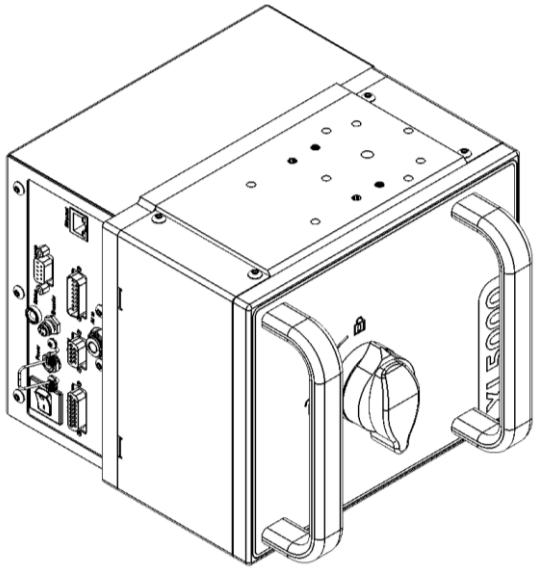
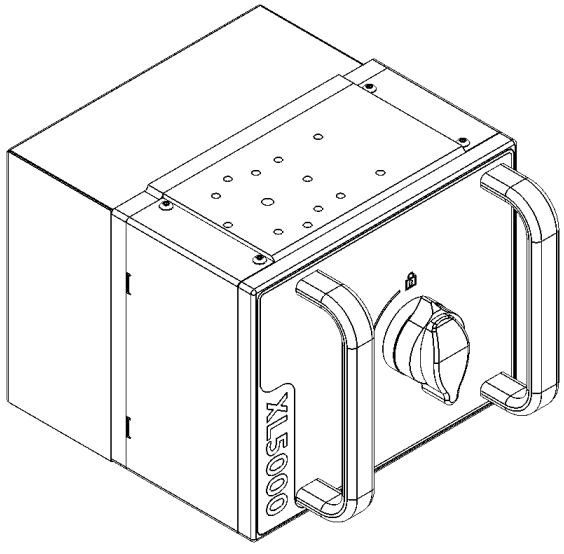
XL5000

THERMOTRANSFER-PRINTING SYSTEMS



XL5000 (Standard)



XL5000 (Opposite)

OPERATING INSTRUCTIONS

Important Notes

Operating instructions

Description	XL5000
Version	1.01
Issue date	09.Mar.2018
Document number	M02001101EN0318

The operating manual is a translation of the original operating instructions.

Applicability

The present operating instructions apply to the device with the following part number.

Device name

Part number	Description	
103810-1	XL5000 (Standard)	Europe
103810-2	XL5000 (Opposite)	
103810-3	XL5000 (Standard)	United States
103810-4	XL5000 (Opposite)	
103810-5	XL5000 (Standard)	China
103810-6	XL5000 (Opposite)	

Using this manual

- First read the Chapter on “Safety Information” before you begin work with the device.
- The operating instructions enables safe working on and with the device. It is essential that you comply with all safety instructions contained therein.
- Read the complete operating instructions before installing and commissioning the device.
- The operating instructions is a part of the device. It has to be stored so that every person that works on and with the device has access to it at all times. The operating instructions must be complete and in an easily readable condition.
- When the device is passed on, you have to enclose the operating instructions.
- If the operating instructions is lost, please ask for a replacement. Information on the current version of the operating instructions may be found on our website **www.AllenCoding.com**.
- The information provided in these operating instructions relate to the devices described under “Applicability”.

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IMPORTANT NOTES

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1 Product identification

1.1 Characteristic data

General

XL5000		
Part number	Standard - Europe	103810-1
	Opposite - Europe	103810-2
	Standard - US	103810-3
	Opposite - US	103810-4
	Standard - China	103810-5
	Opposite - China	103810-6
Operating mode		Intermittent (IM)
		Continuous (CM)
Material		stainless steel, anodized aluminum, plastic
Print resolution	[dpi]	ca. 300 (corresponds to 12 dots/mm)
Thermal print head (width)	[inches]([mm])	2 (53)
Ribbon width	[mm]	55
Ribbon length	[m]	up to 900*
Ribbon roll diameter	[mm]	up to 92*
Ribbon type	-	externally coated
Rotations (printing)	[°]	0, 90, 180, 270
Interface		Inputs: Print signal input
		Outputs: Printer error, Enable print cycle, Free/Busy
		Communications: RS232, Ethernet (10/100Mb)
Barcodes		2/5 Interleaved, Code 93, UPC, EAN8, EAN13, Code39, DUN14, Code128, EAN128, Databar, Databar Truncated/Limited/Stacked/ Omnidirectional, Datamatrix, GS1-Datamatrix
Fonts		3 internal fonts (News Gothic Bold compatibility font, Swiss 721 bold, Swiss 721 roman), mirror print, up to 12 fonts expandable by the customer
Data fields		Dates/Times (real time/time offset), counters, incremental and decremental, fixed and variable texts, variable fields, free fields for bar codes, shiftcodes, etc.

* Depending on used ribbon type

Intermittent operation (IM)

Operating mode		Intermittent (IM)
Print area [width x length]	[mm]	max. 53 x 80
Print speed	[mm/sec]	min. 75
		max. 400

Continuous operation (CM)

Operating mode		Continuous (CM)
Print area [width x length]	[mm]	max. 53 x 300
Print speed	[mm/sec]	min. 75
		max. 450

1.2 Compliant use

1.2.1 Ambient conditions

XL5000 (Standard / Opposite):		
Ambient temperature, operation	[°C] ([°F])	+5 to +40 (+40 to +104)
Relative humidity, operation (non-condensing)	[%]	20 to 75
Protection class	[IP]	IP20
Ambient temperature, transport and storage	[°C] ([°F])	-25 to +55 (-13 to +131)
Relative humidity, transport and storage (non-condensing)	[%]	20 to 75

1.2.2 Designated use

- The XL5000 printer operates with a thermal transfer printing method.
- The printing system can transfer, save and process alpha-numeric and graphical information and apply it to materials suitable for this printing method.
- The XL5000 printer can be operated in intermittent mode. After modification, the printer can also be operated in continuous mode.
- The printer is intended for commercial or industrial use.
- The printer may not be used outdoors or in a non-explosion-safe environment (Ex-area).
- Only auxiliary materials, operating materials (ribbon) and process materials (labels, foils, packing materials) suitable for this printer and printing methods may be used.
- The Printer must be permanently installed into a frame designed for this purpose (machine frame/machinery holder).
- No modifications to the printer are allowed.
- Operation and set-up of the printer may only be performed by trained personnel authorized by the operator.
- Working on the printer (installation, maintenance, cleaning) may only be performed by fully qualified and trained technical personnel.
- The applicable safety requirements, the ambient conditions and technical data specified in these instructions must be observed at all times.
- Operation of the printer may only proceed with the specified accessories/consumable material/replacement parts. Only use original accessories and original replacement parts.
- The printer may only be operated with an inserted and locked cassette.
- The handles which are mounted on the cassette may not be used for lifting or carrying the printer.

Reasonably foreseeable misuse:

- Operation/use of the printing system other than in compliance with the designated use established by the manufacturer may result in hazards to personnel and/or property damage.
- Operation of the printing system with disabled safety devices (e.g. sensors).
- Operation of the printing system without the support system (frame).

1.2.3 Qualification of personnel

Operation and set-up:
Operation and set-up of the device may only be performed by sufficiently qualified and trained personnel that have been authorized by operator to perform these tasks.

Installation, cleaning and maintenance:
Installation, cleaning and maintenance of the device may only be performed by fully qualified and trained technical personnel.

Maintenance:
Maintenance of the device may only be performed by the manufacturer's technical personnel or by fully trained and qualified technical personnel.

1.3 Technical data

This section contains information on the mechanical and electrical properties of the printing system and its accessories.

1.3.1 Mechanical data

NOTE

Additional space required for incoming and outgoing cables and for changing the ribbon
Please observe during installation that additional space on the equipment parts is required for incoming and outgoing cables as well as for changing the ribbon during operation.

Printing system dimensions

Equipment height	[mm]	178
Equipment width	[mm]	212
Equipment depth	[mm]	244

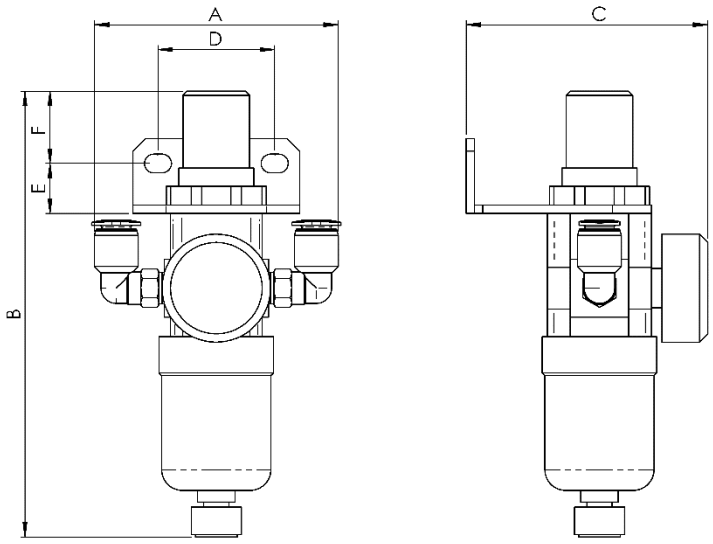
Printing system weight

Printing system weight	[kg] / [pounds]	8 / 17.6

Cable lengths

Power supply connection cable	[m]	2
Ethernet cable	[m]	max. 30
I/O connection cable	[m]	max. 30
RS-232 connection cable	[m]	max. 30
Alarm beacon connection cable	[m]	max. 3

Pneumatic service unit dimensions



(A) Width	[mm]	59
(B) Height	[mm]	108
(C) Depth	[mm]	58
(D) Distance assembly holes	[mm]	28
(E)	[mm]	12
(F)	[mm]	17.5

Pneumatic service unit weight

Pneumatic service unit	[kg]	0.5

1.3.2 Electrical data

Power supply input:		
Voltage	[V_{AC}]	100 - 240
Frequency	[Hz]	50 - 60
Current	[A]	2

Power supply output (/ printer input):		
Voltage	[V_{DC}]	24
Current	[A]	5
Power output	[W]	max. 120

1.3.3 Pneumatic data

The unit requires a normal industry supply of oil-free, clean and dry air. The air supply requirement is:

Printing system:		
Air supply (input)	[MPa] ([bar] or [psi])	0.5 (5 or 75)
Connection for air supply tubing with outside diameter	[mm]	6
Requirements for compressed air supply		oil-free, clean and dry air

Pneumatic service unit:			
Air supply	Input	[bar]	min. 0 – max. 10
	Output	[bar]	min. 0 – max. 10
Connection for air supply tubing with outside diameter	Input	[mm]	6
	Output	[mm]	6
Requirements for compressed air supply			oil-free, clean and dry air

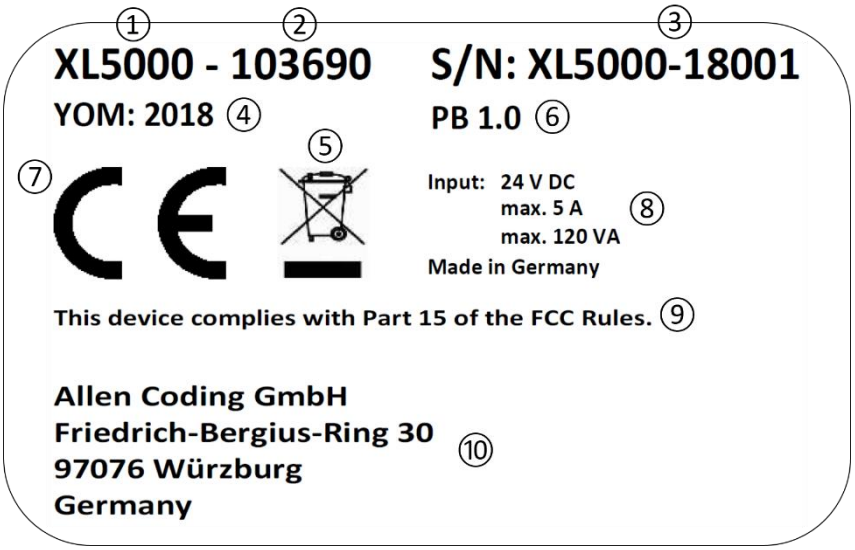
1.3.4 Noise emission

Printing system:		
Noise emission	[dB (A)]	51.86
Correction for background noise (K_{1A})	[dB]	0
Correction for physical environment (K_{2A})	[dB]	2

1.4 Identification of the device

Type plate

The type plate attached to the device contains the following data:



①	Equipment type	⑥	Production build
②	Part number	⑦	CE mark
③	Serial number	⑧	Electrical data: voltage, maximum input current, maximum rated input
④	Year of manufacture	⑨	Remark relating to compliance with FCC rules part 15.
⑤	WEEE symbol	⑩	Manufacturer

1.5 Compliance information

1.5.1 CE-compliance

NOTE

CE-conformity

The CE conformance of the product is certified by attachment of the CE symbol to the type plate and by the conformity statement included with the product. A sample of the declaration is found in the Appendix to these Operating Instructions; see "***EC-compliance statement***".

The device meets the requirements of the following European EC-Guidelines:

- Machine guideline **2006/42/EG**
- EMC guideline **2014/30/EU**
- RoHS guideline **2011/65/EU**
- The low-voltage guideline 2014/35/EU was adhered to regarding its protection objectives

1.5.2 EMC Compliance Statements

European Union (EU) Electromagnetic Compatibility Directive Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Federal Communications Commission (FCC) Emissions Compliance Statement

This equipment has been tested and complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device might not cause harmful interference, and (2) this device must accept any interference received, including interference that might cause undesired operation.

Warning: Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

1.5.3 RoHS / WEEE – compliance

RoHS

The product complies with the relevant provisions of the RoHS Directive for the European Union.

WEEE Directive Statement for the European Union

WEEE-Reg.-No. DE	84410135

In common with all Electronic and Electrical products this product should not be disposed of in household waste. Alternative arrangements may apply in other jurisdictions.

2 Product specifications

In this chapter, you will find information on deliverable items and equipment of the device.

2.1 Safety requirements

NOTE

Please always follow the safety instructions.
See "***Safety Information***" Chapter.

2.2 Deliverable items

NOTE

Check the deliverable items for completeness and condition.
After receipt of the shipment, please check immediately to see whether all items listed on the delivery ticket are included and are undamaged. The manufacturer does not accept liability for deficiencies that have been claimed subsequently. Complain against:

- Transport damages directly to the shipping service.
- Deficiencies and/or incompleteness immediately to the manufacturer or your distributor.

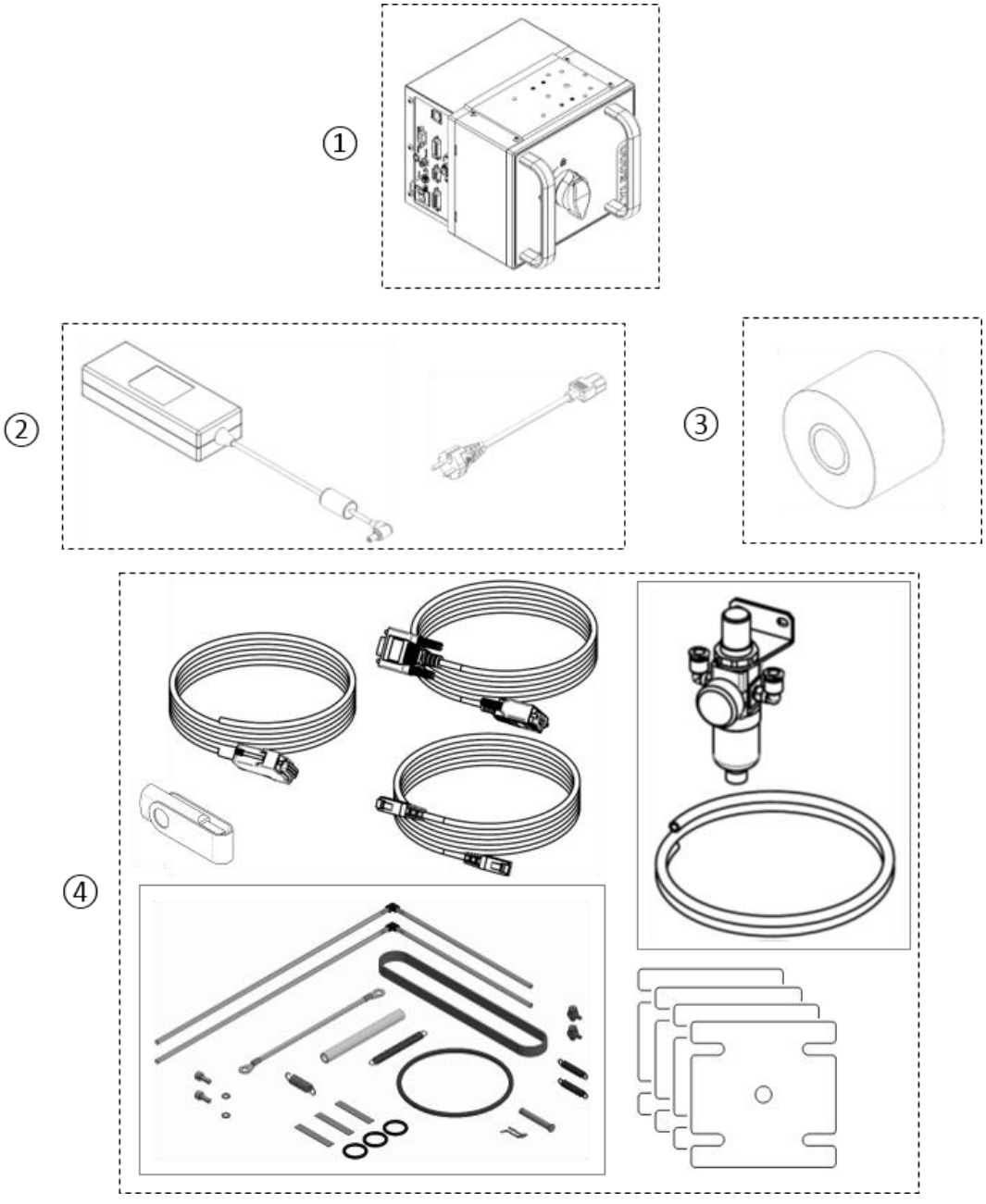
The following components belong to the standard deliverable items for the device:

Position	***Qty***	***Part number***	***Description***		
1	1	103810-1	XL5000 Standard – EU		
		103810-2	XL5000 Opposite – EU		
		103810-3	XL5000 Standard – US		
		103810-4	XL5000 Opposite – US		
		103810-5	XL5000 Standard – CN		
		103810-6	XL5000 Opposite – CN		
		Including:			
		Qty	*Part number*	*Description*	
		1	-	Printing system	
		1	215341	Power supply	
		1	103806-1	power supply connection cable – EU	
			103806-2	power supply connection cable – US	
			103806-3	power supply connection cable – CN	
		1	-	Sample ribbon	
		1	103851	Kit accessories	
			Content:		
			Qty	*Part number*	*Description*
			1	-	Serial cable (screened, male – female, 3 m)
			1	-	Ethernet cable (CAT 5E, 3 m)
			1	-	I/O connection cable (screened, 3 m)
			1	102687	Kit pneumatic service unit
			1	103809	Kit wear and spare parts
			1	-	Accessories USB pen drive
			4	103804	Shim plate

Optional equipment:

1	1	103808	Kit CM print
2	1	6000-828	LED alarm beacon

Overview standard deliverable items:



①	Printing system	③	Sample ribbon
②	Power supply with connection cable	④	Kit accessories

2.3 Description of device

⚠ WARNING

Personal injury!

- Read and follow safety rules and guidelines in chapter 3 before attempting to setup or operate this equipment

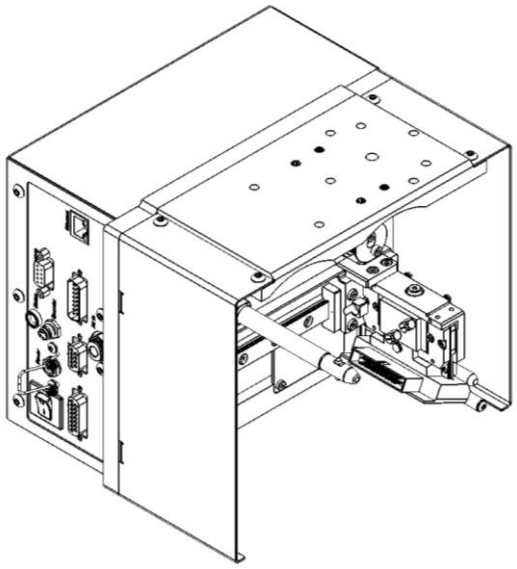
The new **XL5000** printers incorporate state-of-the-art technology. They are designed to print bar codes, alphanumeric texts, dates, times, logos, and other images directly onto the surface of packaging materials such as plastics, laminates, cellophane, cardboard, self-adhesives, etc.

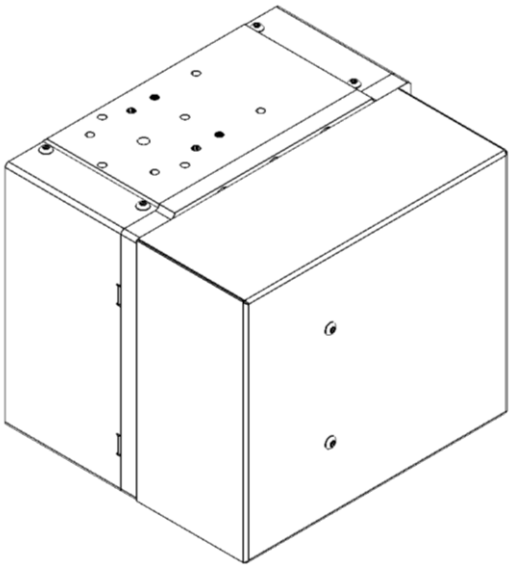
To satisfy speed, flexibility and ease of handling requirements, the **XL5000** exhibits the following salient characteristics:

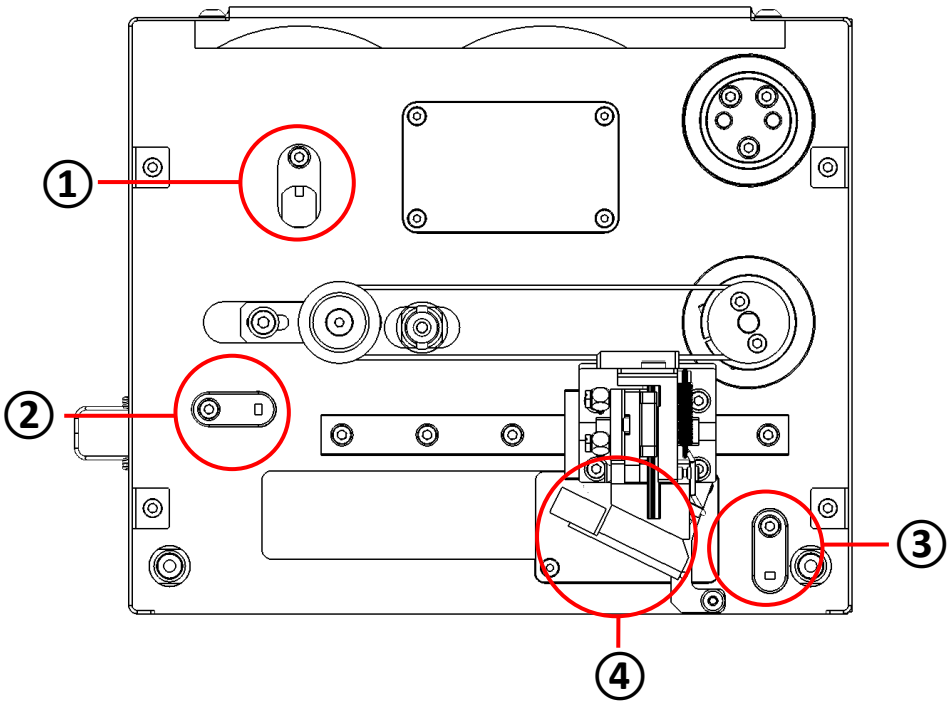
- Compact size - electronics located inside body of printer
- Easy conversion to continuous mode
- Full Unicode capability
- Downloadable fonts (user option)
- Ethernet port
- Optional alarm beacon connectivity
- Maximum integration and adaptability to most machines
- Minimum mechanical maintenance
- Ease of configuration and ease of use
- Simple connection to computer systems
- Optimized use of thermal transfer ribbon
- High-quality printing

2.3.1 Layout of the printing system

Printer base unit

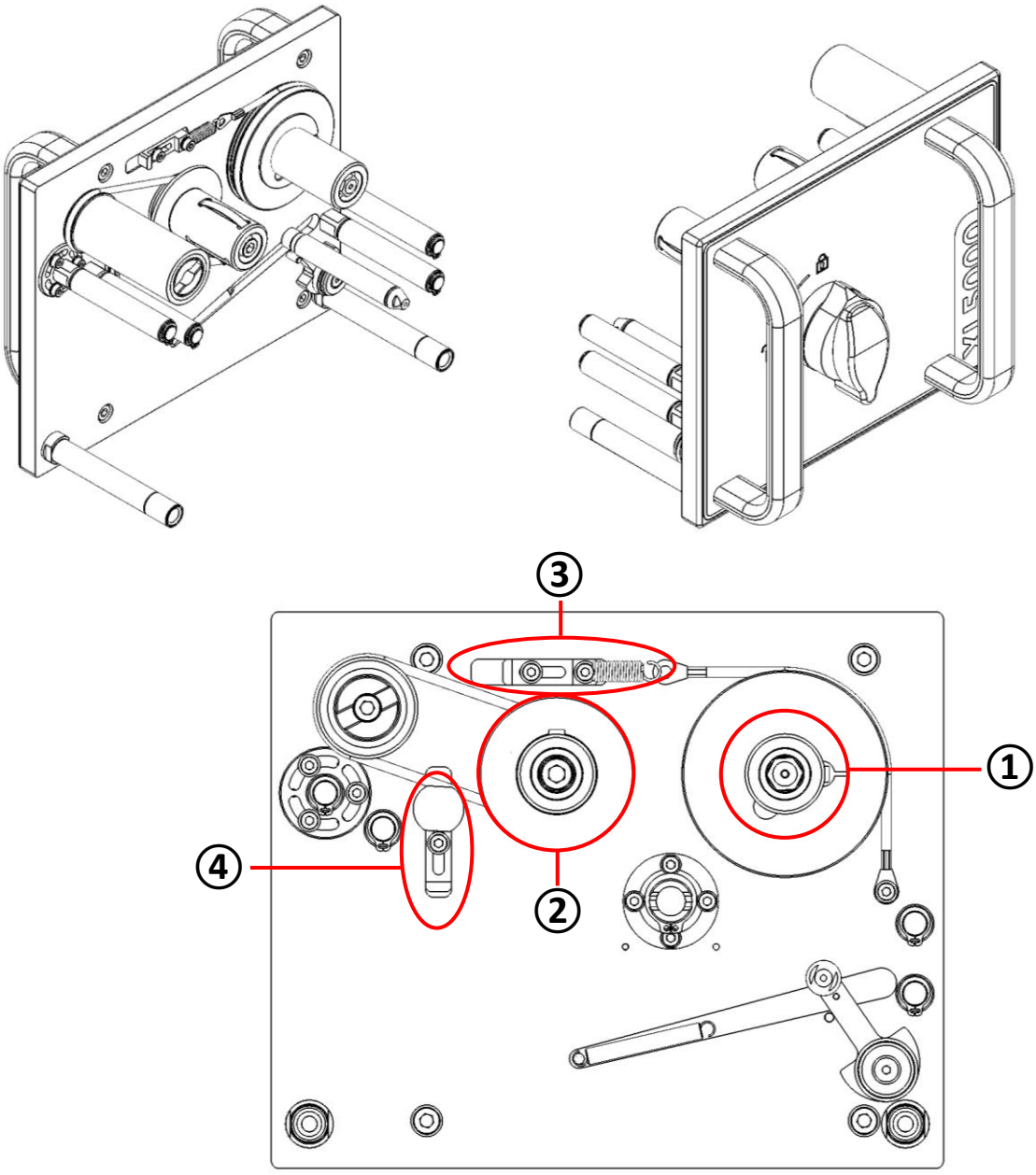






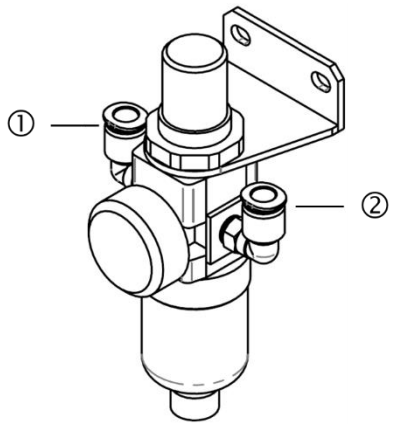
①	Cassette sensor	③	Home sensor
②	Ribbon sensor	④	Thermal printhead

Ribbon cassette



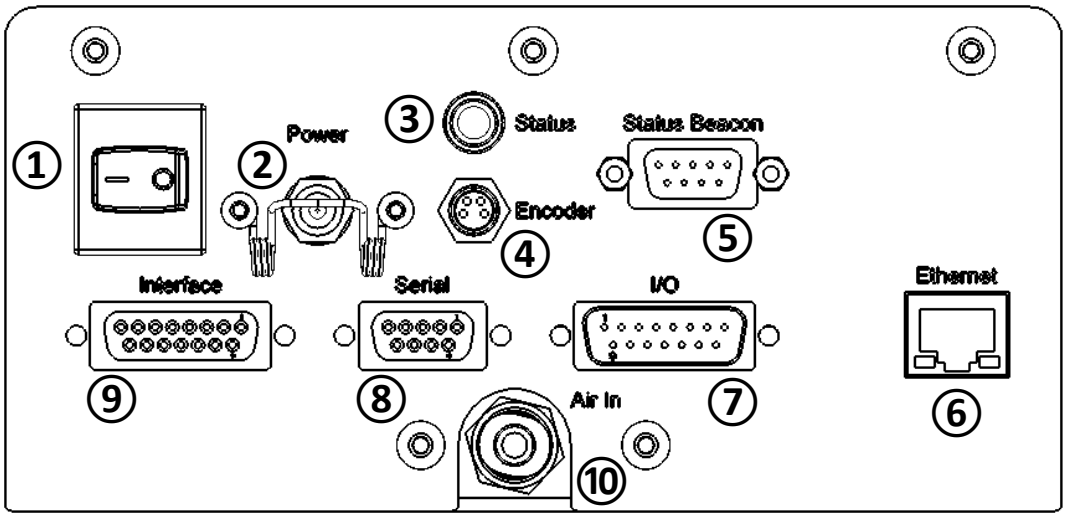
①	Ribbon unwind	③	Tensioner ribbon unwind
②	Ribbon upwind	④	Tensioner ribbon upwind

2.3.2 Pneumatic service unit



①	Air pressure supply connection (Ø 6 mm)	②	Air supply connection (Ø 6 mm, to connect to the printing system)

2.3.3 Interface of the printing system

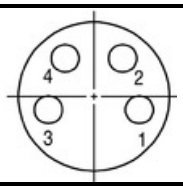


①	24 V_{DC} power ON/OFF switch	⑥	Ethernet port
②	24 V_{DC} input	⑦	Printer input signal from host machine
③	Printer status LED	⑧	RS-232 printer connection to computer
④	Encoder port Printer option for continuous mode (not used for intermittent mode)	⑨	Printer connection to the control terminal
⑤	Connection for alarm beacon (contact dealer for availability)	⑩	Air input 6 mm quick connect

2. Power input 24 V_{DC}

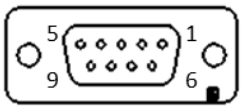
Pin	Description/Function
Inner	VCC + 24 V_{DC}
Outer	GND

4. Encoder (socket)



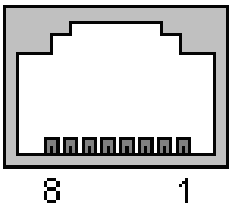
Pin	Description/Function
1	VCC + 5 V_{DC}
2	A
3	GND
4	B

5. Alarm beacon (D-sub 9-pin Socket)



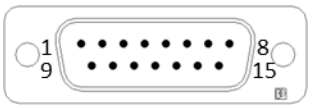
Pin	Description/Function
1	
2	
3	
4	Error
5	Warning
6	ON (+24 V_{DC})
7	GND
8	
9	

6. Ethernet connection (RJ-45 Socket)



Pin	Description/Function
1	D1+
2	D1-
3	D2+
4	D3+
5	D3-
6	D2-
7	D4+
8	D4-

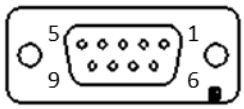
7. I/O interface (D-sub 15-pin plug)



Pin	Description/Function
1	Free/Busy (output)
2	On cycle / printed (output)
3	Common pins 1-2
4	Error N.C.
5	Error common pin
6	Error N.O.
7	VCC + 24 V_{DC} (output)
8	VCC + 24 V_{DC} (output)
9	Input+ (print signal)
10	Input- (print signal)
11	GND
12	GND
13	
14	
15	

For further details about the connection of I/O signals to the machine, please refer to the section "***Electrical installation***".

8. Serial communication interface (RS-232, D-sub 9-pin Socket)



Pin	Description/Function
1	
2	TxD
3	RxD
4	
5	GND
6	
7	
8	
9	

9. Control terminal interface (D-Sub 15-pin Socket)

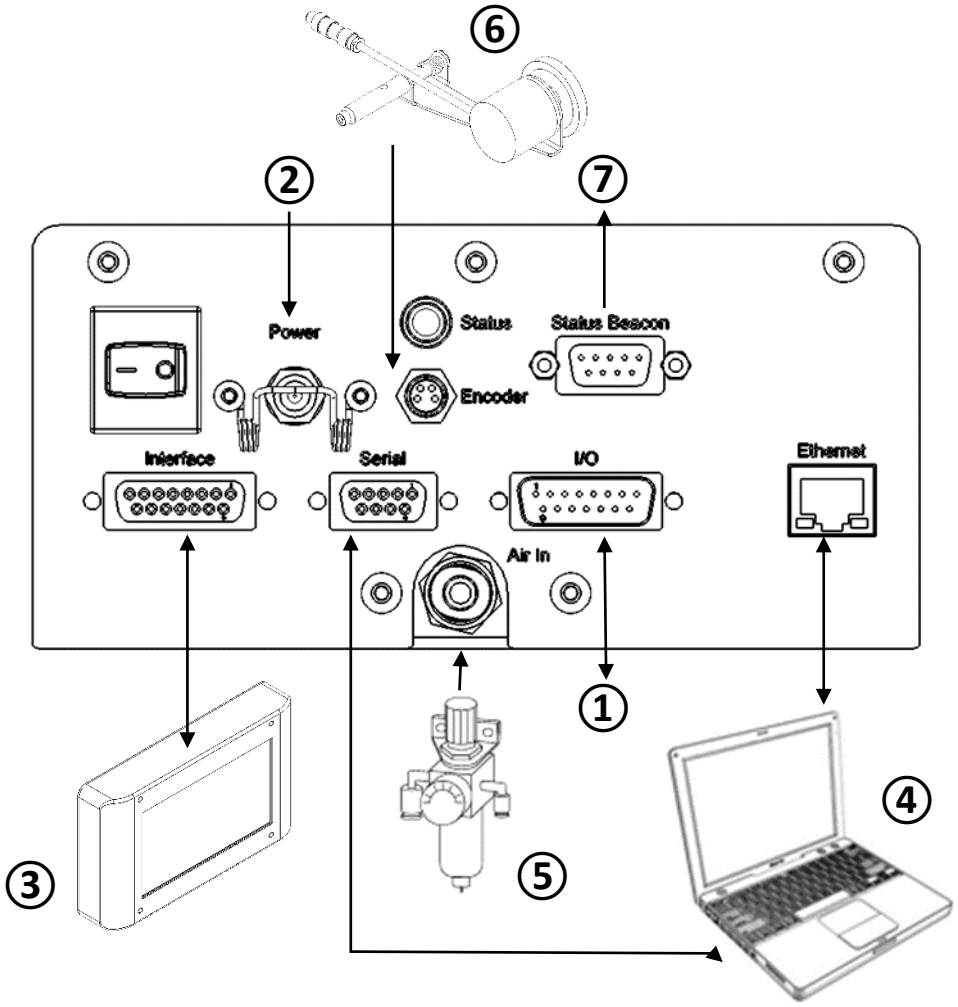
Pin	Description/Function
1	GND
2	RXD
3	TXD
4	VCC + 5 V_{DC}
5	VCC + 5 V_{DC}
6	
7	
8	
9	GND
10	GND
11	GND
12	GND
13	VCC + 5 V_{DC}
14	VCC + 5 V_{DC}
15	VCC + 5 V_{DC}

2.3.4 Connection possibilities and connection of components

⚠ WARNING

Personal injury!

- Read and follow safety rules and guidelines in chapter 3 before attempting to setup or operate this equipment



①	Host machine (see "***Electrical installation***" for connection options)	⑤	Air pressure regulator (max. 6 bar)
②	Power supply 24 V_{DC}	⑥	Encoder (only used for continuous mode)
③	Control terminal	⑦	Alarm beacon
④	Computer or control panel *a:touch 2*		

Power supply

Position the 24 V power supply close to the printing system and connect the output cable to the 24 V_{DC} connector of the printing system. Secure connector by engaging spring or clamp.

Air supply

1. Position and secure the pressure regulator close to the printing system or in an accessible place where it is easy to operate.
2. Connect the pressure regulator air input port to the main air supply line and connect the air output to the printing system.
3. Set the pressure regulator to 75psi (~5 bars). Maximum permissible pressure is **6 bars**.

Control terminal

1. Use the communication cable to connect the control terminal to the printer.
2. Tighten the clamping screws (see control terminal user's guide).

Host machine

Use the signal cable to connect the printer to the host machine. See "***Electrical installation***" for connection configurations.

Computer

The printer can operate connected to a PC and the control terminal at the same time, thereby ensuring maximum flexibility of operation.
You can connect the printing system either by serial or Ethernet connection to your PC (see "***Communication via the serial interface (RS-232)***" and "***Communication via the Ethernet connection***" for more details).

Encoder (used for continuous mode)

Installation see "***Continuous operation***".

3 Safety Information

This Chapter contains information on the configuration and relevance of the safety information presented in these operating instructions, and information on possible hazards which may occur even for compliant usage of the device.

3.1 Configuration of the safety instructions

⚠ **SIGNAL WORD**

Type and source of hazard

Explanation of the hazard and information on possible consequences of non-compliance

- Activities/prohibited actions to help prevent accidents.

	The pictogram denotes the type of hazard		
	The safety sign ⚠ before the signal word indicates a possibility of personal injury		
	The **signal word** denotes the severity of the hazard		
	SIGNAL WORD	**Consequences when hazard occurs**	**Probability of occurrence**
	HAZARD	Severe physical injury or death (irreversible)	imminent
	WARNING	Severe physical injury or death (irreversible)	possible
	CAUTION	Slight/minor physical injury (reversible)	possible
	ATTENTION	Property damage to machinery and/or to nearby assets	possible
	The reference text describes: ▪ type and source of hazard, ▪ the possible consequences of disregarding the safety instruction, ▪ measures or restraints to prevent the hazard.		

3.2 Used pictograms

Pictogram	Meaning
	Warning of a general hazard
	Warning of possible property damages
	Before performance, observe the corresponding information in the operating manual
	General note

3.3 Hazards during compliant use

CAUTION

Hot machine parts!

A thermal printhead can have hot surface temperatures during operation. Contacts with the surface can cause burns.

- Avoid direct contact with the surface of the thermal printhead, particularly during maintenance work.
- After switching off the equipment, wait until the surface of the thermal printhead has cooled down.

CAUTION

Potential hazard caused by incorrect accessories and spare parts!

The use of accessories and spare parts that are not recommended by the manufacturer may compromise safety, functionality and efficiency of the device. Any liability and warranty for any damages caused by not recommended accessories and spare parts or non-intended use is excluded by the manufacturer.

- Only use the accessories and spare parts that are recommended by the manufacturer.

4 Installation

In the following chapter, you will find information on installation of the device.

⚠ CAUTION

Potential hazard due to incorrect or non-compliant installation!

An incorrect or improper assembly of the device may impair safety, functionality and efficiency of the device.

- The installation of the device may be performed exclusively by qualified technical expert personnel.
- Follow the relevant instructions in the operating manual.

4.1 Unpacking

⚠ CAUTION

Hazards due to defects or transport damage!

Transport damage to the device may result in unforeseeable hazards to personnel and/or property.

- When unpacking the device, check for any visible damage.
- Never ever connect a damaged device to the voltage supply.
- In case of transport damage, consult the manufacturer or your distributor.

NOTE

Check the deliverable items for completeness and condition.

After receipt of the shipment, please check immediately to see whether all items listed on the delivery ticket are included and undamaged. The manufacturer does not accept liability for deficiencies that have been claimed subsequently. File complaints with:

- Transport damages directly to the shipping service.
- Deficiencies and/or incompleteness immediately to the manufacturer or your distributor.

NOTE

Recycling of transport packing

The transport packaging may be stored for later recycling, e.g. transport or storage.

Step 1: Open the transport packing.

Step 2: Check whether all items listed on the delivery slip are included and undamaged.

Step 3: Remove all components of the device carefully from the transport packing.

4.2 Installing the printing system

CAUTION

Safety deficits by incorrect or improper assembly of the printing system

An incorrect or improper assembly of the printing system may impair safety, functionality and efficiency of the printing system. Any liability and warranty for any damages caused by incorrect or improper assembly of the printing system is excluded by the manufacturer.

- The installation of the printing system may be performed exclusively by qualified technical expert personnel.
- Allow the operating and maintenance personnel safe access to the printing system.

ATTENTION

Damage to the printing system due to disregard of the operating manual

Disregard of the information in the operating manual can result in damage to the printing system or other property during installation.

- Read the operating manual before you begin with installation.
- Observe the corresponding safety instructions in the operating manual.
- Familiarize yourself with the working method of the printing system.

ATTENTION

Damage and interference due to operation without grounding the chassis of the Printing System

Operating the Printing System without grounding the chassis can yield damage (e.g. damage the thermal bar) and an increase of electromagnetic disturbance.

- Ground the chassis of the Printing System via the machine frame or one of the existing drill holes.

Installation of the printing system is divided into mechanical and electrical installation as well as establishing the compressed air connection. All sub-areas are described extensively below.

4.2.1 Mechanical installation

- **Permissible alignment / mounting position of the printing system and the machine support**

Printing system can be mounted in any position.

- **Installation of the printing system in the machine support**

NOTE

Use of a suitable frame for the printing system

The support / frame and the fastening materials must be suitable for the printing system and its weight.

NOTE

Mounting system

Please contact your dealer for details on frame configurations and availability.

- **Setup of the printhead - adjusting the distance to the material to be printed**

Machine support basic setting:

Recommended distance of the lower edge of the printing system to the upper edge of the product to be printed	[mm]	2 - 3

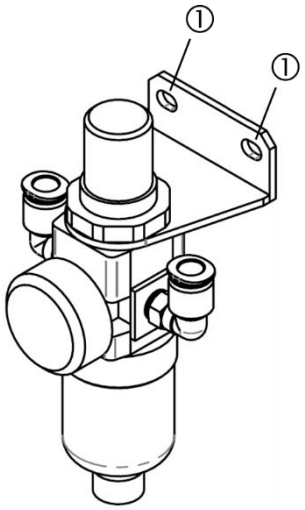
- **Loading the ribbon**

Load the ribbon. Follow the instructions from the chapter "***Loading / changing the ribbon***".

- **Pneumatic service unit mechanical installation**

Installation position:
Mount the pneumatic service unit in a vertical position. Make sure that the water separator basin points downwards.

Assembly:
Use the provided assembly holes for the fastening of the pneumatic service unit.



①	Assembly holes (2 x M4, distance: 28 mm)

4.2.2 Electrical installation

ATTENTION

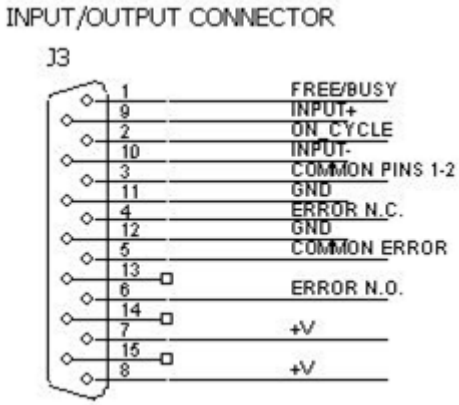
Fastening the cables

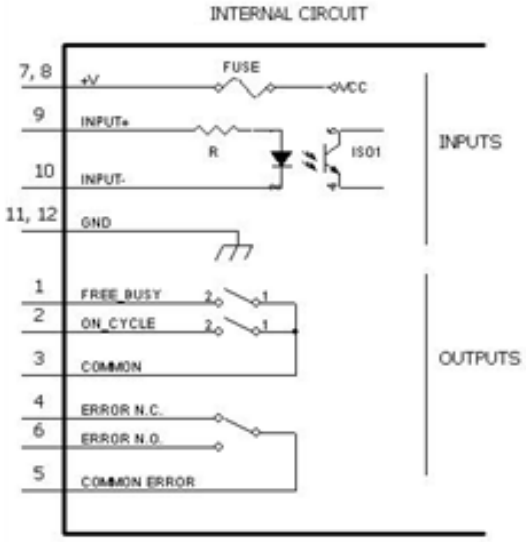
The printing system can be damaged if a cable comes loose or is pulled out when the printing system is switched on. The manufacturer assumes no warranty and liability for the resulting damage.

- You may not insert or pull out any cables from the printing system when the printing system is switched on.
- Ensure that all cables are firmly screwed down on the printing system before you switch on the printing system.

- **Establish connection with the host machine via the I/O interface of the printing system**

Please observe that the cable used to connect the printing system to the host machine must be appropriately screened for safe operation and that the maximum permissible length defined in "***Mechanical data***" may not be exceeded.





NOTE

Power rating of the outputs “Free / Busy” and “On cycle / Printed”:
The following limits for the outputs must not be exceeded:

$U_{max.} = \pm 240$ V

$I_{max.} = 80$ mA

NOTE

Power rating of relay signal output “Error”

The following limits for the relay-signal output must not be exceeded:

$U_{max.}$ = 250 V

$I_{max.}$ = 8 A

NOTE

Input signal

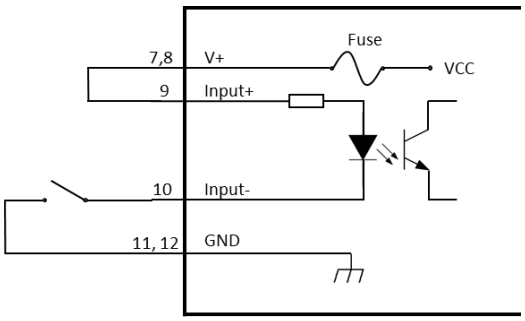
The following limits for the input signal must not be exceeded:

$U_{max.}$ = 24 V

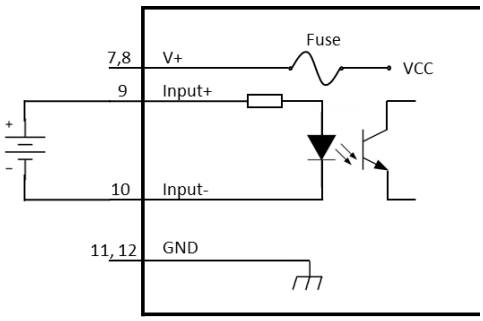
- **Connection of an external print signal – examples for print signal connections**

A print signal prompts the printer to begin the printing process. The printing system can be operated with different connection types. Four different example circuits for connection of the printing signal are presented below.

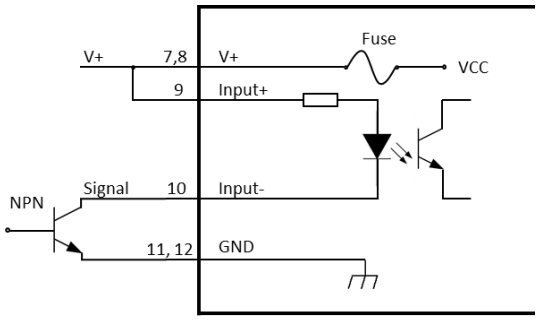
Connection to a relay output



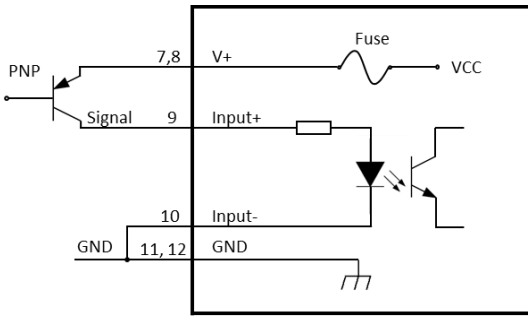
Connection to an external power source



Connection to an output or NPN photocell



Connection to an input or PNP photocell



- **Establishing connection to the power supply**

Ensure that the power supply switch is in the *Off* position before connecting the power supply to the printing system. Connect the power supply to the printing system and lock the cable using the installed clip so that an undesired loosening of the cable is prevented. Use the supplied power supply connection cable to connect the power supply to a secured power supply outlet.

4.2.3 Establishing the compressed air connection

NOTE

Compressed air supply
Switch on the compressed air supply with the recommended value (see "***Connection possibilities and connection of components***") before you switch on the printing system.

Step 1: Establishing the compressed air supply connection
Connect the compressed air supply connection on the pneumatic service unit to the compressed air supply. Use a flexible air tubing with an external diameter of 6 mm.

Step 2: Establishing the compressed air connection to the printer
Connect the air supply connection on the pneumatic service unit to the compressed air connection of the printing system. Use a flexible air tubing with an external diameter of 6 mm.
When installing the pneumatic service unit, please follow the instructions under "***Mechanical installation***".

4.3 Communication via the serial interface (RS-232)

Use the supplied connection cable to connect the printing system to a computer or the control terminal *a:touch 2* via the serial interface. If you use a different connection cable, please observe that the cable must be appropriately screened for safe operation and that the maximum permissible length defined in "***Mechanical data***" may not be exceeded.
The following settings must be used in the software for communication via the serial interface:

Data bits	8
Parity	None
Baud rate	115200
Stop bits	1
Flow control	None

If XL5000 is selected as printer type in the *a:control* software, these settings are automatically adopted under *Serial connection*. For further information about the *a:control* software, please refer to the corresponding manual.

4.4 Communication via the Ethernet connection

Use the supplied network cable to connect the printing system to a computer or the control terminal *a:touch 2*. If you use a different network cable, please observe that the cable must be appropriately screened for safe operation and that the maximum permissible length defined in "***Mechanical data***" may not be exceeded.
In the condition as supplied, the settings of the printing system are defined as follows for communication via network:

IP address	192.168.1.254
Subnet mask	255.255.255.0
Port	30001

4.5 Continuous operation (CM)

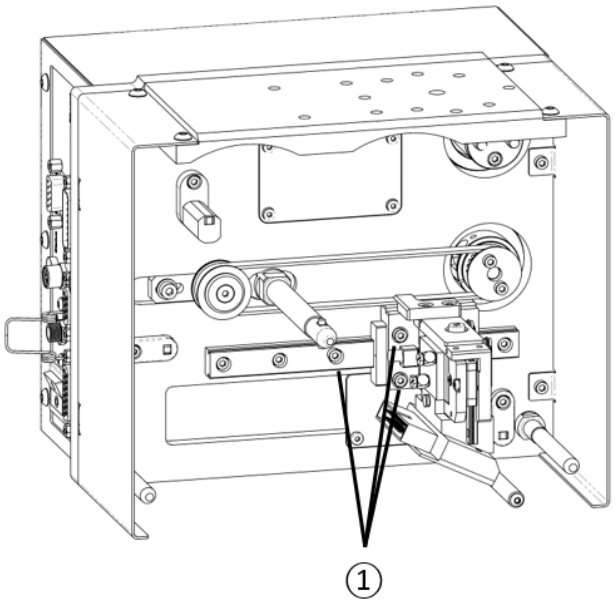
The XL5000 can be changed from intermittent to continuous operating mode easily. Minor modifications to the printing system as well as the installation of an encoder are necessary, only. The following two chapters provide a detailed description.

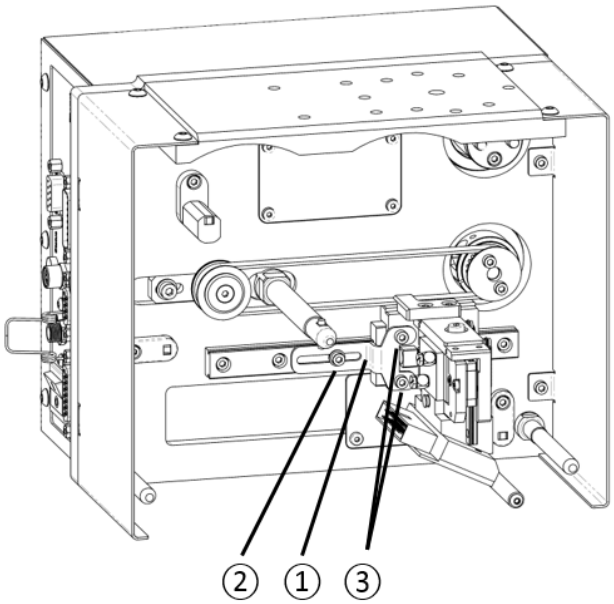
4.5.1 Modifications to the printing system

Step 1: Change of printing mode
If, in the printer settings, the mode of the printing system is set to intermittent, it has to be changed to continuous printing mode. For this purpose, the software *a:control* can be used. The description of the procedure can be found in the software manual.

Step 2: Position the carriage
Make sure the printing system is powered off. Then, remove the cassette and move the carriage to the desired position.

Step 3: Fix the carriage
Remove the two screws on the carriage as well as the next accessible screw on the linear track rail next to the carriage (see left figure below). If the carriage position is close to the left end of the linear track rail, choose the comparable screws on the right side of the carriage.
The Kit CM print contains beside the encoder one CM fixture, two M3 x 6 screws, one M3 x 16 screw and one washer. Mount the CM fixture to fix the carriage. Use the M3 x 16 screw and the washer to fix the CM fixture to the linear track rail and the two M3 x 6 screws to fix it to the carriage (see right figure below).

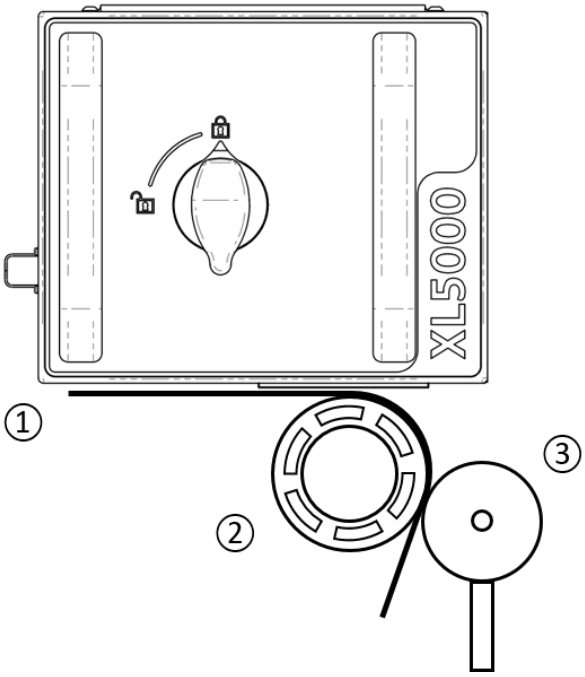




①	Screws to remove to fix the carriage	①	CM fixture
		②	M3 x 16 screw and washer
		③	Two M3 x 6 screws

4.5.2 Installing the encoder

Step 1: Assemble the encoder
Assemble the encoder to the machine frame so that the printed material runs between rubber transport roller and wheel of the encoder.
Make sure that the wheel of the encoder is pressed tightly against the printed material.



①	Printed material	③	Wheel of the encoder
②	Rubber transport roller		

Step 2: Connect the encoder
Make sure the printing system is powered off. Then, connect the encoder to the appropriate connector of the printing system.

4.6 Installation of a warning light

ATTENTION

Maximum current consumption warning light
The current consumption of a connected warning light must not exceed 1 A. Greater current consumption can destroy parts of the system.

- Make sure that the current consumption of a connected warning light may not exceed 1 A.

For installation of the (optional) warning light, connect it with the provided interface of the printing system. A description of the interface is provided under "***Interface of the printing system***".
Please observe that the cable must be appropriately screened for safe operation and that the maximum permissible length defined in "***Mechanical data***" may not be exceeded.
Contact your dealer for information on availability of an appropriate warning light.

4.7 Performing a test print

Before performing a test print, please check the following:

- The printer is correctly and securely mounted in a machine frame.
- The air pressure is correctly adjusted.
- All cables and air tubes are safely routed and secured.
- The backing pad plate is clean, level and properly secured, as well as positioned at a suitable distance.
- The support material is free from dust, abrasion material, oil and other foreign material.
- The ribbon is loaded correctly and the cassette is locked in place.

Step 1: Switch on the printing system and transmit a suitable print image to the printer.

Step 2: Place a piece of label ‘test paper’ between the printhead and backing pad plate

Step 3: Initiate a printout.

For information about the assessment and adaptation of the print quality, please refer to the chapter "***Error detection and management***".

5 Operating

5.1 Switching the printing system on/off

Use the power supply switch to switch the printing system on or off.

5.2 Overview of operating and configuration possibilities

The easiest way for operation and configuration of the printing system is to use the *a:control* software. The software can be installed on a computer or laptop. Alternatively, there is the possibility of using the specially developed control panel for the thermal transfer printer.
Please refer to the supplied manual for an overview and description of the various operating and configuration possibilities with the *a:control* software.

5.3 Loading / changing the ribbon

⚠ CAUTION

Personal injury!

An unlocked cassette can fall out and cause injury.

- After cassette is fully engaged and locked onto engine, make sure it is properly secured by pulling cassette away from engine without touching lock button.

ATTENTION

Equipment damage

Do not rest cassette in standing position using alignment pins as stabilizer after removal. Doing so can bend and/or scratch the alignment pins.

- It is advisable to rest the cassette on handles when disconnected from printer engine.

ATTENTION

Equipment damage

Exercise caution when removing or replacing cassette.

- Engage alignment pins **BEFORE** moving cassette towards engine.
- Keep cassette plate parallel to engine body during process.

ATTENTION

Equipment damage

Even slight contact to metal parts of engine can cause damage to ribbon resulting in ribbon breakage and work stoppage.

- Do not allow ribbon to contact metal parts of engine.

ATTENTION

Use of ribbon that is not specified by the manufacturer

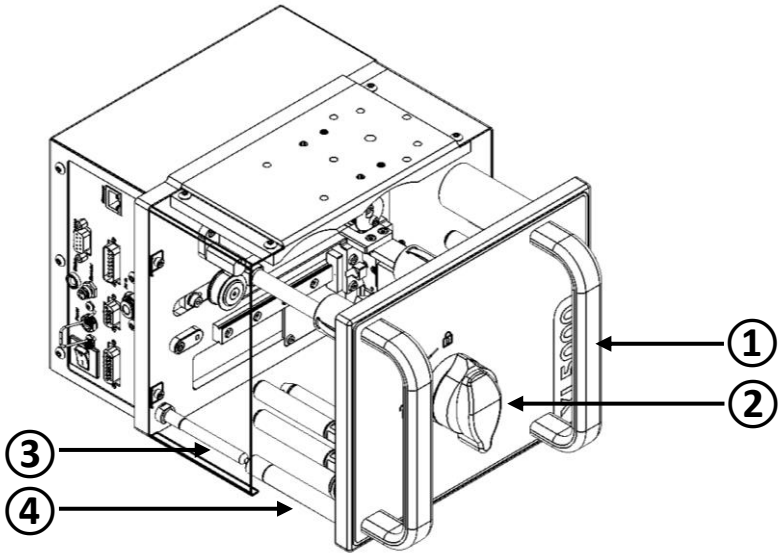
The use of ribbons that were not specified by the manufacturer can lead to excessive wear or damage to the thermal printhead.

- Only use ribbons with the width specified by the manufacturer. For information about this, refer to the "***Characteristic data***".
- Bear in mind that the side coated with color must face towards the product to be printed under the thermal printhead with correctly loaded ribbon.

NOTE

Ribbon

Observe the permissible ribbon width and the maximum permissible diameter of the ribbon roll for your thermal printhead type. For information about this, refer to the "***Characteristic data***".



①	Handle	③	Alignment pin (male on printer)
②	Cassette locking knob	④	Alignment pin (female on cassette)

Description of the ribbon change process:

Step 1: Remove cassette

Unlock the cassette by turning the cassette latch counterclockwise. Move the cassette out of the printer.

Step 2: Removing used ribbon

Remove the used ribbon roll and cardboard sleeve from the ribbon upwind.

Step 3: Inserting a new cardboard sleeve

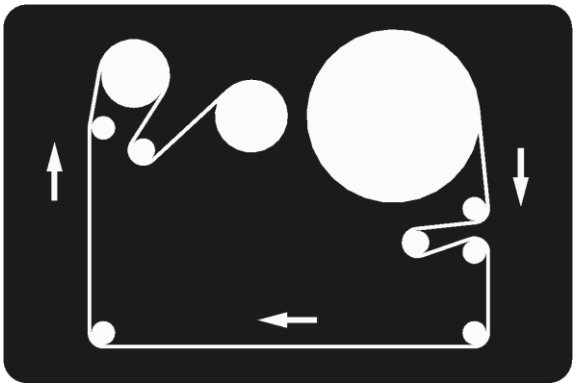
Remove the cardboard sleeve from the ribbon unwind. Slide an empty cardboard sleeve onto the ribbon upwind. You may use the cardboard sleeve that was previously removed from the ribbon unwind for this.

Step 4: Check rubber drive roller and clean it if required
Check the condition of the rubber drive roller. If required, remove any present contamination. Use the recommended cleaning agent for this purpose (see "***Cleaning***").

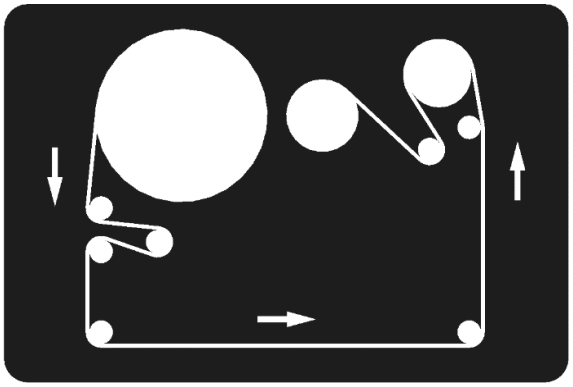
Step 5: Loading new ribbon
Slide a new ribbon roll onto the ribbon unwind.

Step 6: Threading the ribbon
A label that indicates the correct direction of the ribbon can be found on the inside of the cassette and in this operating manual. Thread in the ribbon corresponding with the indicated direction regarding the ribbon upwind. Fix the free end of the ribbon to the cardboard sleeve of the ribbon upwind by using adhesive strips.

XL5000 (Standard)



XL5000 (Opposite)



Step 7: Establish the correct output tension
Rotate the rubber drive roller to ensure that the ribbon is properly attached to the cardboard sleeve of the ribbon upwind so that the correct output tension is transmitted to the ribbon.

Step 8: Insert the cassette
Set the cassette into the printer. Lock the cassette by turning the cassette latch clockwise.

5.4 Transmitting print images

NOTE

Print image creation

Print image creation takes place with the label design software, for example with *a:design 2*.

A created print image can be transmitted to the printing system using the configuration or design software.

5.5 Firmware update

A firmware update of the printing system is possible via the *a:control* software or using the specially developed control panel. An extensive description of the necessary steps can be found in the software help or the respective manual.

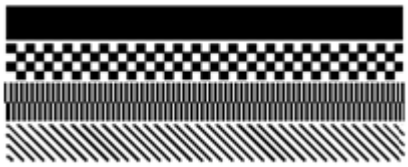
6 Error detection and management

Printer errors are usually identified by the error messages displayed on the control terminal. You can use the test label to check the print quality.

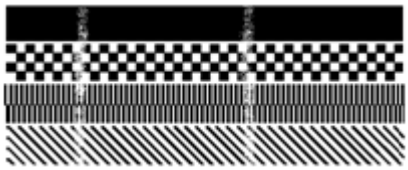
NOTE

Error messages
Please refer to the control terminal User´s Guide for a comprehensive description of all error messages.

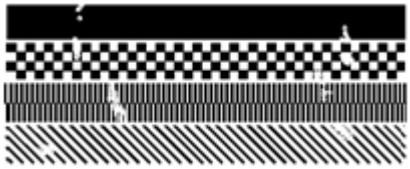
6.1 Print quality



CORRECT PRINTOUT



PRINTOUT WITH BLURRY VERTICAL BANDS
The printhead needs cleaning or has suffered damage by overheating or misuse. Clean the printhead or replace it as necessary.



PRINTOUT WITH WHITE SPOTS
Shows that the print platen has surface defects such as cuts, cracks or nicks. Clean or replace print platen.

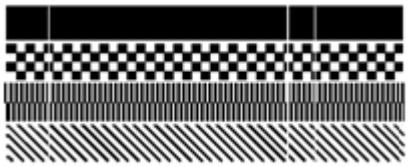


IMAGE WITH VERTICAL WHITE LINES
The printhead is coated with debris or damaged. Clean or replace as necessary.

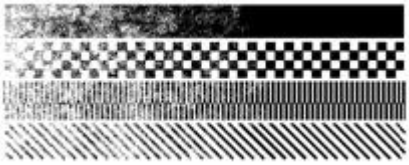


IMAGE GRADUALLY FADES
Indicates that the printhead is improperly supported or print platen out of alignment.

IMAGE INCOMPLETE
Indicates that the length of the programmed label is too short. Change label length using the respective software. Conversely, if the top of the line of the label is missing or has poor printing quality, increase the electro valve timing to allow for good contact between the printhead and substrate at the beginning of the print cycle.

6.2 Other faults

Description	Cause	Remedy
The printer works, but a print cannot be seen on the used ribbon or on the material to be printed.	Incorrect ribbon type used.	▪ Check whether the correct ribbon and not e.g. hot stamping ribbon, etc. is used.
	Ribbon was loaded incorrectly. The incorrect side of the ribbon is in contact with the thermal printhead.	▪ Ensure that the correct side of the ribbon (shiny) comes into contact with the thermal printhead. If this is not the case, please change the ribbon. Clean the thermal printhead thoroughly before using it again.
	Value for the print density is too low.	▪ Check the setting of the density.
	Incorrect thermal printhead resistance.	▪ Check the entered thermal printhead resistances against the resistance values of the thermal printhead that is used.
	Cable on the thermal printhead is not correctly fastened.	▪ Ensure that the cable at the plug contacts of the thermal printhead is correctly inserted. **Attention: Switch off the printing system before you begin this inspection. Otherwise the printing system can be damaged.**
	The thermal printhead is worn out.	▪ Replace the thermal printhead if necessary.
	Ribbon is not transported.	▪ Check whether the ribbon is loaded correctly.
	System error.	▪ Please contact the manufacturer / distributor.
Printer works, and a print can be seen on the used ribbon but not on the material to be printed.	The thermal printhead is not lowered.	▪ Check whether the air pressure is correctly connected and adjusted. The compressed air must be clean and dry.
	The thermal printhead is lowered.	▪ The machine support for the printer is adjusted incorrectly. The thermal printhead cannot reach the material to be printed. Adjust the settings.

Description	Cause	Remedy
Missing pixels in the print.	The thermal printhead is dirty.	▪ Clean the thermal printhead according to the instructions in the operating manual.
	The thermal printhead is worn out.	▪ If necessary, replace the thermal printhead.
Poor print quality.	The print density is too high or too low.	▪ Adjust the print density.
	The machine support is not correctly aligned.	▪ Align the machine support.
	Backing pad dirty, worn out or damaged.	▪ Check the backing pad and replace it as necessary.
	Air pressure set too low.	▪ Increase the air pressure
	Incorrect ribbon quality.	▪ Use a different type of ribbon.
	Print speed too high.	▪ Adjust the print speed.
Part of the print is missing over the width of the printer.	Cable break between the thermal printhead and thermal printhead connection.	▪ Replace the cable, if necessary.
Ribbon keeps tearing.	Ribbon is not loaded correctly.	▪ Ensure that the ribbon is loaded according to the instructions for the ribbon installation on the inside of the printing system and in the operating manual.
	Tension of the ribbon incorrectly adjusted.	▪ Check and correct the tension of the ribbon.
	Density too high.	▪ Check the selected density.
Ribbon produces folds.	Incorrect alignment of the printer towards the backing pad.	▪ Correct the alignment of the printer.

7 Cleaning and maintenance

⚠ CAUTION

Hazards during cleaning and maintenance activities!

Switch off the device during cleaning and maintenance work. Otherwise, personnel safety may be at risk and damage to the device or other nearby property may result.

- Always deactivate the power supply to the device during cleaning and maintenance activities. Pull the mains plug.
- During activities and during your absence, secure the device so that no changes may be performed by other persons or situations.
- Maintenance and cleaning work may only be performed by trained personnel.

ATTENTION

Use of ribbons with lower quality

The use of ribbons with lower quality can considerably increase the necessary cleaning work and the wearout of the thermal printhead.

- Only use ribbons specified by the manufacturer.

NOTE

Regular inspection and cleaning of the thermal printhead

Regular inspection and cleaning is necessary to maintain the service life, efficiency and performance of the thermal printhead. Optimal printing results can only be achieved with a clean, undamaged thermal printhead.

The XL5000 printing system is designed for use in industrial applications and requires minimal service as a result. However, heavily stressed wear parts (e.g. thermal printhead) must be inspected regularly for dirt or damage according to your use and cleaned or replaced as necessary.

7.1 Cleaning

CAUTION

Hazards when working with technical cleaning towels

Incorrect handling of technical cleaning towels can entail a hazard for persons and/or property.

- Please observe the warning notices on the packaging of the technical cleaning towels.

ATTENTION

Damage to the equipment due to incorrect cleaning

The use of incorrect cleaning methods and the use of incorrect cleaning materials can damage the electronic and mechanical components of the equipment.

- Disconnect the equipment from the power supply before you begin cleaning.
- Observe the cleaning instructions described in the operating manual.
- Only use cleaning agents specified by the manufacturer.

ATTENTION

Maintenance for printhead

Good maintenance of the printhead is essential to ensure optimal print quality. It must be cleaned periodically depending on the working environment and print intensity setting.

- Do not use hard or abrasive material to clean the printhead.

NOTE

Cleaning the printing system

Regular cleaning prevents an accumulation of ribbon particles that can cause synchronization and printing problems.

Overview of cleaning tasks

Cleaning interval	Recommended cleaning agent	Task
With each replacement of the ribbon, or before and after an 8-hour shift at the latest. **Note**: Additional cleaning may be necessary if there is a ribbon tear.	Technical cleaning towels Art no.: 1.0000.45008	Cleaning of the thermal printhead. Clean the thermal printhead until no wax / resin residue can be seen on the cleaning towel.
Depending on the degree of soiling (Recommendation: with replacement of the ribbon)	Rubber roller cleaner Art no.: 1.0000.45007	Cleaning of the drive roller
Depending on the degree of soiling (Recommendation: with replacement of the ribbon)	Damp cloth; metal parts: Ethanol	Cleaning of peel bar rollers
Depending on the degree of soiling		Cleaning of the backing pad material
Depending on the degree of soiling	Damp cloth; metal parts: Ethanol	Surface cleaning of the printing system

7.2 Maintenance

NOTE

Printing substrate
The printing substrate is subject to operationally related wear. Therefore, we recommend storing appropriate spare parts.

7.2.1 Overview of maintenance tasks

NOTE

Performing service on the printing system
The manufacturer recommends service on the printing system after 20000000 prints and/or after one year.

Regular inspection and maintenance intervals are necessary for the early recognition of damage and signs of wear.

Printing system		
Maintenance interval	**Maintenance group**	**Task**
With replacement of the ribbon / daily	Mechanical	Visual inspection of the drive roller for dirt and damage; clean if necessary, replace if necessary.
With replacement of the ribbon	Electrical	Visual inspection of the thermal printhead for dirt and damage; clean if necessary, replace if necessary.
Daily	Mechanical	Inspect guide rollers for dirt and proper function; clean if necessary, replace if necessary.
Monthly	Mechanical	Inspect ribbon upwind Polycord® belt; replace if necessary.
Quarterly	Mechanical	Check the ribbon upwind for function and the correct setting; adjust if necessary, replace if necessary.
Semi-annually	Mechanical	Visual inspection of the toothed belt for signs of wear; replace if necessary.
Semi-annually	Mechanical	Check the tension of the toothed belt; adjust if necessary.
Semi-annually	Mechanical	Check the carrier on the toothed belt for firm seating without play; refasten if necessary, replace if necessary.
Semi-annually	Mechanical	Functional test of the linear unit. Movement over the full length of travel possible without catching (stick-slip effect). Check for grinding noises and recognizable traces of scratching; clean if necessary, replace if necessary.
Semi-annually	Mechanical	Functional test of thermal printhead bracket. Ease of movement of upward/downward motion without catching; clean if necessary, replace if necessary.
When replacing the thermal printhead / semi-annually	Electrical	Visually inspect the connection cable of the thermal printhead for damage and correct installation position; replace if necessary.
Semi-annually	Mechanical	Inspect pneumatic connections / hoses to the printhead for damage, leaks, correct installation position and mechanical fastening; replace if necessary.

Miscellaneous		
Maintenance interval	**Maintenance group**	**Task**
With replacement of the ribbon / daily	Mechanical	Visual inspection of the backing pad material for signs of wear, damage and soiling; clean if necessary, replace if necessary.

The manufacturer recommends only replacing components of the printing system if in the course of an inspection functional problems or damage appear.

7.2.2 Replacing a thermal printhead

WARNING

Personal injury!

- Power off printer and disconnect from electrical and air supply.

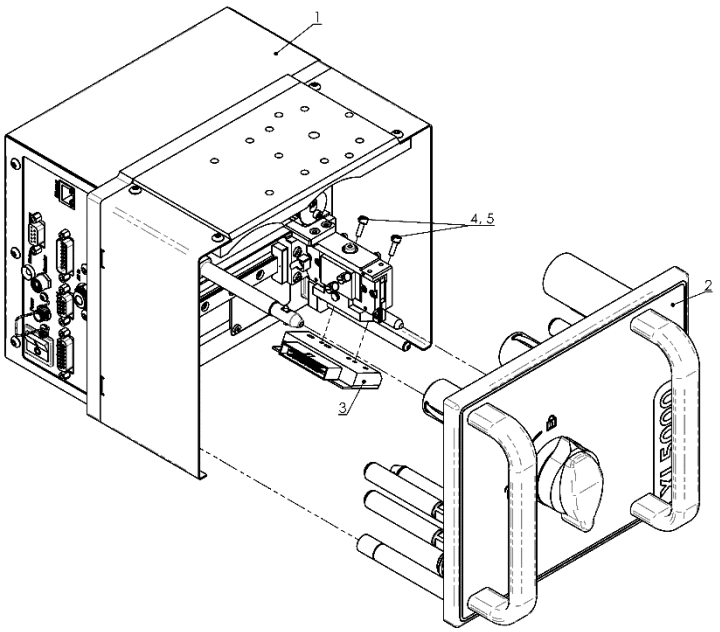
ATTENTION

Electrical damage to the thermal printhead when handled incorrectly

Thermal printheads are electrostatically sensitive electronic components. Incorrect handling can damage or destroy the thermal printhead due to ESD voltage flashovers. Any liability and warranty for any damages caused by incorrect handling of the printing system is excluded by Allen Coding GmbH.

- Take the appropriate ESD precautions (e.g. wear an ESD bracelet) before you begin with the replacement of the thermal printhead.
- Observe the corresponding information in the operating instructions.

Removing the thermal printhead



Step 1: Disconnecting the power supply
Switch the printing system off at the power supply switch and disconnect it from the power supply.

Step 2: Removing the cassette
Unlock the cassette by turning the cassette latch counterclockwise. Move the cassette out of the printer.

Step 3: Removing the cable
Remove the cables from the thermal printhead.

Step 4: Removing the thermal printhead
Loosen the two fastening screws of the thermal printhead on the bracket and carefully remove the thermal printhead.

Inspecting the thermal printhead

ATTENTION

Damage to the thermal printhead when handled incorrectly

Contact with the pixels (heating elements) can permanently damage them.

- Hold the thermal printhead on the side. Do not touch the pixels.

NOTE

Damaged pixels (heating elements)

Individual damaged pixels are difficult to identify with the naked eye due to the very small diameter.

After removal of the thermal printhead, inspect it for soiling and damage.

Installing the thermal printhead

Step 1: Making note of the resistance value
Make note of the resistance value of the thermal printhead before installing it. The specification is provided on the white stocker on the thermal printhead.

Step 2: Installing thermal printhead
Fit the thermal printhead to the bracket and fasten it with the provided fastening screws.

Step 3: Connecting the cable
Connect the flat cable to the thermal printhead.

Step 4: Inserting the cassette
Set the cassette into the printer. Lock the cassette by turning the cassette latch clockwise.

Step 5: Establishing the power supply
Connect the printing system to the power supply and switch on the printing system at the power supply switch.

Step 6: Entering the resistance value
Enter the previously noted resistance value using the configuration software (e.g. *a:control*).

ATTENTION

Damage to the thermal printhead with an incorrect resistance value

The resistance value that is entered must match the value marked on the thermal printhead. An incorrect resistance value can damage or destroy the thermal printhead. Any liability and warranty for any damages caused by entering an incorrect resistance value is excluded by the manufacturer.

- Enter the correct resistance value marked on the thermal printhead before you print with the printing system for the first time.
- Observe the corresponding information in the operating manual.

7.2.3 Inspection and replacement of the toothed belt

Carefully check the entire belt for damage, particularly for frayed reinforcement wires. If replacement of a toothed belt is necessary, proceed as follows:

Step 1: Disconnecting the power supply
Switch the printing system off at the power supply switch and disconnect it from the power supply.

Step 2: Removing the cassette
Unlock the cassette by turning the cassette latch counterclockwise. Move the cassette out of the printer.

Step 3: Loosening the toothed belt
Loosen the toothed belt by loosening the fastening screw of the belt tensioner.

Step 4: Replacing the toothed belt
Remove the old belt and fit a new, undamaged toothed belt.

Step 5: Tighten toothed belt
Tighten the toothed belt and fix it by tightening the fastening screw of the belt tensioner.

Step 6: Inserting the cassette
Set the cassette into the printer. Lock the cassette by turning the cassette latch clockwise.

Step 7: Establishing the power supply
Connect the printing system to the power supply and switch on the printing system at the power supply switch.

7.2.4 Adjusting the ribbon tension

NOTE

Tools required to adjust tension:

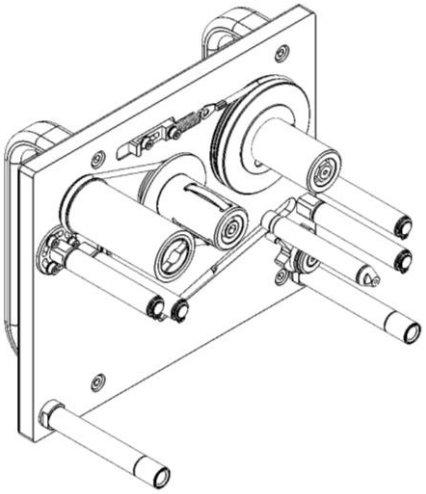
- 2.5 mm Allen wrench
- Roll of ribbon or ribbon cardboard core – 42 mm diameter max.
- Spring scale with test band

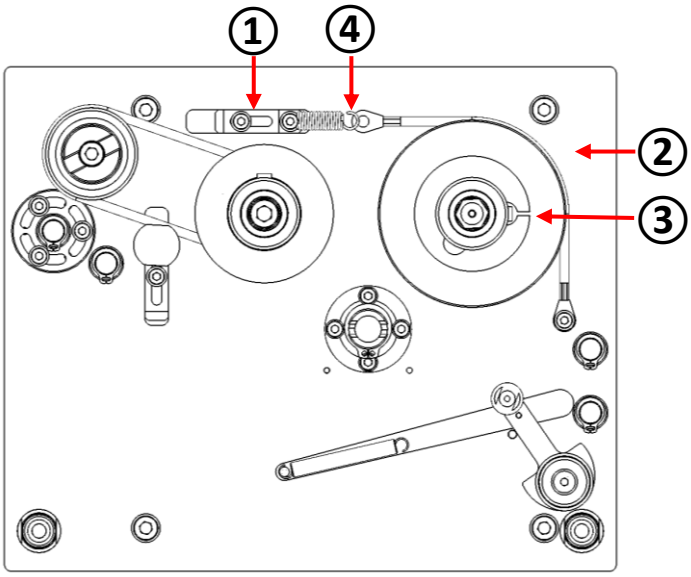
Ribbon unwind

ATTENTION

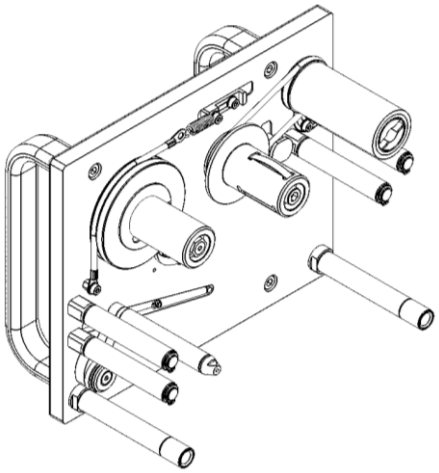
Spring pulley and tensioner ribbon unwind
Do not lubricate or wet tensioner ribbon unwind and spring pulley

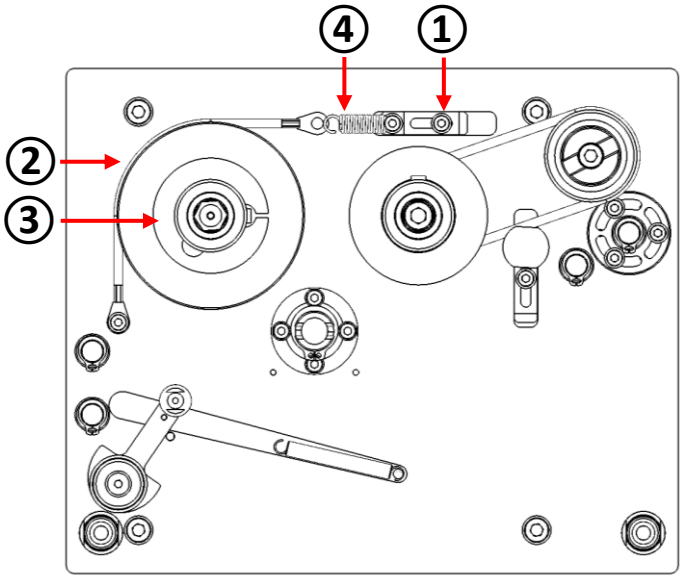
Standard:





Opposite:





①	Tensioner ribbon unwind	③	Ribbon unwind
②	Spring pulley	④	Tension spring

You can use a spring scale and a roll of ribbon (outer diameter 42 mm) or ribbon cardboard core for adjustment of the ribbon tension. Perform the following steps:

Step 1: Preparation of measurement setup
Wrap the test band (test cord) on the ribbon cardboard core. Hang the spring scale on the other end of the test band (test cord).

Step 2: Place measurement setup
Put the ribbon cardboard core with the attached spring scale on the ribbon unwind spindle.

Step 3: Read set value of the tension
Slowly and evenly pull the spring scale. When the ribbon unwind starts to move you can read the current value on the spring scale.

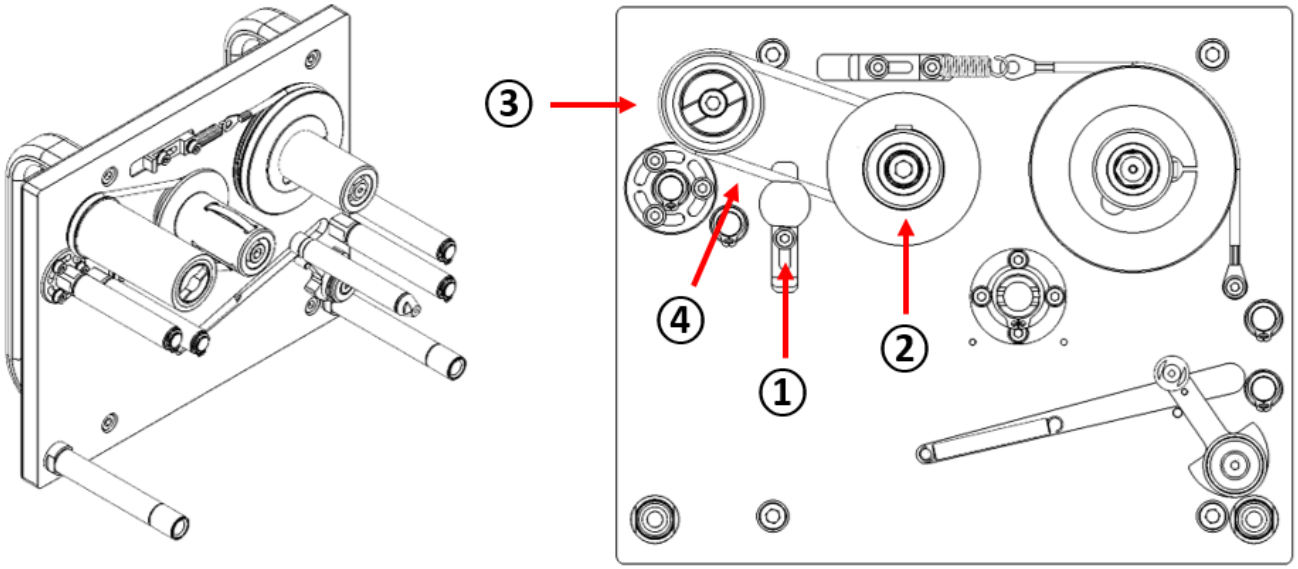
The target value of the tension depends on the outer diameter of the used ribbon. The tension for the enclosed sample ribbon (ø ca. 90 mm) serves as guiding value which should be within the following range:

		target value
Tension of the ribbon	[g]	650 ± 50

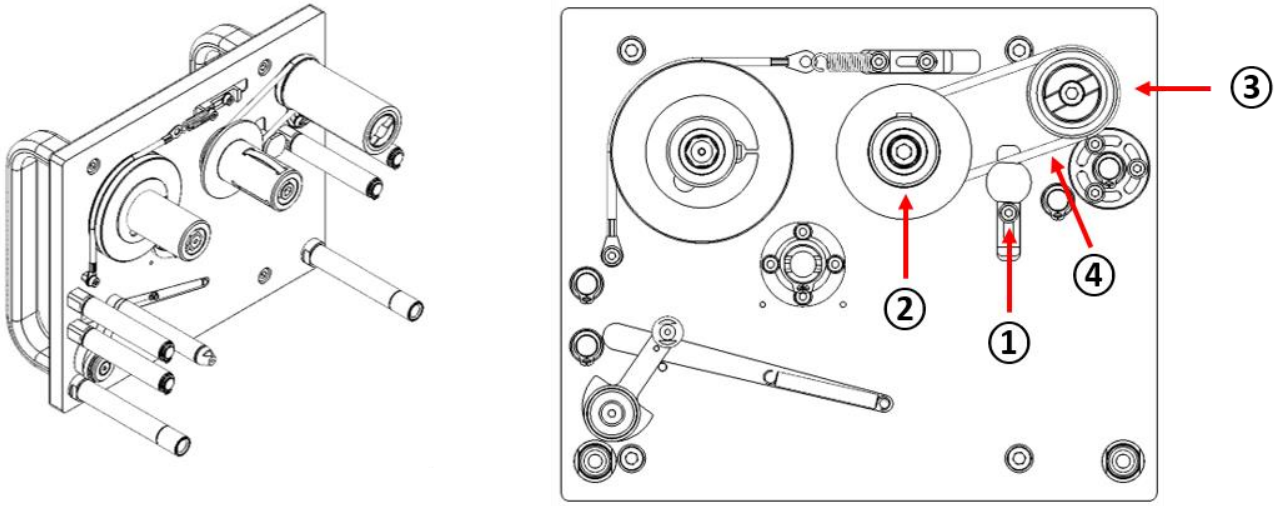
Step 4: Adjustment of the tension
If the reading is not within the acceptable range it must be adjusted. For this purpose, loosen the fastening screw of the tensioner of the ribbon unwind. Pull the tensioner of the ribbon unwind away from the unwind spindle to increase the force on the spring pulley and thereby the tension of the ribbon unwind. Accordingly, move the tensioner of the ribbon unwind towards the unwind spindle to reduce the force on the spring pulley and thereby the tension of the ribbon unwind. Tighten the fastening screw of the tensioner of the ribbon unwind afterwards. Repeat step 3 and, if necessary, step 4 until the tension is within the acceptable range.

Ribbon upwind

Standard:



Opposite:



①	Tensioner ribbon upwind	③	Rubber drive roller
②	Ribbon upwind spindle	④	Polycord® belt

You can use a spring scale with test band and a roll of ribbon (outer diameter 42 mm) or ribbon cardboard core for adjustment of the ribbon tension. Perform the following steps:

Step 1: Preparation of measurement setup
Wrap the test band (test cord) on the ribbon cardboard core. Hang the spring scale on the other end of the test band (test cord).

Step 2: Place measurement setup
Put the ribbon cardboard core with the attached spring scale on the ribbon upwind spindle.

Step 3: Read set value of the tension
Slowly and evenly turn the rubber drive roller in a clockwise direction. The test band (test cord) winds up. When the friction clutch engages the rubber drive roller you can read the current value on the spring scale.

The target value of the tension depends on the outer diameter of the used ribbon. The tension for the enclosed sample ribbon (ø ca. 90 mm) serves as guiding value which should be within the following range:

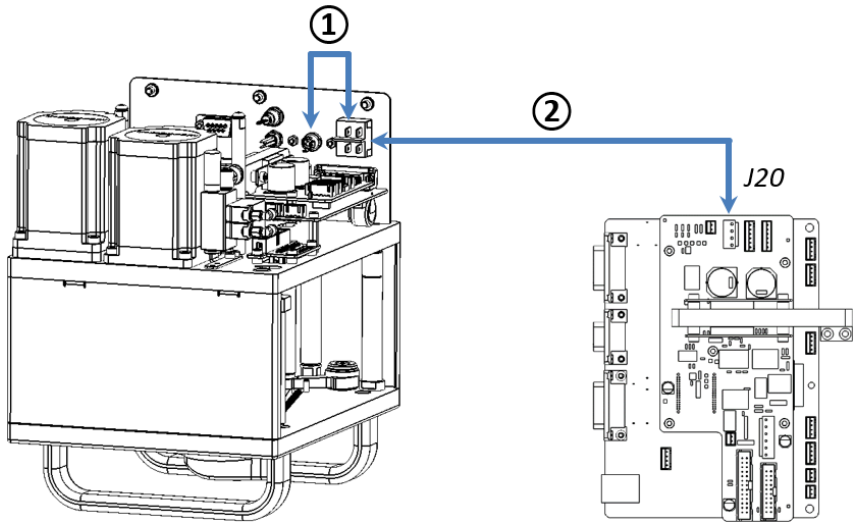
		target value
Tension of the ribbon	[g]	500 ± 50

Step 4: Adjustment of the tension
If the reading is not within the acceptable range it must be adjusted. For this purpose, loosen the fastening screw of the tensioner of the ribbon upwind. Push the tensioner of the ribbon upwind against the Polycord® belt to increase the tension of the ribbon upwind. Accordingly, reduce the force on the Polycord® belt to reduce the tension. Tighten the fastening screw of the tensioner of the ribbon upwind afterwards. Repeat step 3 and, if necessary, step 4 until the tension is within the acceptable range.

7.2.5 Internal wiring

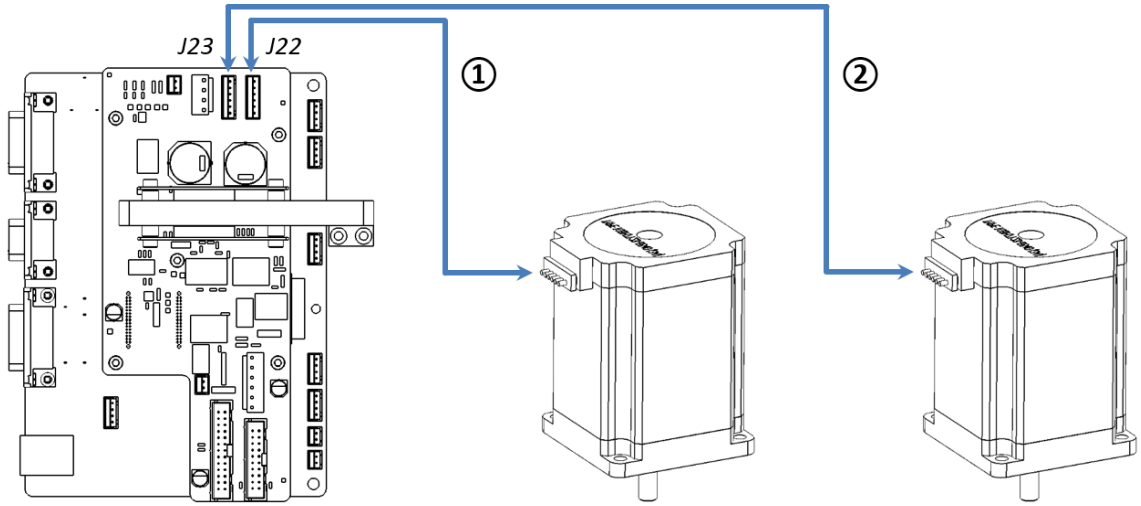
If it is necessary to replace components in the scope of maintenance or repairs that carry electric current, please refer to the following schematic diagrams for the internal wiring.

Power supply



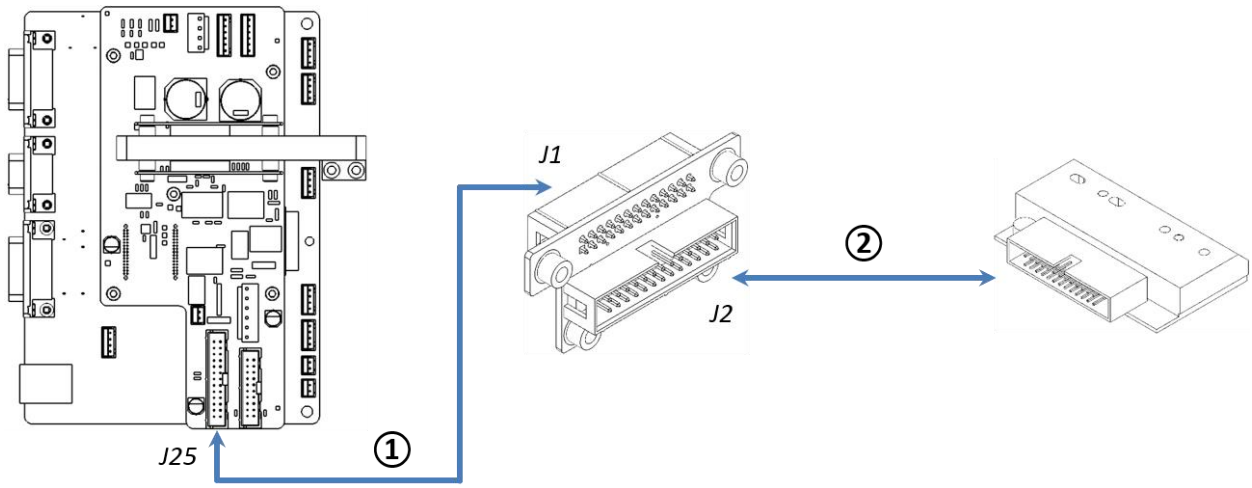
①	Power supply – input main switch
②	Power supply – output main switch

Motors



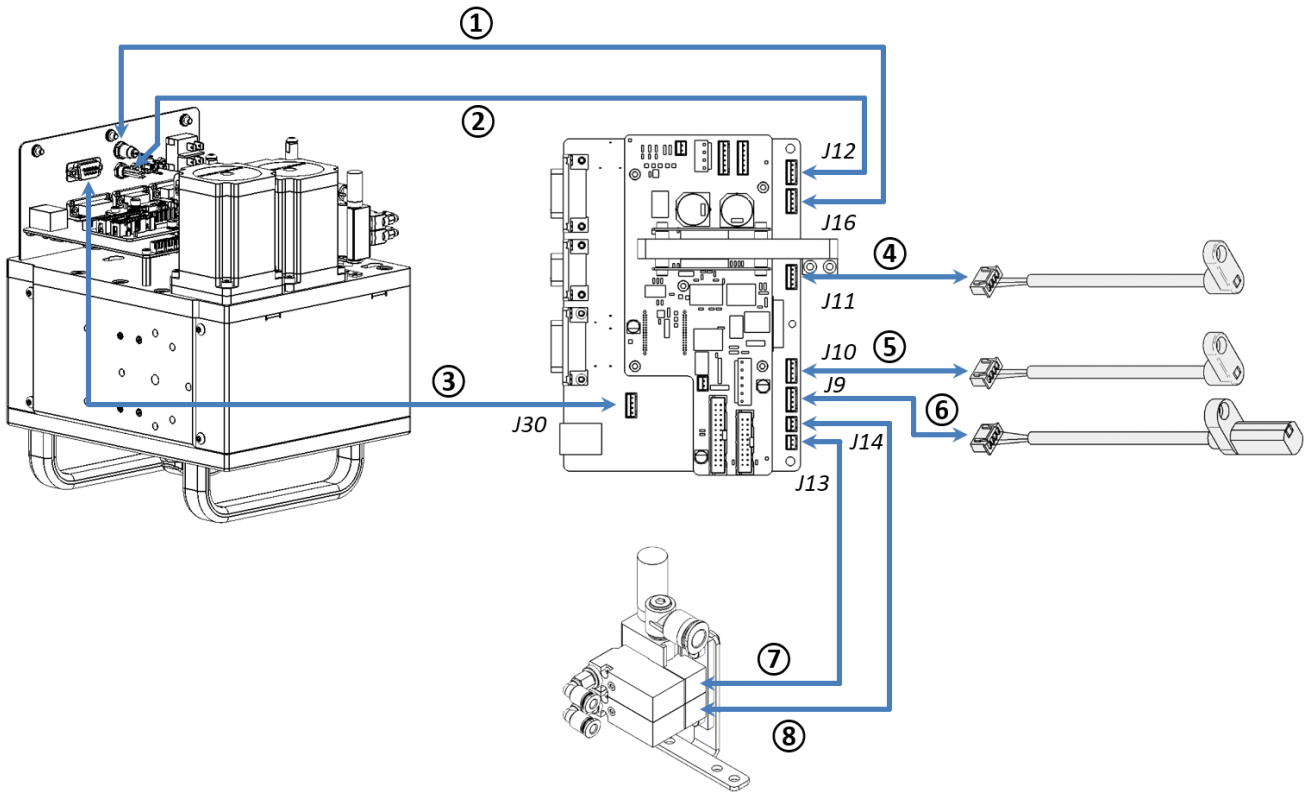
①	Stepper motor - ribbon
②	Stepper motor - carriage

Printhead



①	Internal connection cable
②	Connection cable printhead

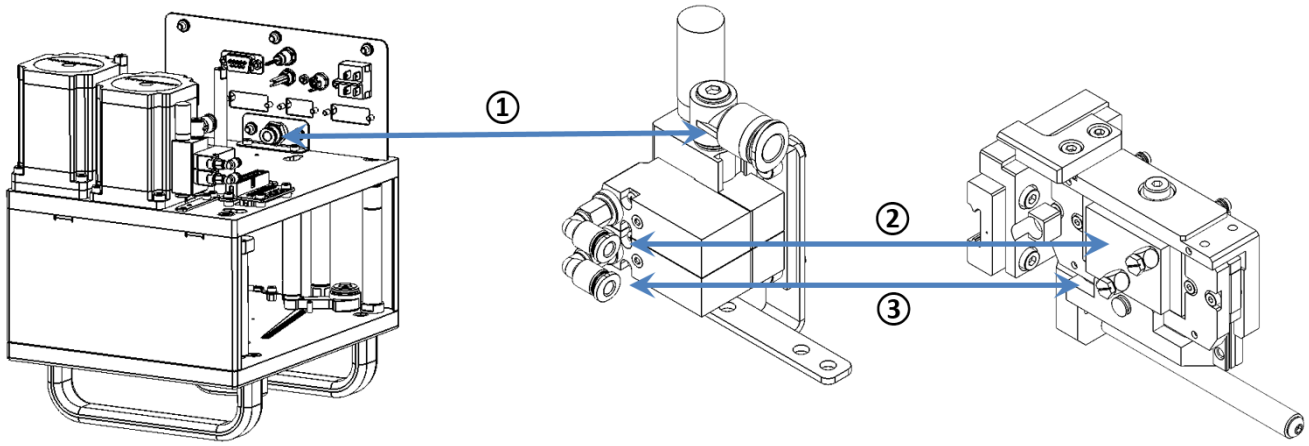
Sensors, encoder, alarm beacon and pneumatic control



①	Status LED	⑤	Home sensor
②	Encoder	⑥	Cassette sensor
③	Alarm beacon	⑦	Valve - pre stroke
④	Ribbon sensor	⑧	Valve - print stroke

7.2.6 Pneumatic connection

If it is necessary to replace components in the scope of maintenance or repairs that have a pneumatic connection, please refer to the following schematic diagrams. The specified diameters refer to the outside diameter of the hoses.



①	Pneumatic connection: air in – solenoid valves (Ø 6 mm)	③	Pneumatic connection: print stroke (Ø 3 mm)
②	Pneumatic connection: pre- stroke (Ø 3 mm)		

8 Repairs

8.1 Spare parts

Refer to the spare parts list under "***Overview***" in the appendix.

8.2 Service address

Europe:

Germany

Allen Coding GmbH
Service Department
Friedrich-Bergius-Ring 30
D-97076 Würzburg
Tel.: +49 931 250 76 - 911
Fax +49 931 250 76 – 50
Email: support@allencoding.com

UK

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Unit 9, Gateway 1000, Whittle Way,
Arlington Business Park, Stevenage,
Herfordshire SG1 2FP
Tel.: +44 1438 347 770
Fax +44 1438 347 771
Email: info@allencoding.co.uk

Website: www.AllenCoding.com

North America:

USA

Diagraph
1 Missouri Research Park Drive
St. Charles, MO 63304-5685, USA
Sales: (800) 722-1125
Service: (800) 526-2531

Fax (Sales): (636) 300-2004
Fax (Service): (636) 300-2005
Email: sales@diagraph.com
service@diagraph.com

Website: www.diagraph.com

NOTE

Important information in case of defects
In case of defects in equipment, please provide the following information:

- Serial number
- Equipment type
- Description of fault
- Software / firmware version
- Any affected components/assemblies

9 Transport and storage

9.1 Transport

⚠ WARNUNG

Hazard due to improper securing of load

Improper securing of the device during transport can result in unpredictable hazards to persons and/or property damage.

- Secure the device in accordance with instructions.
- Note also the weight information on the device provided in the operating instructions.
- Have the device transported by a company skilled in the process.

9.2 Storage

Store the device only under the stated, permissible ambient conditions of temperature and humidity. Relevant information is found in this operating manual under "***Ambient conditions***". Protect the device against dust and dirt.

10 Disposal

The device consists of various materials which can be recycled and which must be disposed of separately.

In the event of disposal of the device, follow the relevant legal guidelines. Since the disposal guidelines may differ from country to country, please consult with your supplier as necessary.

Notes to disposal:

- Material types should be disposed of separately. The objective should always be an environmentally compatible disposal which ensures maximum recycling of materials.
- Observe the material and disposal instructions that may be present on certain individual parts.
- Make use of the opportunity to return materials to the manufacturer or supplier.

Appendix

EC-compliance statement

EC-Declaration of Conformity
Printer XL5000

EC-Declaration of Conformity

according to EC machinery directive 2006/42/EC, Annex II A
(Translation of the EC Declaration of Conformity)

Hereby we declare that the machine named in the following adheres to the basic safety and health requirements of the EC guideline 2006/42/EC in regards to its concept, design and version that is marketed by us. Changes that have not been coordinated with us will invalidate this declaration.

Manufacturer

ITW Marking & Coding (Shanghai) Co., Ltd
Building9 #1, Section E, No.353 Ri Ying North Road,
Waigaoqiao Free Trade Zone,
Shanghai, 200131, P.R. China

Representative

Allen Coding GmbH
Friedrich-Bergius-Ring 30
D-97076 Würzburg

Direct: +49 931 250 76-0
Fax: +49 931 250 76-50
E-Mail: info@AllenCoding.com
Website: www.AllenCoding.com

Machine description

Function:	Thermo-Transfer Direct Printing System
Type/Model:	XL5000
Serial number:	xxxxxxxxxx
Year of construction:	2017

The conformity with addition guidelines/regulations that apply to the machine is declared

2014/30/EU (EC-EMC-Directive);
The guideline 2014/35/EU was adhered to in regards to its protection objectives;
(s. Annex, No. 1.5.1 of guideline 2006/42/EC)

The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

The conformity of the named machine with the rules of the EC guidelines named above is proved by conformity with the following standards:

Applied harmonized standards:

EN ISO 12100:2010;
EN 60204-1:2006 + A1:2009 + Corr:2010
EN 60950-1:2006 + A11:2009 + Corr:2006 + A1:2010 + A12:2011 + AC:2011;
EN ISO 13857:2008; EN 349:1993 + A1:2008;
EN ISO 3744:2010;
EN61000-6-2:2005 + AC:2005; EN61000-6-4:2007 + A1:2011

Additional applied standards:

FCC Rules and Regulations 47 CFR Chapter 1 Part 15 Subpart B (Ed 10-01-10)

Authorized person for the technical documentation

Dirk Beseke, Friedrich-Bergius-Ring 30 / D-97076 Würzburg
(Name, Address)

Details of signatory person

Thomas Franzke	Engineering Manager	Alex Wu	Operations Manager
(Name of signer)	(Position)	(Name of signer)	(Position)
Signature		Signature	
Würzburg, 13.10.2017		Shanghai, 13.10.2017	
(Place, Date)		(Place, Date)	

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Version: V1.00
Stand: 13.Oct 2017

Open source license notice

This product includes software developed by the Zint Barcode Generator Project (https://sourceforge.net/projects/zint)

Zint backend license

libzint - the open source barcode library
Copyright (C) 2009 Robin Stuart <robin@zint.org.uk>

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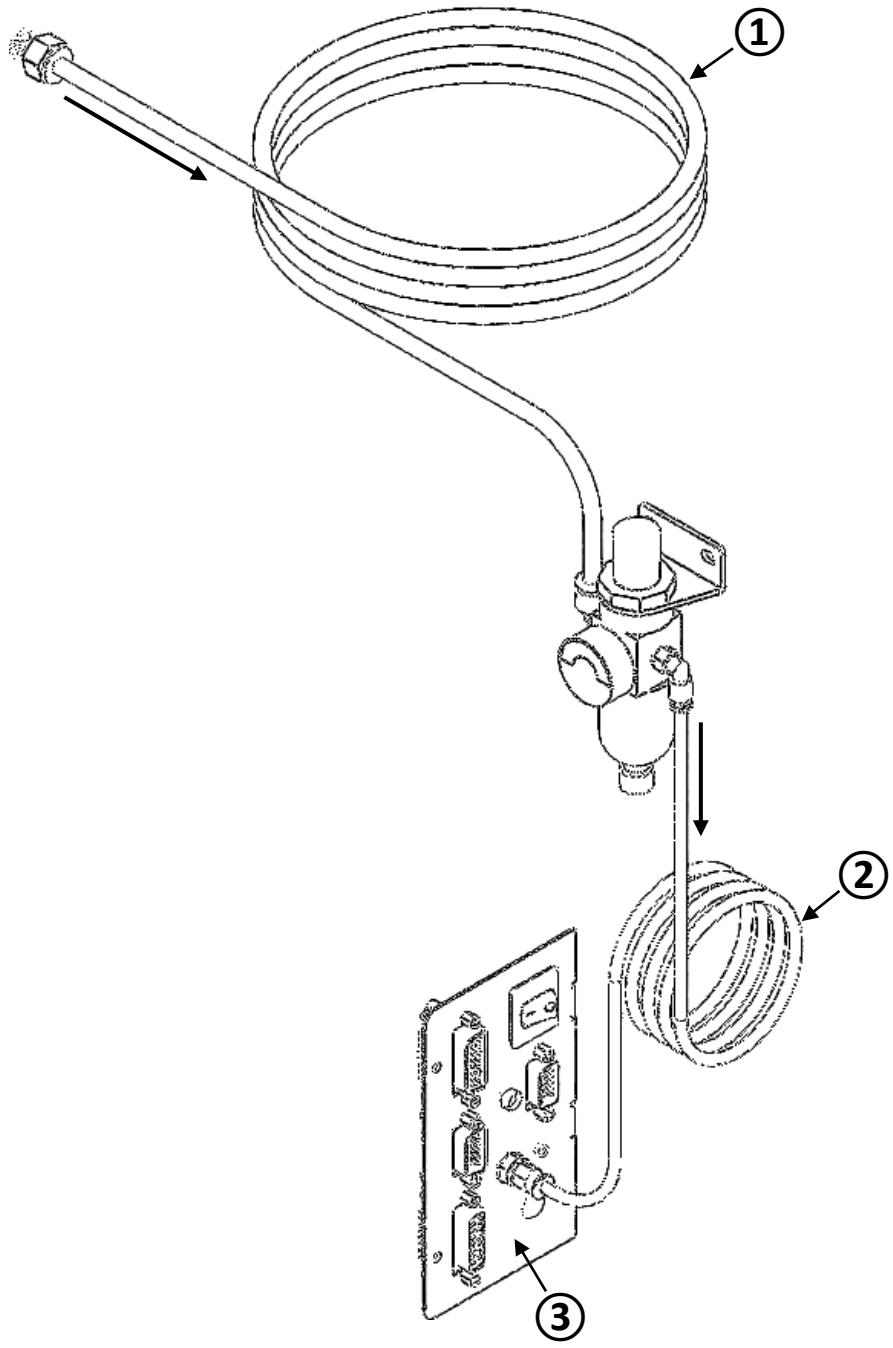
Pneumatic diagram



①	Air supply tubing 6 mm outside diameter	③	Printer connector panel
②	Printer air supply tubing – 6 mm outside diameter		

Recommended spare and wear parts

	Recommendation of the manufacturer
A	For customers performing simple maintenance work
B	For customers performing simple service work by themselves
C	For customers performing entirely service work by themselves

Printing system

Part No.	Description	QTY	Recommen-dation
101935-1	Thermal print head 2"	1	**A**
103840-1	Kit TPH connector cable	1	**A**
103840-2	Kit TPH connector cable - Opposite	1	**A**
103809	Kit wear and spare parts	1	**A**
103832-1	Kit peel bar	1	**A**
103832-2	Kit peel bar - Opposite	1	**A**
103822	Kit roller	1	**A**
103831	Kit printhead bracket	1	**B**
103826	Kit drive roller	1	**B**

Additional

Part No.	Description	QTY	Recommen-dation
1.0000.45007	Rubber roller cleaner	1	**A**
1.0000.45008	Technical cleaning towels (100 pieces)	1	**A**
3.0000.42500	Spring scale up to 2,500g	1	**B**
Depending on application	Backing pad	1	**A**

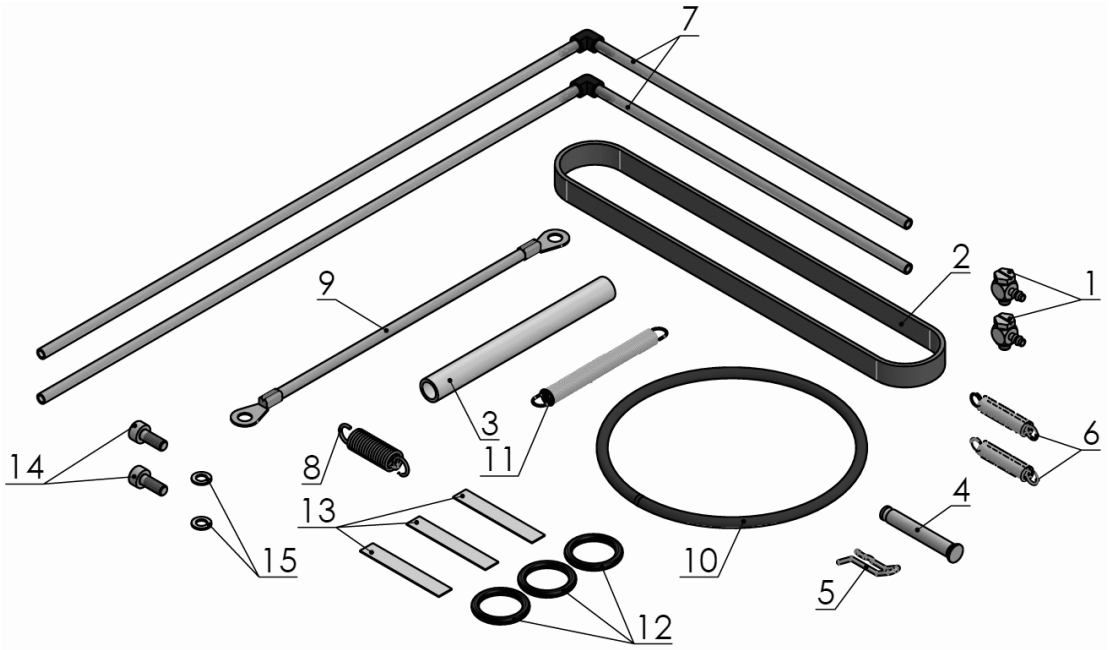
Available spare part kits

Overview

Part-No.	Description
103809	Kit wear and spare parts
103820-1	Kit cassette
103820-2	Kit cassette - Opposite
103821	Kit idler roller
103822	Kit roller
103823-1	Kit unwind
103823-2	Kit unwind - Opposite
103824-1	Kit upwind
103824-2	Kit upwind - Opposite
103825	Kit dancer arm
103826	Kit drive roller
103827-1	Kit pneumatic
103827-2	Kit pneumatic - Opposite
103828	Kit electronic
103829	Kit ribbon motor
103830	Kit printhead motor
103831	Kit printhead bracket
103832-1	Kit peel bar
103832-2	Kit peel bar - Opposite
103833	Kit linear guide
103834	Kit cassette lock
103835	Kit sensors
103836	Kit belt tensioner
103837	Kit belt tensioner
103838	Kit lateral covers
103839-1	Kit internal cables
103839-2	Kit internal cables - Opposite
103840-1	Kit TPH connector cable
103840-2	Kit TPH connector cable - Opposite

Spare part kits

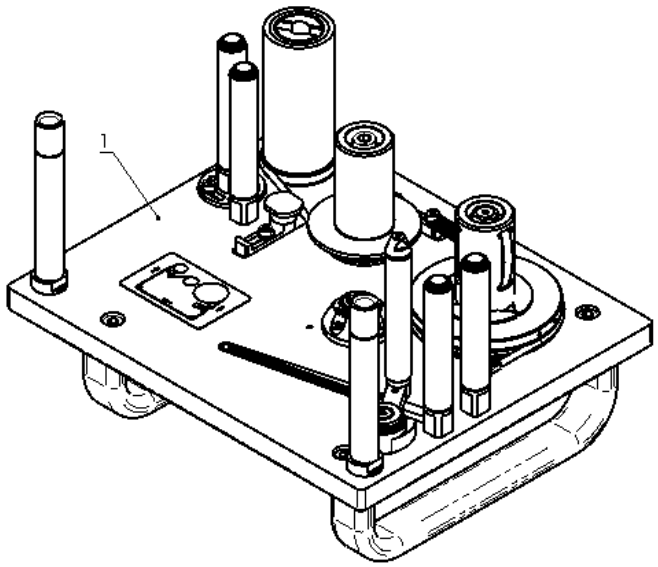
103809 - Kit wear and spare parts



Pos.	Qty.	Description
1	2	Air fitting
2	1	Toothed belt 7 T2,5 / 305
3	1	Peel bar roller
4	1	Shaft - pivot
5	1	Clip
6	2	Spring
7	2	Air connection
8	1	Extension spring
9	1	Drag cord
10	1	Polycord® belt
11	1	Extension spring
12	3	O-ring 12x2
13	3	Spring steel sheet
14	2	Socket head cap screw M3 x 8
15	2	Safety washer 3

103820-1 - Kit cassette

103820-2 - Kit cassette – Opposite*

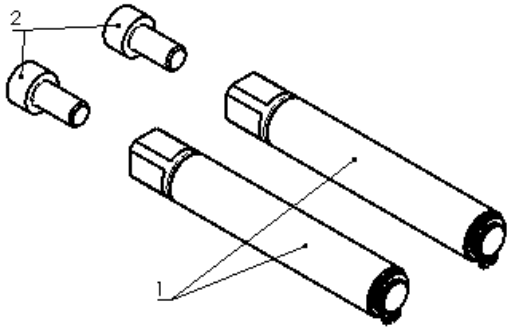


Pos.	Qty.	Description
1	1	Cassette

Pos.	Qty.	Description
1	1	Cassette - Opposite

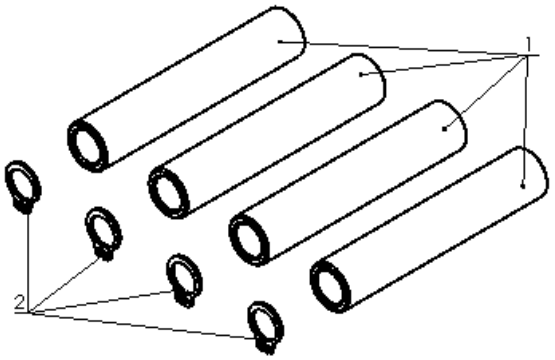
*Figure shows standard kit; opposite kit may differ

103821 - Kit idler roller



Pos.	Qty.	Description
1	2	Idler roller
2	2	Socket head cap screw M6 x 12

103822 - Kit roller



Pos.	Qty.	Description
1	4	Roller
2	4	Circlip - shaft 8 x 0,8

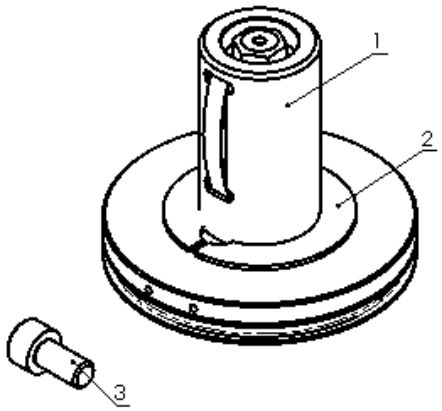
103823-1 - Kit unwind			103823-2 - Kit unwind – Opposite*		
					
Pos.	Qty.	Description	Pos.	Qty.	Description
1	1	Unwind	1	1	Unwind – Opposite
2	1	Spacer clip	2	1	Spacer clip
3	1	Socket head cap screw M6 x 12	3	1	Socket head cap screw M6 x 12

*Figure shows standard kit; opposite kit may differ

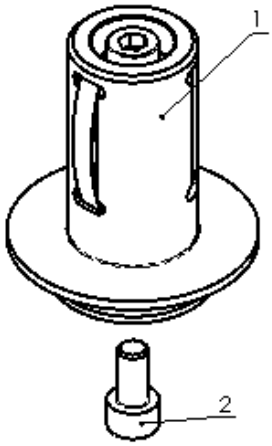
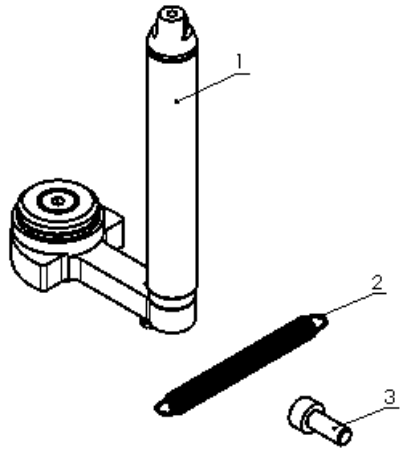
103824-1 - Kit upwind			103824-2 - Kit upwind – Opposite*		
					
Pos.	Qty.	Description	Pos.	Qty.	Description
1	1	Upwind	1	1	Upwind – Opposite
2	1	Socket head cap screw M6 x 12	2	1	Socket head cap screw M6 x 12

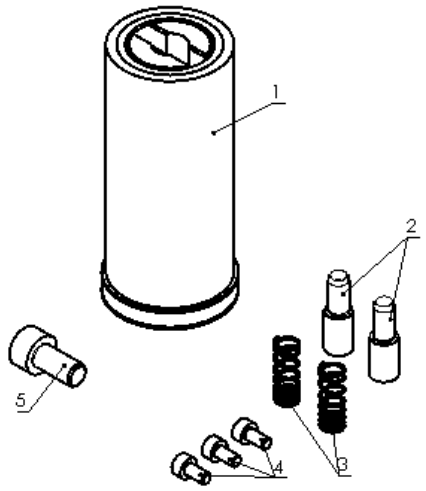
*Figure shows standard kit; opposite kit may differ

103825 - Kit dancer arm



Pos.	Qty.	Description
1	1	Dancer arm
2	1	Extension spring
3	1	Socket head cap screw M4 x 10

103826 - Kit drive roller



Pos.	Qty.	Description
1	1	Drive roller
2	2	Coupling pin
3	2	Compression spring
4	3	Socket head cap screw M3 x 6
5	1	Socket head cap screw M6 x 12

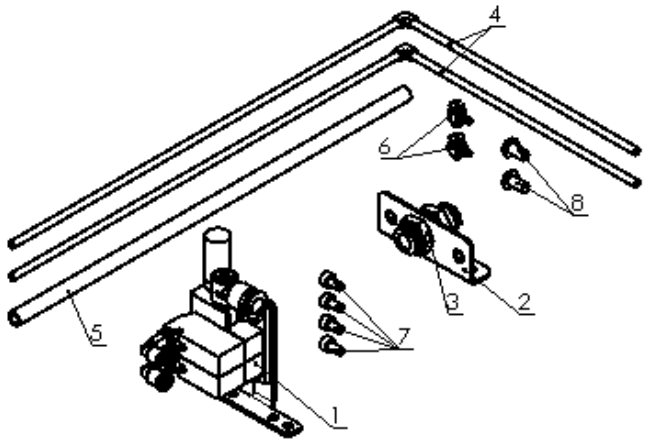
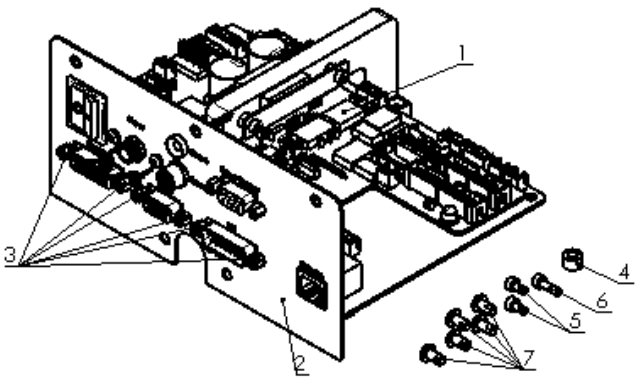
103827-1 - Kit pneumatic			103827-2 - Kit pneumatic – Opposite*		
					
Pos.	Qty.	Description	Pos.	Qty.	Description
1	1	Valves module	1	1	Valves module – Opposite
2	1	Retaining angle	2	1	Retaining angle l
3	1	Push in bulkhead connector 6	3	1	Push in bulkhead connector 6
4	2	Air connection	4	2	Air connection
5	1	Tube 6x1	5	1	Tube 6x1
6	2	Air fitting	6	2	Air fitting
7	4	Socket head cap screw M3 x 6	7	4	Socket head cap screw M3 x 6
8	2	Socket but head screw M4 x 8	8	2	Socket but head screw M4 x 8

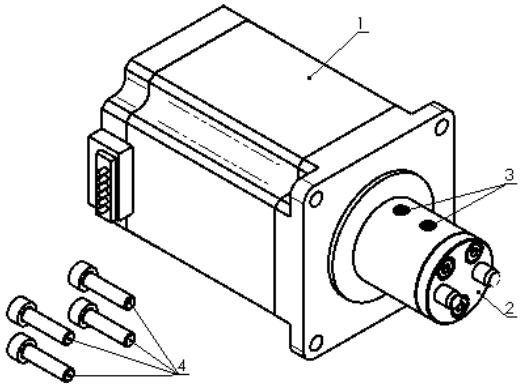
*Figure shows standard kit; opposite kit may differ

103828 - Kit electronic



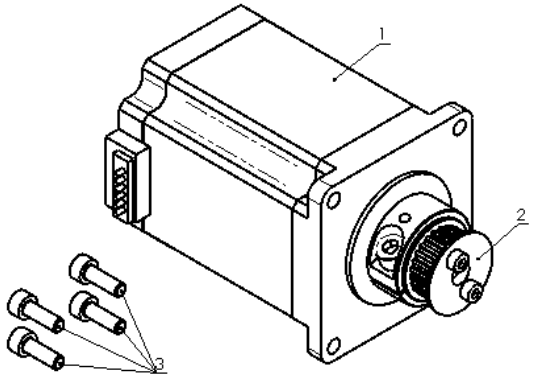
Pos.	Qty.	Description
1	1	PCB assembly
2	1	Connector panel
3	6	Spacer
4	1	Spacer 4,2x8x5
5	2	Socket head cap screw M3 x 6
6	1	Socket head cap screw M3 x 10
7	2	Socket head cap screw M3 x 12
8	5	Socket but head screw M4 x 8

103829 - Kit ribbon motor



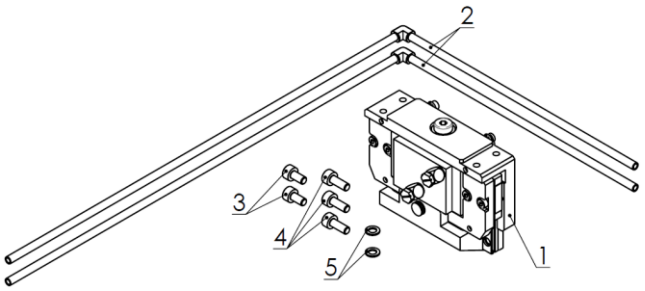
Pos.	Qty.	Description
1	1	Stepper motor
2	1	Coupling
3	2	Socket set screw M5 x 6
4	4	Socket head cap screw M4 x 16

103830 - Kit printhead motor



Pos.	Qty.	Description
1	1	Stepper motor
2	1	Printhead drive pulley assembly
3	4	Socket head cap screw M4 x 12

103831 - Kit printhead bracket



Pos.	Qty.	Description
1	1	Printhead bracket
2	2	Air connection
3	2	Socket head cap screw M3 x 6
4	3	Socket head cap screw M3 x 8
5	2	Safety washer 3

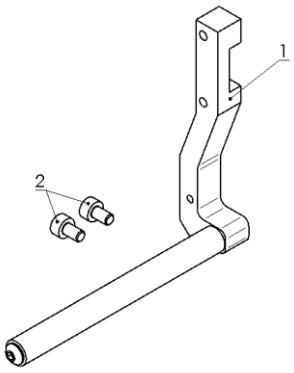
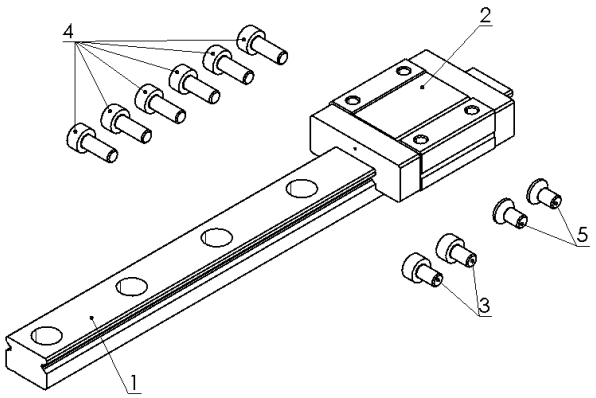
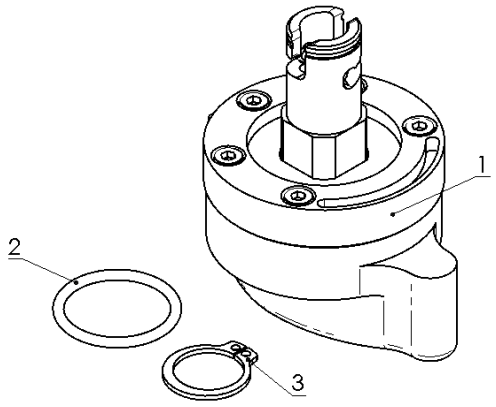
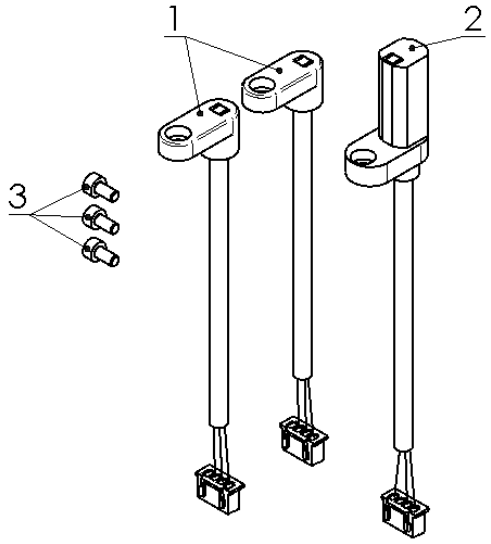
103832-1 - Kit peel bar			103832-2 - Kit peel bar – Opposite*		
					
Pos.	Qty.	Description	Pos.	Qty.	Description
1	1	Peel bar	1	1	Peel bar – Opposite
2	2	Socket head cap screw M3 x 5	2	2	Socket head cap screw M3 x 5

*Figure shows standard kit; opposite kit may differ

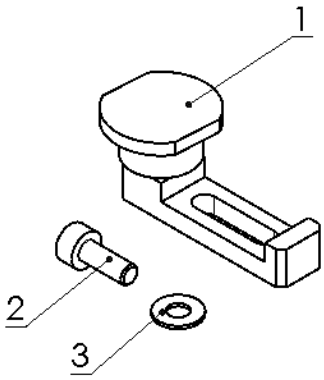
103833 - Kit linear guide			103834 - Kit cassette lock		
					
Pos.	Qty.	Description	Pos.	Qty.	Description
1	1	Linear track rail	1	1	Cassette lock
2	1	Linear slide unit	2	1	O-ring 20x2
3	2	Socket head cap screw M3 x 5	3	1	Circlip - shaft 14 x 1
4	6	Socket head cap screw M3 x 8			
5	2	Socket countersunk head screw M3 x 6			

103835 - Kit sensors



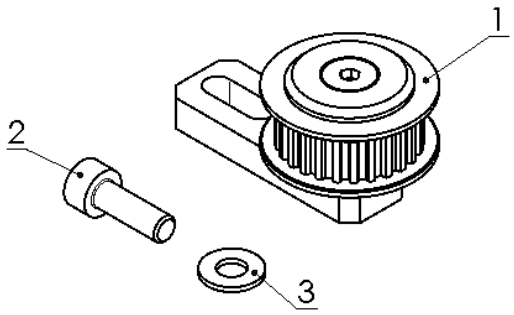
Pos.	Qty.	Description
1	2	Sensor
2	1	Sensor
3	3	Socket head cap screw M3 x 6

103836 - Kit belt tensioner



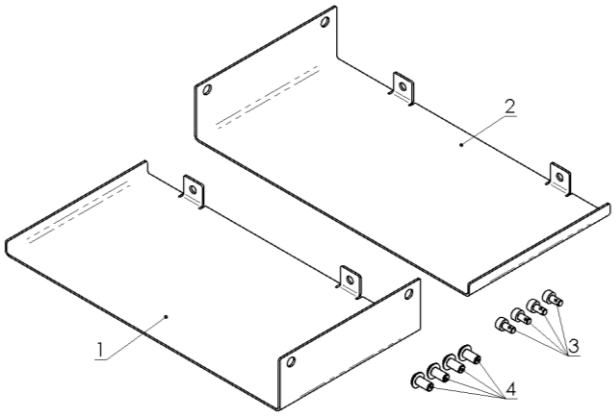
Pos.	Qty.	Description
1	1	Belt tensioner
2	1	Socket head cap screw M3 x 8
3	1	Washer 3

103837 - Kit belt tensioner



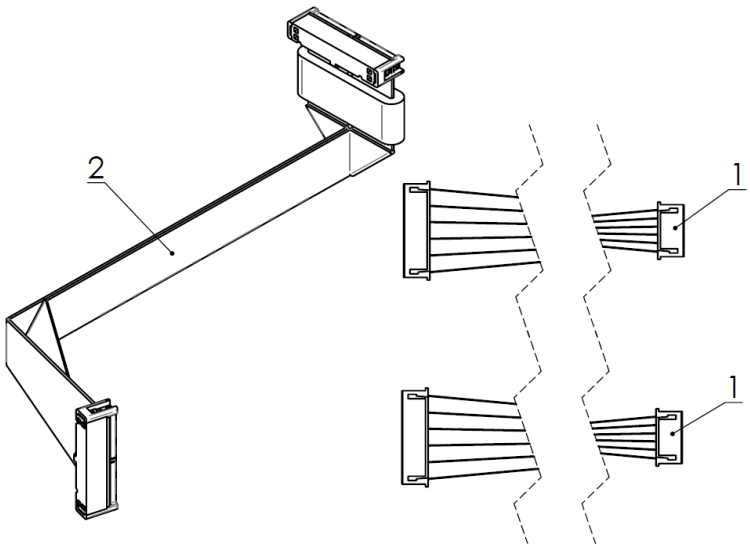
Pos.	Qty.	Description
1	1	Belt tensioner
2	1	Socket head cap screw M4 x 12
4	1	Washer 4

103838 - Kit lateral covers



Pos.	Qty.	Description
1	1	Lateral cover
2	1	Lateral cover
3	4	Socket head cap screw M3 x 6
4	4	Socket but head screw M4 x 8

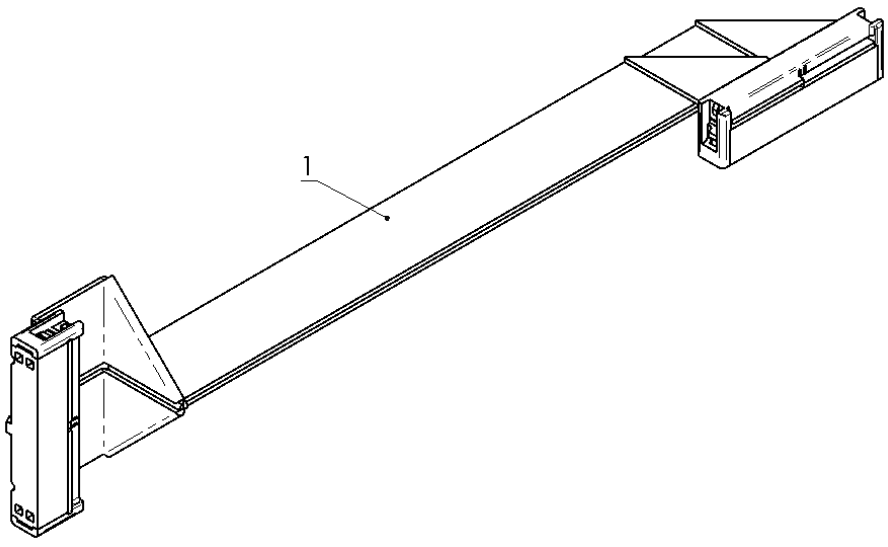
103839-1 - Kit internal cables	103839-2 - Kit internal cables – Opposite*



Pos.	Qty.	Description	Pos.	Qty.	Description
1	2	Stepper motor cable	1	2	Stepper motor cable - Opposite
2	1	Connection cable	2	1	Connection cable - Opposite

*Figure shows standard kit; opposite kit may differ

103840-1 - Kit TPH connector cable	103840-2 - Kit TPH connector cable – Opposite*

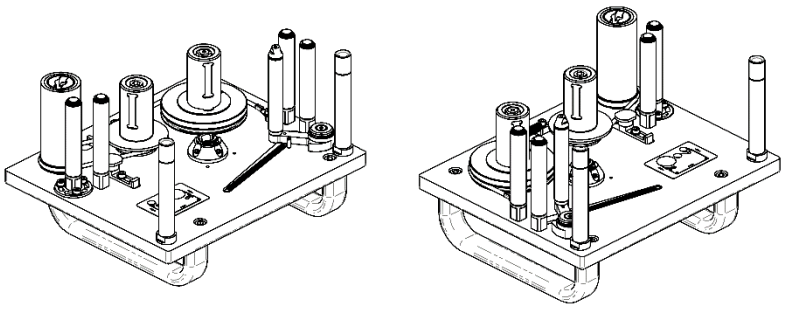


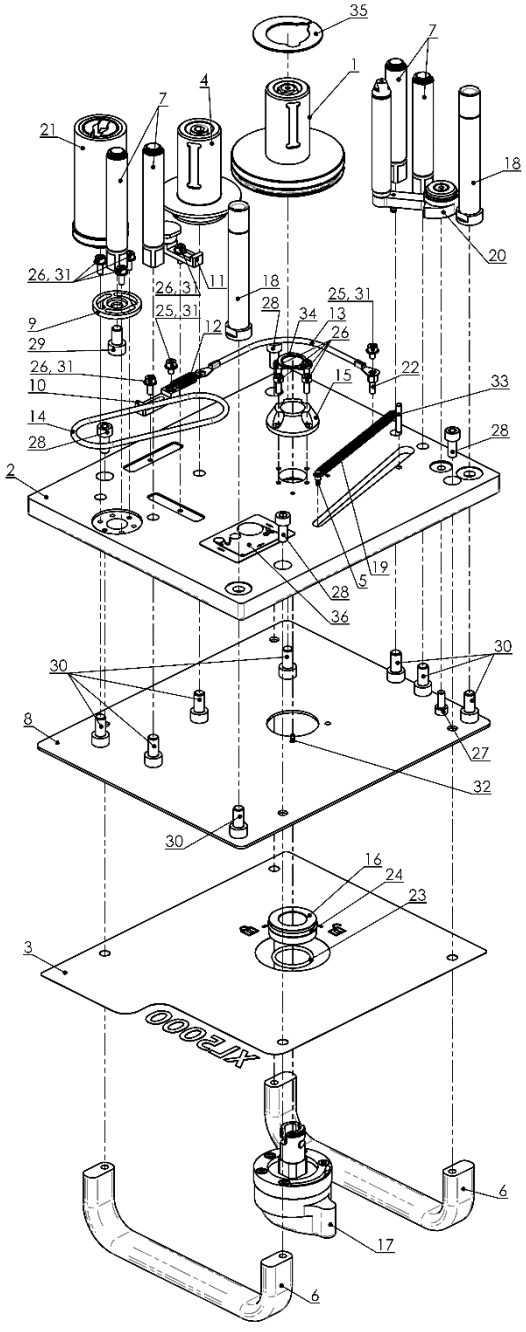
Pos.	Qty.	Description	Pos.	Qty.	Description
1	1	TPH connector cable	1	1	TPH connector cable - Opposite

*Figure shows standard kit; opposite kit may differ

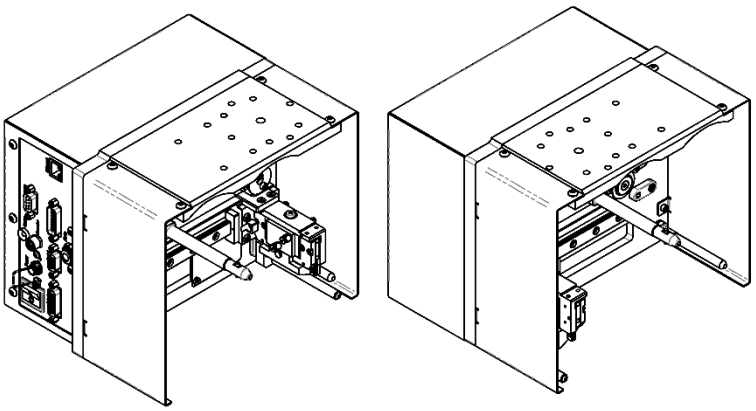
Exploded view

Cassette

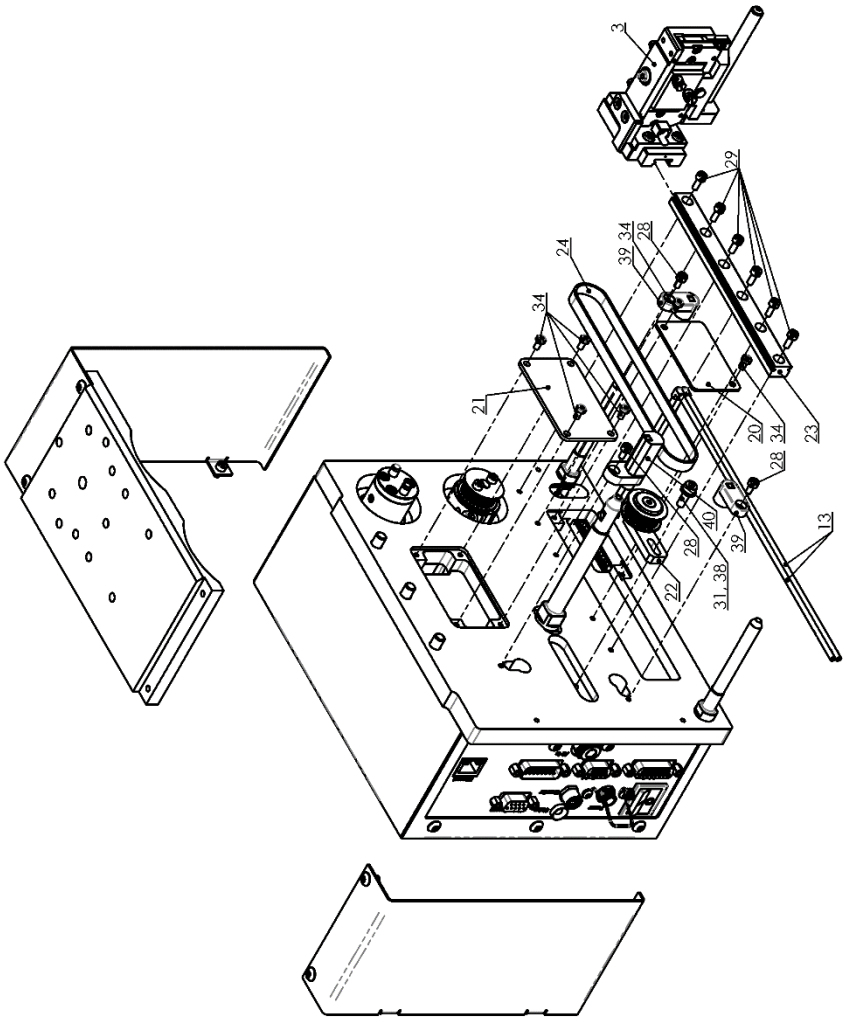
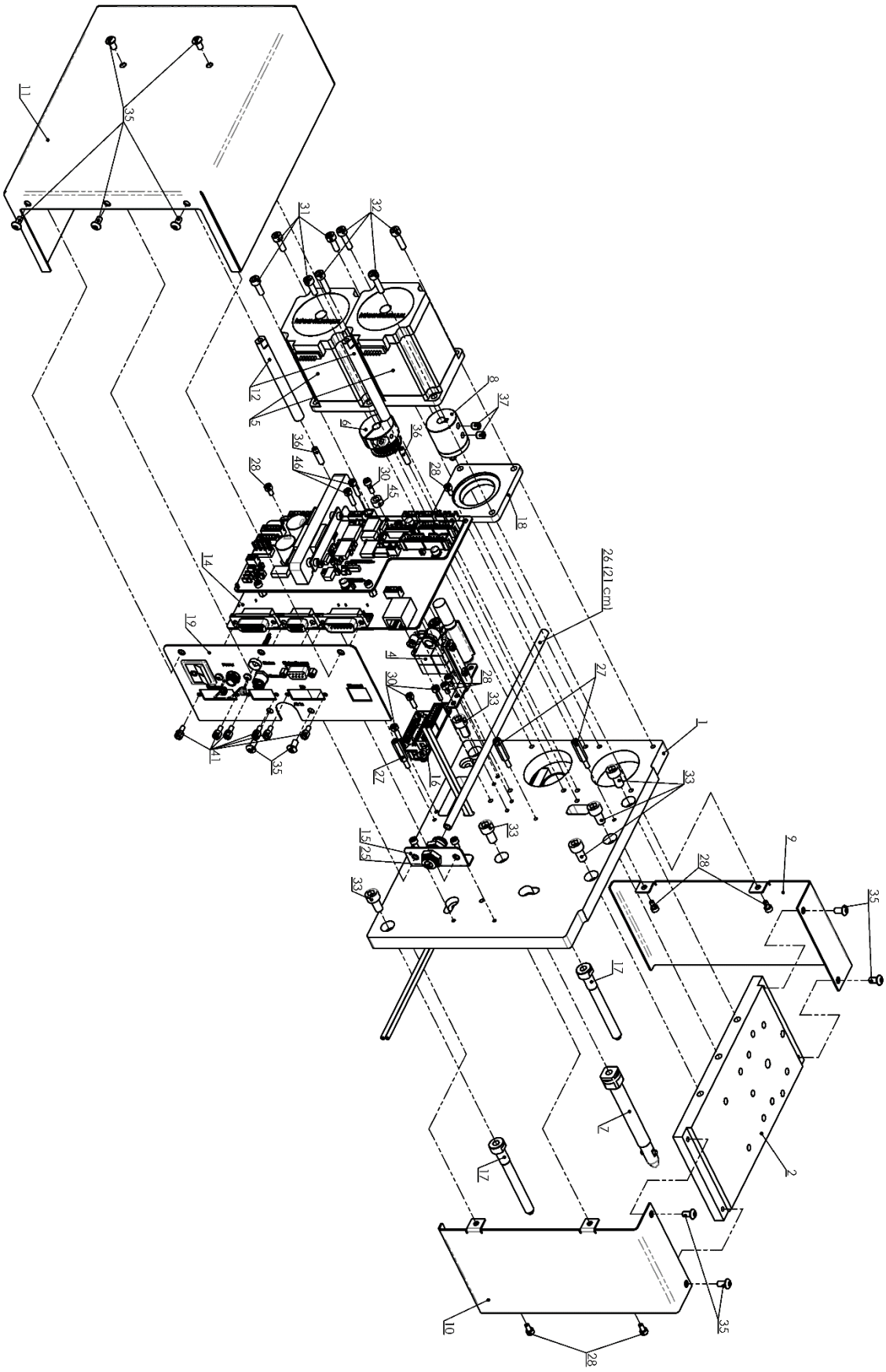




Engine



Front side view



Rear side view