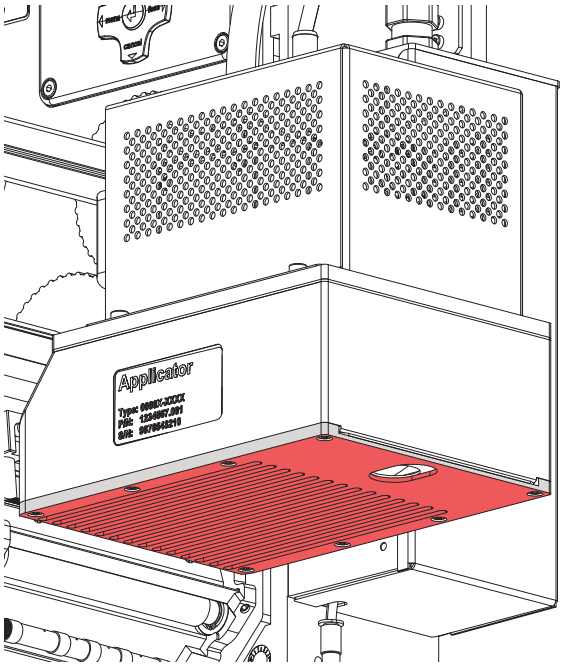
- ▶ Start a print job
- ▶ Start the labelling process via PLC interface.

Error messages during labelling process are shown in the display of the printer ▷ Error Messages.

6.2 Cleaning

Attention!

Never use solvent and abrasive.



- ▶ Clean the outer surfaces with a multi purpose cleaner.
- ▶ Especially the surface of the suction plates needs regular cleaning as left over debris is likely to adhere to the suction plate preventing an optimal label take over.

Fig. 16 Cleaning the suction plate

7 Error Messages

7.1 Error Messages of the Printer

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

Error treatment:

▶ Clearing the error results.

▶ Press the  to synchronize the label feed, remove the left over labels manually.

To quit the error state press *Repeat* .

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

7.2 Error messages of the Air-Jet Box

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

Error Message	Possible Cause	Troubleshooting
Air pressure too high <Value> bar	Air Pressure to high, over 6 bar	Reduce pressure to below 6 bar
Air pressure too low <Value> bar	Air Pressure to low, under 4 bar	Increase pressure to above 4 bar
Fan blocked	Fan speed does not reach target speed	Clean the fan and remove blockages
Printer version is to old	Printer firmware is an old version	Printer firmware update
Voltage error	24 V in the applicator are missing or wrong	Check the Sub-D 9 connector

Table4 Error messages of the Air-Jet Box

Error treatment:

▶ Clear the error state.

To continue operation, the following options are offered in the error display:

Continue	The current print job is continued with the next label.
Cancel	The current print job is cancelled.
Repeat	The faulty label is printed again.

Table5 Buttons in the error display

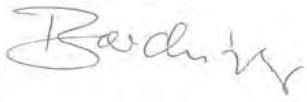
▶ In the Cycle sequence "apply/print" before the standard cyclic operation can commence the signal "print first label" must be sent or push  to send a printed label to the suction plate.

8.1 Declaration of Incorporation

cab Produkttechnik
GmbH & 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
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	**Air-Jet Box**
Type	**HQ 6114**
Applied EU Regulations	Applied Standards
Directive 2006/42/EC on machinery	**EN ISO 12100:2010**
	EN ISO 13849-1:2023
	EN 62368-1: 2014/AC:2015
Other Relevant Directives • **Directive 2014/30/EU relating to electromagnetic compatibility** • **Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment**	
Person authorised to compile the technical file	**Marcel Michalski** **Am Unterwege 18/20** **99610 Sömmerda**
Signed for, and on behalf of the Manufacturer **cab Produkttechnik GmbH & Co KG** **Wilhelm-Schickard-Str. 14** **D-76131 Karlsruhe**	Karlsruhe, 03.04.2025  **Klaus Bardutzky** Managing Director

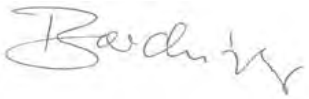
The product must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive on machinery.
The documents according annex VII part B from the incomplete machinery are created and will commit to state agencies on request in electronic kinds.

8.2 EU Declaration of Conformity

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

EU Declaration of Conformity

We declare herewith that the following device as a result of design, construction and the version put in circulation complies with the relevant fundamental regulations of the EU Rules for Safety and Health. In the event of any alteration which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

Device	**Air-Jet Box**
Type	**HQ 6114**
Applied EU Regulations	Applied Standards
Directive 2014/30/EU relating to electromagnetic compatibility	**EN 55032:2015+A11:2020**
	EN 55035:2017+A11:2020
	EN 61000-6-2:2005/AC:2005
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment	**EN IEC 63000:2018**
Commission delegated directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances	
Signed for, and on behalf of the Manufacturer **cab Produkttechnik GmbH & Co KG** **Wilhelm-Schickard-Str. 14** **D-76131 Karlsruhe**	Karlsruhe, 03.04.2025  **Klaus Bardutzky** Managing Director