Bluhm Weber Group

**Weber**
LABELING & CODING SOLUTIONS

## Manual for Installation, Operation and Maintenance

# Markoprint X1JET MX

72801056

# Contents

# 1. General Information

## General Survey

Congratulations! You have purchased a high-quality print system. Our concern is to make sure that you profit from this system to your entire satisfaction over many years. In order to ensure this, we strongly recommend you to let our experienced specialists perform the installation.

## Limitation of Liability

All pieces of information and notes of this manual have been arranged in consideration of applicable standards and regulations, state-of-the-art technology as well as our cognition and experiences over many years.
The manufacturer assumes no liability for damages caused by:

- Non-observance of this manual
- Non-observance of the intended use
- Use of unqualified personnel
- Manipulations at the system
- Technical changes
- Use of spare parts that are not approved by the manufacturer

The actual scope of delivery may differ from the explanations and illustrations provided herein in the case of special designs, additional order options or after recent technical changes.
The obligations of the supply contract the General Trading Conditions as well as the Terms of Delivery of the manufacturer and the valid legal regulations at the moment of conclusion of a contract generally apply.

Technical changes within the scope of improvement and development are subject to change without notice.

## Warranty Clause

The warranty conditions are conforming to the valid General Trading Conditions of the manufacturer at the moment of purchase.

## Copyright Protection

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## Purpose and Scope of this service manual

This manual enables safe and effective use of the Markoprint X1JET MX.

The Operating manual is a component of the device and must be stored close to the device to be accessible to the staff at all times. The staff must have read this manual thoroughly and understand the content before starting any work. Compliance with all safety notes and instructions given in this manual is a basic prerequisite to safe operation.

Furthermore, the local accident prevention regulations and general safety provisions for the area of application of the device are applicable.

Images in this manual serve to provide a basic understanding and may differ from the actual device version.

In addition to this manual, the instructions in the annexure on the components included are also applicable.

## Hints for Use of this Manual

Please find in the following a detailed explanation of the notations and representations as used in this manual.

Keys and buttons which you must push appear in squared brackets.

Example: Push [Enter] - button to save changes...

Procedures which should be followed in a specific order are listed in numbered paragraphs.

| Step | Procedure |
|------|-----------|
| 1 | Disconnect power plug |

Important messages are written in bold text and/or highlighted in grey.

**This is an example for an important message!**

Special notes:

| | |
|---|---|
| ⇨ | … refers to a result, following an action by the operator. |
| → | … *refers to a chapter or document*. |

Figures and drawings are numbered serially in the particular chapter. For example **„Fig. 2-1"** is the first figure in chapter 2.

Images in this manual serve to provide a basic understanding and may differ from the actual system version. Depictions may be stated without protection device for clarification.

## Explanation of Technical Terms

| Technical Term | Explanation |
|---|---|
| **Conveyor** | The conveyor transports the products, which should be printed and pass them by the print head |
| **DPI** | **D**ots **P**er **I**nch<br>1 Inch = 25,4mm |
| **Encoder** | See shaft encoder |
| **LED** | Light emitting diode |
| **Nozzle plate** | On the nozzle plate is the two-rowed arrangement of per 300 nozzles, which ejected the ink. |
| **Print direction** | Direction of movement of the product on the conveyor belt viewed from the control system in the print direction |
| **Print intensity** | Contrast of the print image. If necessary this parameter must be changed to optimize the print image. A higher intensity gives greater blackening and longer ink drying time |
| **Print speed** | Print speed = Speed of the conveyor. The speed of the conveyor must be keep constant |
| **Print start delay** | Offset print, i.e. by how much is printing delayed in millimeters after the product is detected by the light barrier. |
| **Print width** | The number of pixel can be increased or decreased using this parameter. The print image becomes narrower or wider. |
| **Product sensor** | A sensor for the detection of the product. Mostly used are optical sensors (photo sensor, light barrier, reflex sensor) |
| **Sensor** | See Product-sensor |
| **Shaft encoder** | A shaft encoder is used for the automatic detection of the conveyor speed and defines the print speed |
| **Trident** | Manufacturer of the print head module and ink |

## Customer Service

Please contact your local distributor for technical information.

If failures at the print system occur, you should be prepared with the following information:

- Detailed error description.
- All information on the name plate of the print system.
- Version number of the system software and of the iDesign Software
- Configuration (Print, Basic, Advanced, Pro)
- Special functions of the software or hardware
- When did the error occur for the first time?

Prior to call our hotline service, please have a look at the manual (➔ *Chapter* Faults*, Page* 70) for potential references to eliminate the error.

Furthermore, our staffs are always interested in new information and experiences with the use of the product and which may be valuable for improvements to our products.

# 2. Safety Regulations

## Behavior in Case of an Emergency

The operating personnel have to be familiar with the operation and the location of safety, accident notification-, first aid- and rescue devices.

### What to do in Case of an Emergency?

- Initiate immediately all required emergency measures for injured persons. Observe valid safety regulations in any case in order to avoid further damages to persons.
- Call medical attendance for injured persons.
- Eliminate all accident causes.

## General Safety Regulations

Safety regulations provide information in written and symbol form in order to warn you against dangers and to instruct you to avoid any damage to persons or to properties.
Safety regulations are started by signal words indicating the level of danger.
Safety regulations may be placed directly at the print system or in documents about this print system.

### Explanation of Danger Degrees

| | |
|---|---|
| **⚠ DANGER** | This symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. All safety regulations have to be observed to avoid any damage to persons. |
| **⚠ WARNING** | This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury. All safety regulations have to be observed to avoid any damage to persons. |
| **⚠ CAUTION** | This symbol indicates a hazardous situation which, if not avoided, may result in minor or moderate injury. All safety regulations have to be observed to avoid any damage to persons. |
| **NOTICE** | This symbol indicates a hazardous situation which, if not avoided, may result in damage to properties. All safety regulations have to be observed to avoid any damage to properties. |

## Intended Use

The working reliability of the print system is ensured only with intended use.

The Markoprint X1JET MX has been designed, built and must be used exclusively for the intended purpose described.

The Markoprint X1JET MX serves to create print images and to print these from the top or side onto smooth and absorbent product surfaces. The product must pass the Markoprint X1JET MX, i.e. positioned on a conveyor belt.

All working conditions and instructions, prescribed in this manual, will be observed.

Any use beyond the intended use or any alternative use of the equipment is regarded as misuse and may lead to hazardous situations.

**Misuse of the device may lead to hazardous situations. Refrain, in particular, from subjecting the apparatus to the following:**
**Modification, retrofitting or alteration of the apparatus or individual sub-assemblies.**

Any claims arising from damages due to undesignated use are rejected.

## Reasonably Foreseeable Misuse

Another use as fixed in the „Intended Use" or even more applies as not intended!

For damages caused by not intended use
- the operator bears the complete responsibility,
- the manufacturer assumes no liability.

If you do not use the system according to the regulations, risks may occur!

**Not intended uses are e.g.:**

- operation in explosive atmosphere
- the print system comes in contact with food …

## Retrofitting and Changes at the Print System

Unauthorized retrofitting and changes at the system lead to an immediate expiration of liability and warranty covered so far by the manufacturer! This is also valid for interventions and program changes at programmable control systems as well as program changes at control units as far as they are not described in this Manual.
The electromagnetic performance of the system can be affected by amendments or changes of any kind.
Do not arrange any changes or amendments at the systems without consultation and written approval of the manufacturer.

## Warning Notices at Print System

Particular sources of danger at the print system are marked by yellow labels. The used pictograms point out to following dangers:



Danger to Life

## Special hazards

The following section identifies the remaining risks, determined following a risk analysis.

**Observe the safety notes listed here and the warnings in other chapters of the manual to minimize health hazards and avert hazardous situations.**

**⚠ WARNING**    **Danger to life through electric shock!**

⚡ DANGER TO LIFE!

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.
Therefore:

– Immediately switch off the power supply and initiate repairs if the insulation is damaged.
– Work on the electrical system may only be performed by electricians.
– Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
– Always disconnect mains before performing cleaning and repair tasks.
– Keep moisture from live parts. Moisture may cause a short-circuit.

**⚠ CAUTION**    **Risk of injury through incorrect handling of batteries!**

⚠ RISK OF INJURY!

Rechargeable and primary batteries contain toxic heavy metals. They must be treated as special refuse and deposited at municipal collection points or be disposed of by a specialized company. Batteries must be handled with particular care.
Therefore:

– Never throw batteries into a fire or subject batteries to high temperatures. Explosion hazard.
– Do not charge batteries. Explosion hazard.
– Fluid escaping through incorrect use may cause skin irritations. Avoid contact with the fluid. In case of contact with the fluid, rinse with ample water. If the fluid comes into contact with the eyes, rinse immediately with water for 10 minutes and consult a doctor without delay.

**⚠ CAUTION**   **Edges and corners pose risk of injury!**

⚠ RISK OF INJURY!

Sharp edges and pointed corners may cause abrasions and cuts to the skin.

Therefore:

– Be cautious when working near sharp edges and pointed corners.
– If in doubt, wear protective gloves.

**⚠ CAUTION**   **Risk of stumbling posed by dirt, objects lying about and connecting lines!**

⚠ RISK OF INJURY!

Dirt, objects lying about and connecting lines for power, data- and signal lines may cause slipping and stumbling resulting in severe injuries.

Therefore:

– Always keep working area clean.
– Remove objects no longer required.
– Mark stumbling areas with yellow-black marking tape.
– Non tension connecting lines to system and pass it that no places of danger do arise

## Remaining Risks

The print system is constructed for a safe operation. Hazards that are not preventable due to construction purposes are limited as far as possible by protection devices. A certain amount of risk is always existent! The knowledge about the remaining risks assists you to arrange your work safer and to avoid incidents. In order to avoid the dangers, please observe additionally the particular security advice in the single chapters.

## Disposal

This print system complies with the RoHS EU-Regulation 2002/95/EG with observance of the fixed using prohibitions and avoiding pollutants.

## Unauthorized persons

Work at the print system should only be performed by reliable personnel. Please comply with the legal age!

Only trained personnel are allowed to operate the print system. Trainees, apprentices etc. must be supervised by an experienced person while working at the print system.

Prior to start running the labeler the operator has to ensure that the manual of the labeler is available to all users of the machine and that the users have read and understood the manual. Only then the system may be put in operation.

The responsibility for the different tasks at the print system must be clearly specified and kept. There must be no ambiguous authorities for this may put the safety of the users at risk. Arrange a detailed work schedule if several persons work on the machine.

All work on the electrical equipment must be carried out by skilled electricians only.
Failures may be eliminated by authorized personnel only.
All work associated with the assembly, adjustment and maintenance at the machine may be carried out only by trained or instructed personnel.
The operator of the machine must ensure that the personnel are trained in dealing with the integrated control system prior to fix machine errors or maintain the system.

## Personal Protective Equipment

**Wear following protective equipment when performing work at the system:**

**SAFETY SHOES**

Wear for protection against falling off parts and slipping.

**PROTECTIVE CLOTHING**

Are tight-fitting clothes with low tensile strength, with tight sleeve
and without distant parts
Wear a hairnet if applicable
Do not wear jewelry or wrist watches

**PROTECTIVE GOGGLES**

For protection against splashes of detergents and flying parts

**SAFETY GLOVES**

For protection against sharp-edged items

| Personal Protective Equipment for the following tasks | Protective Clothing | Safety Shoes | Safety Gloves | Protective Goggles |
|---|---|---|---|---|
| Transport | x | x | x | |
| Setting up and connecting of the system | x | x | x | x |
| Maintenance Work | x | | x | x |
| | The documentation of the manufacturer of the single system components has to be observed! | | | |

## Working Places Operator Personnel

The print system is an automatic working system and does not require any operation for the printing procedure.

## 3. Technical Specifications

**General**

| | |
|---|---|
| **Dimensions** (H x W x D in mm) | See drawings in appendix. |
| **Weight** | About 5000g without ink bottle, depending on system version |
| **Environmental Temperature:** | 5 - 40 ° C |
| **Environmental Conditions:** | 10-90 % relative humidity (non-condensing) |
| **Protection Rating** | IP 40 |
| **Maximum operating time** | The system is designed for continuous operating |

**Electrical**

| | |
|---|---|
| **Voltage System:** | 90 - 240 V AC / 50-60Hz (1~) |
| **Current consumption:** | max. 1,25 A |
| **Power consumption:** | max. 50 W |
| **Power consumption Standby:** | 5 W |

**Data interfaces**

| | |
|---|---|
| **EIA 232** | Sub-D 15 Pol |
| **Ethernet** | RJ45 |
| **USB** | USB-A socket for stick |

## Connections

| Sensor | Sub-D 15 Pol |
|---|---|
| **Encoder** | Sub-D 15 Pol |
| **In-/Outputs** | Sub-D 15 Pol |
| **Ethernet** | RJ45 |

## Performance data

| | |
|---|---|
| **Cable length System unit / Power supply in m** | 1,8 |
| **Text layout** | Software iDesign |
| **Parameter input** | Software iDesign |
| **Fonts**<br>**(optional)** | all available Windows fonts<br>customer-specific fonts |
| **Print height in mm**<br>**X1JET MX 50**<br>**X1JET MX 100** | 3 to 50<br>3 to 100 |
| **Max. print resolution[1] in dpi** | 600 |
| **User language Software:** | German, English, French, Spanish, Japanese |
| **Barcodes[1]** | EAN 8, EAN 13, EAN 128, Code 2/5, Code 2/5 check, Code 39, Code 39 check, Code 128, DUN14, GS1 Databar |
| **2D-Codes[1]** | Datamatrix, GS1 Datamatrix, OR-Code, PPN-Code |
| **Automatic functions[1]** | Date, Time, Counter, customer-specific links |
| **Graphic** | **Monochrome** bitmap-graphics can be created i.e. with Paint or other software. |
| **Print image storage** | 9 print images |
| **Print image lenght** | 23.600 Pixel = 1m at 300dpi |
| **Storage; optional expandable in GB** | 1 |
| **Storage in MB** | 32 |
| **Max. print speed in m/min at 300dpi (depending on resolution)**<br>**Markoprint X1JET MX *Print***<br>**Markoprint X1JET MX *Basic***<br>**Markoprint X1JET MX *Advanced*** | 30<br>30<br>60 |

| | |
|---|---|
| **Markoprint X1JET MX *Pro*** | 90 |
| **Print direction** | L/R or R/L, from top or side. Print from bottom is **not** possible. |

[1] Not available in all Markoprint X1JET MX versions

## Inks

| Specification | Type |
|---|---|
| **MX 100** | ScanTrue II™ black |
| **MX 50** | ScanTrue II™ black |

# 4. Transport, Packaging and Storage

## Transport

Check the delivery for completeness and transport damages immediately upon receipt. Proceed as follows in case of externally visible transport damage:

- Decline delivery or accept with reservation only.
- Record extent of damage in the transport documentation or on the delivery note of the carrier.
- Initiate complaint.

## Scope of Delivery

The scope of delivery of the Markoprint X1JET MX depends on the ordered options and the customer's application. Please control the scope of delivery when receiving the systems on the basis of the delivery note.

Scope of Delivery - Basic:

- 1 x System unit Markoprint X1JET MX

Optional:

- 72900535 - USB-Stick, Content: → *Chapter* USB-Stick files*, page* 83
- 72801056 - Operating Manual on the USB-Stick
- 71700015 - iDesign-Software on the USB-Stick
- 71800027 – Mounting bracket for Compact System
- 71800029 – Mounting bracket for Top mounting
- 33004927 - Ethernet cable 3m
- 72800002 - External light barrier
- 72801042 - Shaft encoder
- 72900545 - Splitter Kabel für Sensor, Encoder, RS232, Ein/Ausgänge

## Symbols on Packaging

As part of the installation and further use it may happen that the operator put user or maintenance personnel in charge of handling of packages. Therefore note the following important notes:
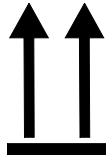
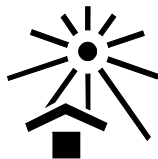| | |
|---|---|
| ↑↑ | **This way up**<br><br>The arrowheads indicate the top of the package. They must always face upward to avoid damage to the content. |
| ⚟ | **Fragile**<br><br>Identifies packages with fragile or sensitive contents.<br>Handle the package with care, do not drop or subject to impacts. |
| ☂ | **Keep dry**<br><br>Keep packages away from moisture and keep dry. |
| ☀ | **Protect from heat**<br><br>Protect packages from heat and direct sunlight. |

## Transport and Unpacking

### Safety Instructions

| | |
|---|---|
| **NOTICE** | **Material damage due to incorrect transport!**<br><br>Remove the packaging material and the transportation safety devices on installation site and transport the print system in its original packaging to the place of installation. |
| **⚠ CAUTION** | **Danger due falling parts!**<br><br>–   Wear safety shoes! |

## Packaging

### On Packaging

The individual packages are packed in accordance with the expected transport conditions. Only environmentally-friendly materials were used for packaging.

Packaging serves to protect the individual components against transport damage, corrosion and other damage, up to the assembly stage. Do not, therefore, damage the packaging - remove shortly before assembly only.

**Original packaging is available from the manufacturer to ensure optimal dispatch of the system.**
**Please contact your local distributor.**

### Handling of packaging materials

Dispose of packaging material in accordance with the applicable statutory provisions and local regulations.

**NOTICE**     **Environmental damage!**

Packaging materials are valuable raw materials and can, in many cases, be re-used or profitably recycled and re-used.

Therefore:

– Dispose of packaging materials in an environmentally-responsible manner.
– Observe the locally applicable disposal regulations. If necessary, commission a specialized company for disposal.

## Storage

### Controller

Store the controller under the following conditions:
- Do not store outdoors.
- Keep dry and free of dust.
- Do not expose to aggressive media.
- Keep away from direct sunlight.
- Avoid mechanical shock.
- Storage temperature: 5°C to 45°C.
- Relative humidity: maximum 60%.

### Storage Trident print heads

Store the Trident print heads under following conditions:
When a print head with ink type ScanTrue II is stored or not used for more than six months, ink deposits may form, which can result in the clogging of different nozzles.
In this case, fill the print head with fresh ink before using.
Procedure:
- Leave the nozzle plate closed with the nozzle locking clamp!
- Remove the feeder tube on the head and pump the old ink out of the ink supply system
- Then remove the return flow from the ink system and pump the old ink out of the print head
- Finally, rinse out the head and resume operation.

Customers having replacement heads in storage should rotate these every three months. In this way, the customer has a regular control over the functional integrity of his print heads.

All print heads should be tested once before installation.

Before storage of the Trident print heads the ink bottle must be taken out and stored according the storage instructions given below ink bottles.
The print head must be closed with the nozzle clip and the air inlet of the ink system must be closed with the plastic plug. Close the ink filler opening (bottle) with the screw cap. See also Disassembly of the print head.

Store the print heads under following conditions:
- Do not store outdoors.
- Keep dry and free of dust.
- Do not expose to aggressive media.
- Keep away from direct sunlight.
- Avoid mechanical shock.
- Storage temperature: 5°C to 45°C.
- Relative humidity: maximum 60 %.

**Storage Trident ink bottles**

New original ink bottles can be stored up to one year. Please have a look at the printed best before date! The shelf life can be varying with the different ink types.
Store the ink bottles under following conditions:

- Do not store outdoors.
- Keep dry and free of dust.
- Do not expose to aggressive media.
- Keep away from direct sunlight.
- Avoid mechanical shock.
- Storage temperature: 5°C to 45°C.
- Relative humidity: maximum 60 %.

# 5. Construction and function

## Brief description

The Markoprint X1JET MX is a Inkjet Coder of Weber Marking Systems GmbH, for printing images quickly and cleanly onto smooth and absorbent product surfaces.
A print image, for instance, contains product descriptions, graphics, quantities, shelf life data, barcodes and product serial numbers.
The print images can be created directly with PC installed iDesign software and can be loaded in/or sent to the Markoprint X1JET MX by means of a USB stick or a network.
Up to 9 print images can call up for printing via keyboard.

## Controller

The Markoprint X1JET MX comprises essentially a controller with integrated control electronics, a ink system with holding fixture for the ink bottle and connections for the power supply, shaft encoder, external photo sensor, in-/outputs at the rear side of the system. At the back side are a keypad with 4 control LEDs and a USB-A socket for a data transfer via USB-stick.
Furthermore the system unit includes a vacuum pump and a bottle to detect the polluted ink.
The sucking of excess ink from nozzle plate is happens after a purging process. An opening is located at the lower end of the nozzle plate, which is responsible for removing the excess / dirt ink.
If the bottle is full, a yellow LED shows this on the front.
The extraction can be used only when the head is mounted vertically – not used by Top application or up-/downgrade mounted head.

**If the yellow status-LED indicates that the collecting tank is full, no more spitting can be done.**

The system unit is directly installed with an optional mounting bracket on the production line.

**Print head**

The ink is distributed in the ink channels through capillary action. In order to optimise the viscosity of the ink, the head is heated to approximately 35°C (with ScanTrue II ink). This takes about 5 minutes from the time the device is switched on.

Each ink channel contains a piezo tappet that contracts when an electrical pulse is applied. At the end of the pulse, the tappet expands suddenly and pushes the ink against the nozzle plate. The nozzle plate forms the ink into individual drops that are ejected onto the printing surface. When the drops exit the print head, a suction pressure is generated that pulls more ink from the ink system.

The surface tension of the ink present directly at the nozzles prevents ingress of air into the ink channels. Please note that the print head must be protected from strong vibrations. Strong impacts may lead to disruption of the surface tension and ingress of air into the head.

## System versions

The Markoprint X1JET MX print system is in three different versions available:
Markoprint X1JET MX *Print, / Basic, / Advanced* and *Pro.*

The Markoprint X1JET MX will be delivered as Print version standard. If the requirements exceed the scope of services of the Print version, an upgrade with costs to one of the other versions is available. See also → ***Chapter*** Software-Upgrade***, page*** 82.

The specifications of the separate versions can be found in the following table.

| FUNCTION | SYSTEM VERSION | | | |
| --- | --- | --- | --- | --- |
| | *Print* | *Basic* | *Advanced* | *Pro* |
| **max. Speed at 300 dpi** | 30 | 30 | 60 | 90 |
| **Layout length** | 1m | 1m | 1m | 2m |
| **DPI horizontal** | 50 - 900 | 50 - 900 | 50 - 900 | 50 - 900 |
| **DPI vertical** | 300 | 300 | 300 / 600 | 300 / 600 |
| **Fonts** | Printer + TTF | Printer + TTF | Printer + TTF | Printer + TTF |
| **Number of layouts** | 9 | 9 | 9 | 9 |
| **Text fields** | Yes | Yes | Yes | Yes |
| **Counter fields** | No | No | Yes | Yes |
| **Date fields** | No | Yes | Yes | Yes |
| **Date offset** | No | No | Yes | Yes |
| **Variables** | No | No | No | No |
| **Logos** | Yes | Yes | Yes | Yes |
| **Barcodes** | No | No | Yes | Yes |
| **2-D Codes** | No | No | No | Yes |
| **Action fields** | No | No | Yes | Yes |
| **USB-Stick Data transfer** | Yes | Yes | Yes | Yes |
| **Ethernet interface** | Yes | Yes | Yes | Yes |
| **Password** | No | No | No | No |
| **RS232** | Yes | Yes | Yes | Yes |
| **Internal sensor** | No | No | No | No |
| **External sensor** | Yes | Yes | Yes | Yes |

| FUNCTION | SYSTEM VERSION | | | |
| --- | --- | --- | --- | --- |
| | *Print* | *Basic* | *Advanced* | *Pro* |
| **Encoder** | Yes | Yes | Yes | Yes |
| **In-/ Outputs** | 2I / 4O | 2I / 4O | 2I / 4O | 2I / 4O |
| **Ink level display** | LED | LED | LED | LED |

## Complete overview X1JET MX
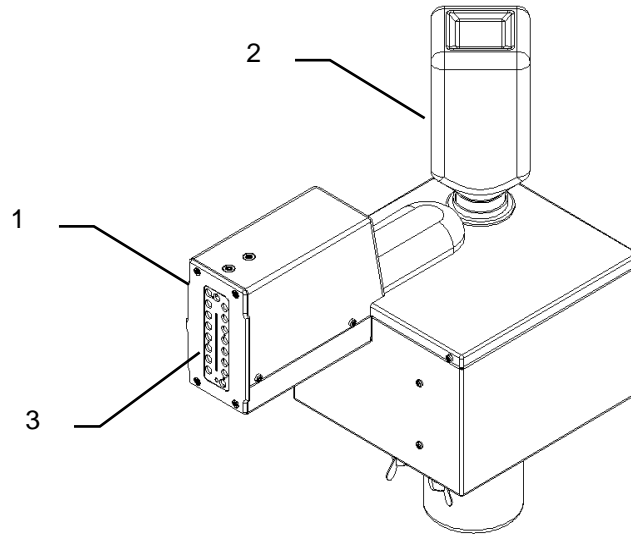


Fig. 5-1: X1JET MX

| No. | Description |
| --- | --- |
| 1 | FRONT PANEL |
| 2 | INK BOTTLE |
| 3 | NOZZLE PLATE |
| 4 | INK SYSTEM COVER |
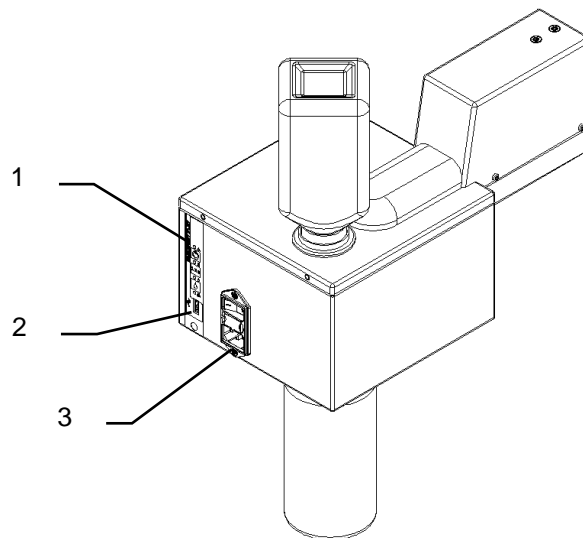


Fig. 5-2: X1JET MX

| No. | Description |
| --- | --- |
| 1 | CONTROL PANEL WITH ENTRY KEYS AND LED-STATUS LIGHTS |
| 2 | USB-A SOCKET |
| 3 | POWER-SOCKET |
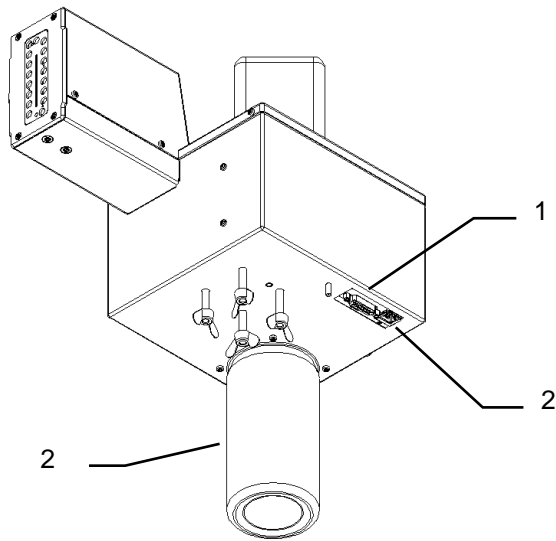
Fig. 5-3: X1JET MX

| No. | Description |
|-----|-------------|
| 1 | OPTION (SUB-D 15 POL) |
| 2 | NETWORK CONNECTION (RJ45) |
| 3 | BOTTLE FOR EXCESS INK |

**Markoprint X1JET MX versions**

The MX print heads are available in following versions:
- Markoprint X1JET MX 100: max. print height 100mm ; available in the „Compact" version, „Top" and „Vario". With ScanTrue II ink
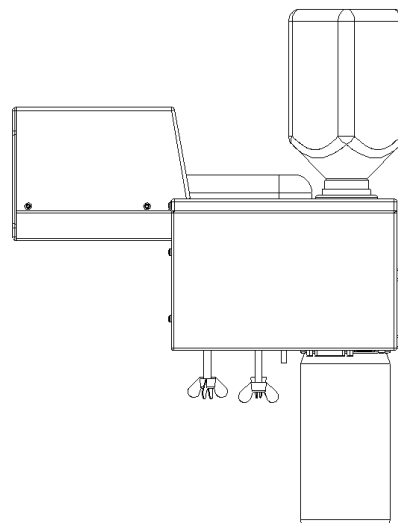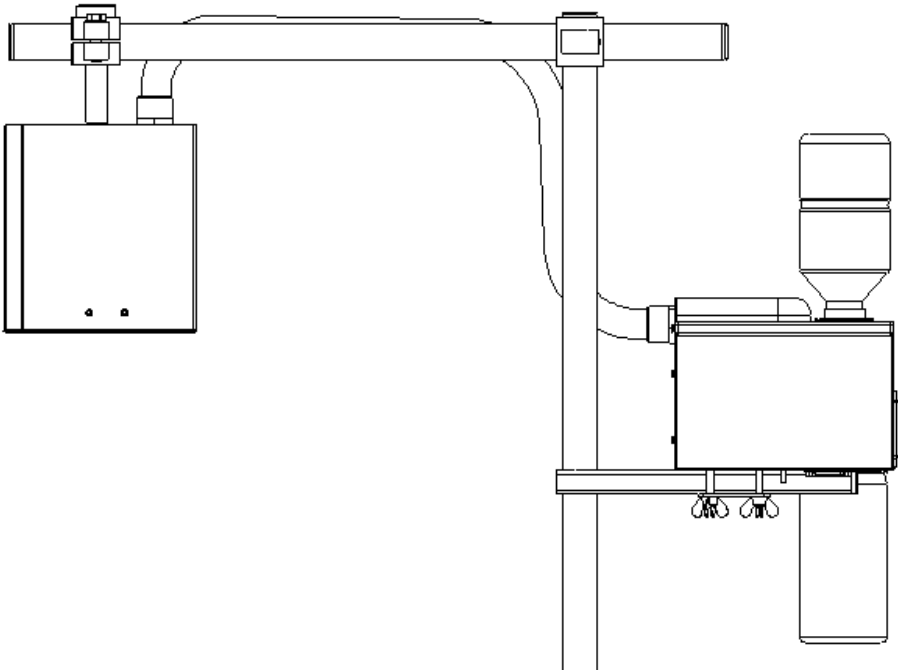- Markoprint X1JET MX 50: max. print height 50mm ; available in the „Compact" version, „Top" and „Vario". With ScanTrue II ink



Fig. 5-4: X1JET MX 50 Compact
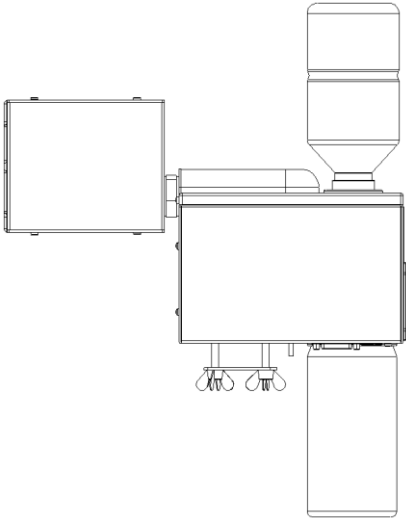
Fig. 5-5: X1JET MX 100 Top

Fig. 5-6: X1JET MX 50 Vario

### Trident – print head module MX 100 / 50

| NOTICE | **Material damage** |
|---|---|
| | The nozzle plate can be damaged by incorrect disassembly. |
| | Therefore: |
| | – Never remove the nozzle plate - this would invalidate the warranty. |

The print head MX 100 has 256 selectable channels, each with 3 nozzle openings.
The print head MX 50 has 128 selectable channels, each with 3 nozzle openings.
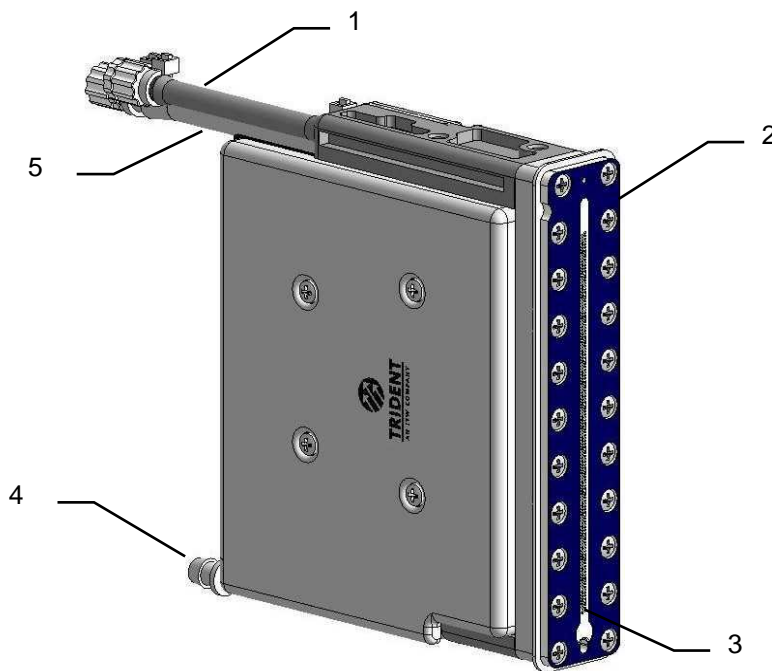The nozzle plate is permanently screwed to the metal body.



Fig. 5-7: Trident print head module MX 100

| No. | Description |
|---|---|
| 1 | INK RETURN |
| 2 | NOZZLE PLATE |
| 3 | NOZZLE OPENINGS |
| 4 | MAINTENANCE STATION CONNECTOR |
| 5 | INK SUPPLY |

The single print head as 50 version has a maximum print height of 50 mm, the 100 version a print height of 100 mm.

In the Compact / Compact/Vario model, the print head and the ink system form a single unit. A constant difference in level between the print head and the ink system is thus ensured. For design reasons, the print head of the Compact / Compact/Vario model can only print from the side.

In the event of installation on an inclined conveyor or material movement from top to bottom the ink system must be installed horizontally. The head can be rotated in the direction of travel. Compact system is not suitable here because the head cannot be rotated independently of the ink system.

In the Top model, the print head is connected with its own ink system via a special flexible hose containing the ink line and the control cable. The ink system comprises a reservoir to which the ink bottle is attached. A pump is also installed. This pump is used exclusively for purging air and any contamination from the head. The ink is supplied to the print head solely through the suction effect of the ink being used. Reliable ink supply can only be ensured if the system is fully vented. It is important that the ink system is installed at the same height as the print head.
Note: The lower edge of the nozzle plate (by an installation from the side: lower edge of the print image/bottom nozzle) must be set 55 mm higher than the lower edge of the ink reservoir (±5mm tolerance). If the ink system is higher than the print head, the ink will leak from the head; if the print head is installed too high, the surface tension of the ink at the nozzle plate will be disturbed, causing air to enter.
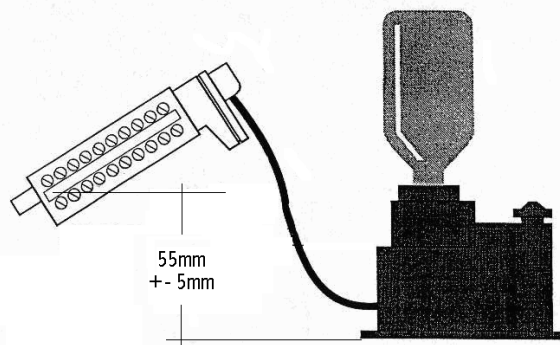
Example for assembly from the side:



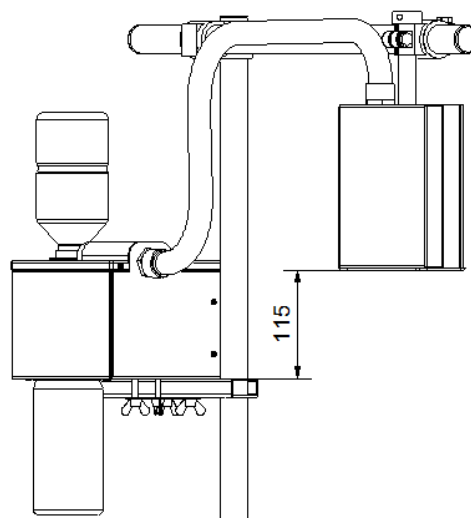Fig. 5-8: Level ink system – Pint head module



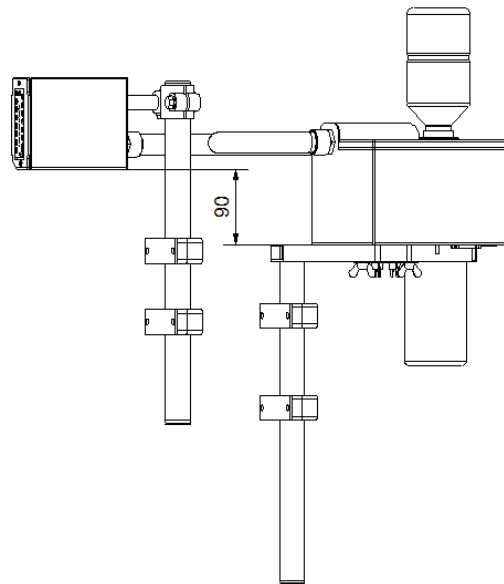Fig. 5-9: Level system unit – print head module with top application

Fig. 5-10: Level system unit – print head module with top system and printing from side

Only those inks listed on the gummed label of the unit may be used in the system.
The use of other inks will cause a total breakdown of the printer system!

The system must not be run dry / without ink.
The system is supplied filled with ink. Ink could escape if the device is not closed and not stored properly.
If ink has escaped, air must be removed from the system before using.

**The ink tank has a ventilation cap that must remain open at all times after installation!**

## Name plate

The nameplate is attached to the bottom of the system and displays the following:

- System type
- Serial number
- MAC-address
- Article number
- Supply voltage
- Power consumption
- Address of manufacturer

# 6. Installation and Initial Operation

**Safety notes**

**⚠ WARNING**     **Danger to life through electric shock!**

⚡ DANGER TO LIFE!

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

– Immediately switch off the power supply and initiate repairs if the insulation is damaged.
– Work on the electrical system may only be performed by electricians.
– Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
– Always disconnect mains before performing cleaning and repair tasks.
– Keep moisture from live parts. Moisture may cause a short-circuit.

**⚠ CAUTION**     **Risk of stumbling posed by dirt, objects lying about and connecting lines!**

⚠ RISK OF INJURY!

Dirt, objects lying about and connecting lines for power, data- and signal lines may cause slipping and stumbling resulting in severe injuries.

Therefore:

– Always keep working area clean.
– Remove objects no longer required.
– Mark stumbling areas with yellow-black marking tape.
– Non tension connecting lines to system and pass it that no places of danger do arise

> **⚠ CAUTION**  **Edges and corners pose risk of injury!**
>
> ⚠ RISK OF INJURY!
>
> Sharp edges and pointed corners may cause abrasions and cuts to the skin.
>
> Therefore:
>
> – Be cautious when working near sharp edges and pointed corners.
> – If in doubt, wear protective gloves.

## Installation

Only an optimally aligned installation of the system can ensure a continuous operation with a low rate of failures and a minimum wear. For an optimized installation of the system, fine tunings adapted to environmental conditions are essential. For the fine tunings, a complex expert knowledge is required basing on experience with print technique.

The complexity of a wear-optimized installation requires a high measure of specialized knowledge and experience, which cannot be obtained completely by reading this manual. Therefore the installation of the print system must be made by a technician from your local distributor or examined by a final inspection. Damage or damages based on an incorrect installation, represent no case of warranty.

### Requirements to the Site of Installation

When choosing the installation location the following conditions apply:

- Consider the generally accepted ergonomic criteria in accordance with workplace ordinances as well as country-specific legislation.
- The installation location must be a dry and dust-free room, ideally with an ambient temperature of approx. 18…25 °C.
- The installation location may not be subject to fast temperature fluctuations (condensation!).
- Do not set up the controller directly next to or above hot surfaces, since this will affect cooling of the controller.
- If the controller is operated on a tripod (accessory), the stability of the tripod on an even foundation must be ensured.
- The controller may not be exposed to flammable, explosive, corrosive gases or chemical vapors.
- The controller may not be installed in the vicinity of high voltage equipment or power supplies.
- The controller may not be subjected to direct vibrations or shocks.
- Keep controller away from oil or water.
- The controller may not be exposed to strong magnetic or electric fields.

### Placing the Print System

- Look for good product guidance, so that the product can't damage the print head.
- The mounting position should be vibration-free, so that the print head can operate safely. Otherwise use a separate stand.
- The installation position has to provide sufficient access for user and service technician.
- Observe that all mounting parts are fixed sufficiently.
- Consider all points of the "Intended Use" in the chapter safety regulations.

To achieve a clean, sharp print result the distance from the product to be printed to the nozzle plate is important. The optimum distance is 0 to 4 mm between the deflector and the product. A greater distance will adversely affect the print result, particularly at high conveyor belt speeds.

The higher the print speed the shorter must be the distance. At speeds of less than 20 m/min a distance of up to 4 mm between the nozzle plate and the product may still be acceptable.

## Positioning the Print System

| NOTICE | **Material damage due to improper print system installation!** |
|---|---|

With the print system switched on, a defect may occur in the system electronics.

Therefore:

– Only install the system when it is switched off.
– Network cables only connect or disconnect if the power supply is dead voltage.

| NOTICE | **Possible material damages!** |
|---|---|

Product mounting rails prepared by the customer protect the system unit from vibrations and damage while the product is passing the system unit.

### Required Resources

- Setscrew wrench (Allen key®)

### Instruction

Please install the print system as follows:

| Step | Procedure |
|---|---|
| 1 | Attach mounting brackets to the production line. |
| 2 | Set the system holder plate and thumb nuts under the system unit on the screwed bolts. |
| 3 | Put the system unit on the mounting bracket. |
| 4 | Set the distance between the print head and the product surface. A distance of 0 to 4 mm is optimal (see Fig. 6-1). For top mounting the level must be set correct (see chapter Trident – print head module MX 100 / 50, page 34). |
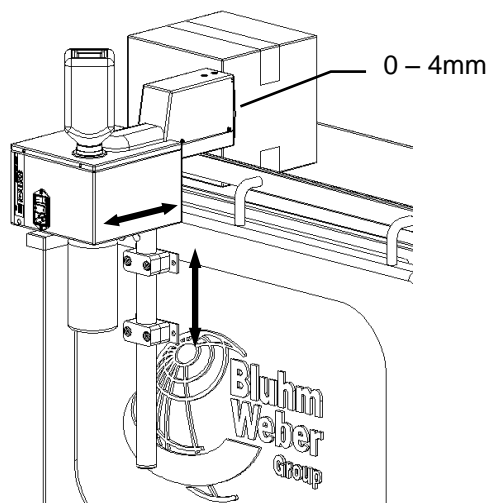


Fig. 6-1: Installation of the X1JET MX at the production line

| 5 | Lock the system unit by tightening the thumb nuts. |
|---|---|

## Connecting the Print System

| NOTICE | **Possible material damages!** |
|---|---|
| | To prevent faults due to potential differences, an electro-conductive connection between control unit and conveyor belt must be established. |

| NOTICE | **Material damage due to induced currents!** |
|---|---|
| | If the connection cables of the controller run close to high voltage or heavy current cables in the cable duct, induction may cause malfunctioning or damage. |
| | Therefore: |
| | – Lay all connection cables of the controller spatially separate from high voltage and heavy current cables. |

The Print system needs electricity for its functions. Please find more details in the chapter "Technical Data".
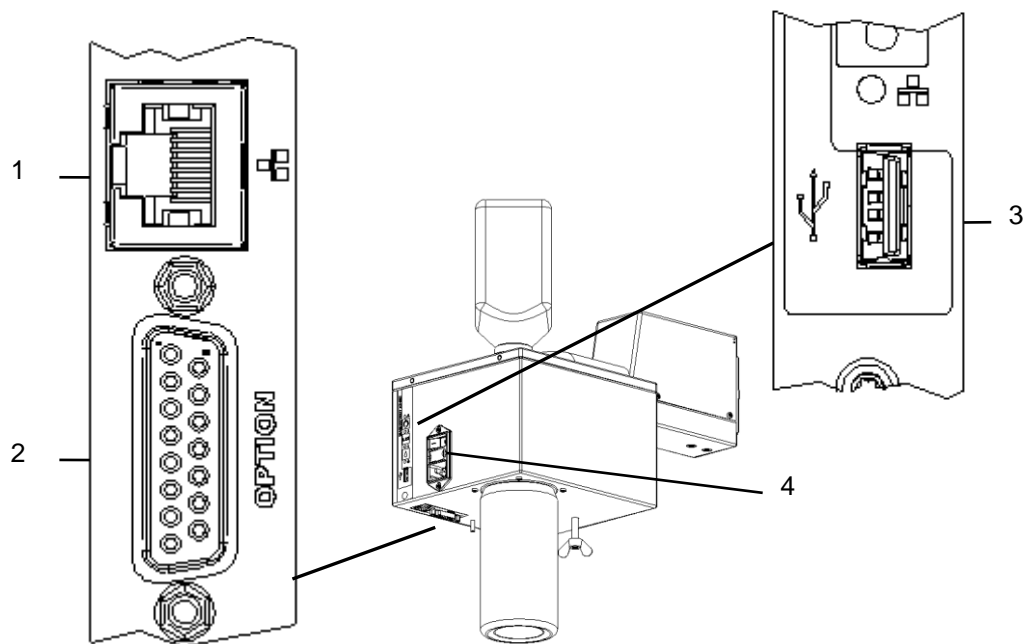
### Overview of the print system connectors



Fig. 6-2: Electrical connections

| No. | Description |
|---|---|
| 1 | ETHERNET |
| 2 | OPTIONS |
| 3 | USB-A |
| 4 | POWER SUPPLY |

**Connecting to Supply Voltage**

**Requirements**

- Power supply according to "Technical Data" is installed close (max. 1,5 m away) to the printing site.

**Instruction**

Please connect the print system with supply voltage as follows:

| Step | Procedure |
|------|-----------|
| 1 | Connect the power cable with the (IEC) socket at the Markoprint X1JET MX. |
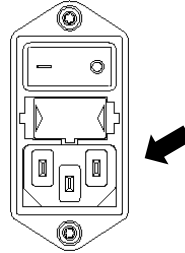


Abb. 6-3: Kaltgerätebuchse an der Systemeinheit

| | |
|------|-----------|
| 2 | Connect the power cable with the power supply. |

**Connecting the optional Shaft Encoder**

**If more options will be used simultaneously, a splitter-box (Art.-No.: 72900545) can used.**

**Requirements**

- The optional shaft encoder is mounted at the production line.
- Ideally runs the measuring wheel of the shaft encoder on the conveyor belt, near the print system.

**Instruction**
Please connect the optional shaft encoder with the print system as follows:

| Step | Procedure |
|------|-----------|
| 1 | If necessary install the optional shaft encoder on the production line and connect it to the option-connection socket. |
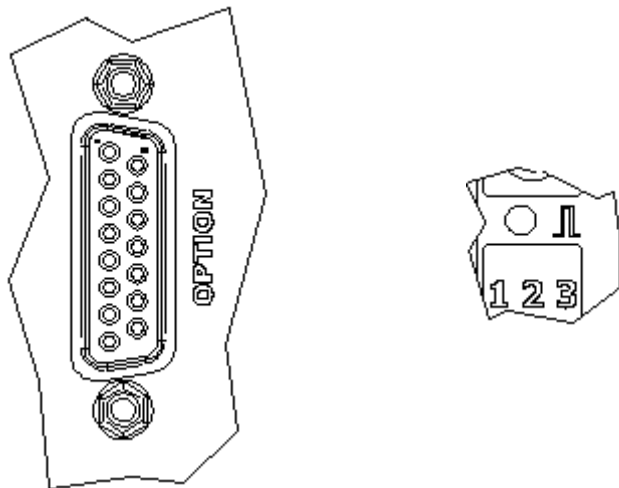


Fig. 6-4: Option-Socket (Sub-D 15-pole) on the system-back and Sensor-LED on the top side of the system

| Step | Procedure |
|------|-----------|
| 2 | Set the system-clock to Shaft encoder by the iDesign software. (System settings – Print parameter) |
| 3 | Set the shaft encoder resolution by the iDesign software. 600 dpi with the delivered shaft encoder from Weber. (System settings – Print Parameter) |
| 4 | Set the divider of the shaft encoder by the iDesign software so, that the desired effective resolution can be reached. (System settings – Print parameter) |
| 5 | The Sensor / Encoder LED lights red, if the shaft encoder isn't connected or doesn't rotate. |

**Connecting the optional Product Sensor**

**If more options will be used simultaneously, a splitter-box (Art.-No.: 72900545) can used.**

**Requirements**

- The optional shaft encoder is mounted at the production line.
- The sensor is mounted in product running direction, near the Markoprint X1JET MX.
- Between the sensor and the nozzle plate is maximum a product, because another print activation is otherwise ignored

**Instruction**
Please connect the optional product sensor with the print system as follows:

| Step | Procedure |
|------|-----------|
| 1 | If necessary install the optional shaft encoder on the production line and connect it to the option-connection socket. |
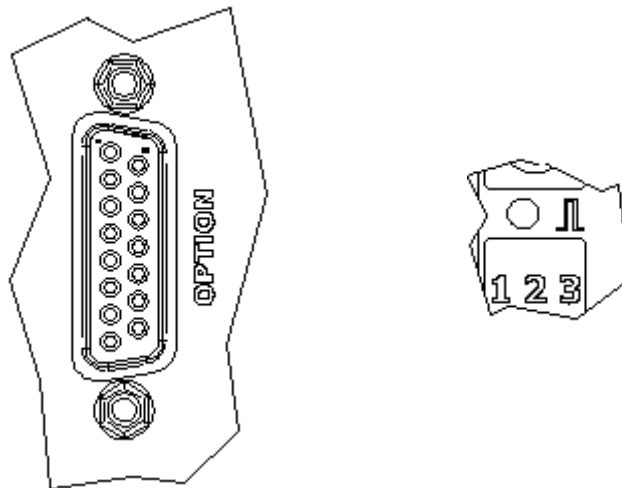


Fig. 6-5: Option-Socket (Sub-D 15-pole) on the system-back and Sensor-LED on the top side of the system

| | |
|------|-----------|
| 2 | Set the sensor input of the system to External by the iDesign software. (System settings – Advanced settings - Periphery) |
| 3 | The Sensor LED lights green with print activation from product identification to the end of the print. |
| 4 | If no print image is loaded, the Sensor LED lights yellow as long as the sensor is covered. |

**Connection to a network**

A RJ-45-connection allows a connection of the print system to the customer LAN (Local Aera Network).
The LED on the top of the system lights green if a network is available. The LED flashes yellow with data communication.

**Instruction**
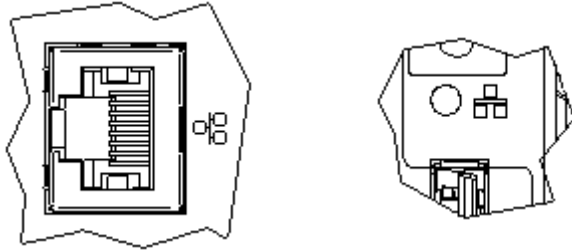Please connect the print system with the network as follows:

| Step | Procedure |
|------|-----------|
| 1 | If required connect the print system to the network by a RJ45 socket. |

Fig. 6-6: Ethernet-socket (RJ 45) on the system-back and network LED on the top side of the system.

| Step | Procedure |
|------|-----------|
| 2 | Set the desired IP address by the iDesign software. (System settings – System Config – IP-Address) |
| 3 | Add the system in the iDesign software to operate it by the iDesign software. (Connections – Add system – Enter name and IP address) |

**Each IP address can place in a network once only. Otherwise there is an address conflict and the system can't address. Please contact your system administrator.**

**Inserting Trident Ink bottle**

| | |
|---|---|
| **NOTICE** | **Material damages due to misuse!** |

A over fitting of the ink bottle can damage the Trident ink reservoir.

Therefore:

–   Tighten the ink bottle only lightly (like you would a light bulb, for example).

**Use the ink bottle as soon as possible after having removed the protective foil.**

**Instruction**

Please insert the Trident ink bottle in the print head as follows:

| Step | Procedure |
|---|---|
| 1 | Pleas remove the plastic cover of the ink system. |
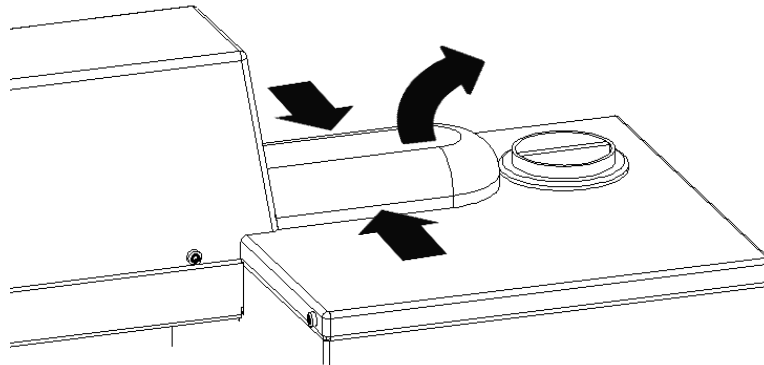


Fig. 6-7: open the ink cover

| | |
|---|---|
| 2 | Open th plastic cap for the vent hole.. |
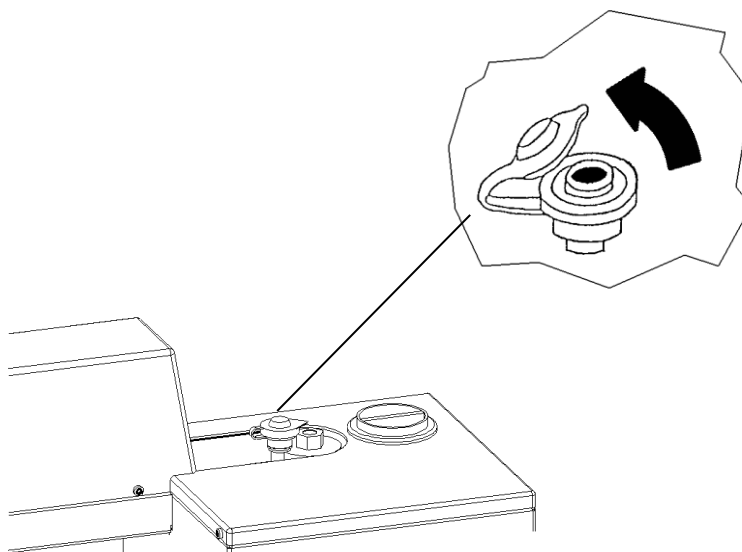


Fig. 6-8: open the vent cap

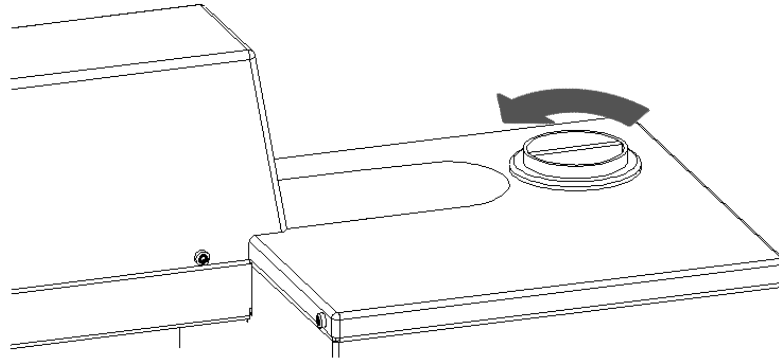| 3 | Unscrew the large protecting cover of the ink system. Wipe it clean and store it in a save place. |
|---|---|



Fig. 6-9: Unscrew the protecting cover

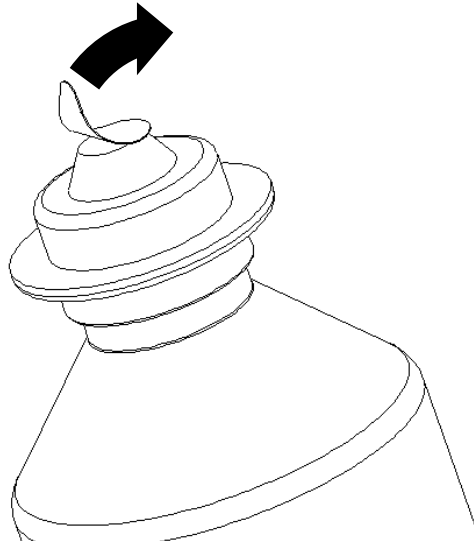| 4 | Make sure that the red O-ring is in the bottle opening of the ink tank. |
|---|---|
| 5 | Then remove the protective foil from the screw thread of the ink bottle. |



Abb. 6-10: remove the protective foil

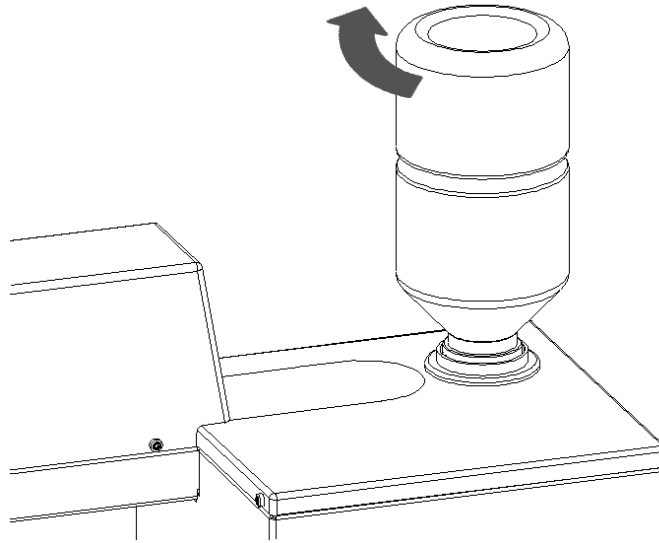| 6 | Screw the bottle into the reservoir opening. Not stronger than a light bulb. Avoid tilting the thread |

Fig. 6-11: screw the bottle into thr reservoir

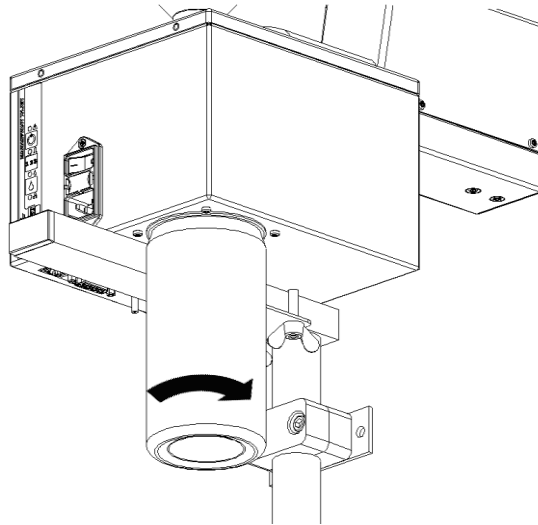| 7 | Make sure that the remaining ink tank is properly screwed at the underside of the system. |

Abb. 6-12: Insert the waste tank

**Bleeding the MX print head**

| | |
|---|---|
| **NOTICE** | **Material damage due to ink leavings!** |
| | It can come to undesirable contamination of the environment by squirting ink during the purging of the MX print head. |

Bleed the system before the initial operation.

If the [ON-/OFF]-button and the [INK]- button will be pressed more than 20 seconds, the vacuum pump runs continuously to bleed the print head. Therefore the nozzle plate should be closed with the head clamp to rinse the ink in a circulation.
The pump stops pumping after 30 sec. automatically.

**Instruction**
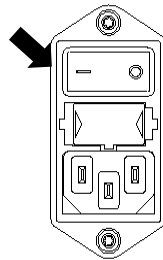Please bleed the MX print head as follows:

| Step | Procedure |
|---|---|
| 1 | Switch the system on. |



Fig. 6-13: Switch the system on

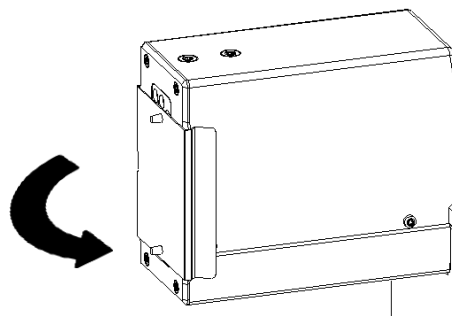| | |
|---|---|
| 2 | Put the locking clamp on the nozzle plate. |



Fig. 6-14: Put the locking clamp on

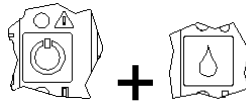| | |
|---|---|
| 3 | Press the [ON-/OFF]-button and the [INK]-button and hold them pressed for approximately 30 seconds. ATTENTION, ink may leak out of the nozzle plate of the print head. |

| Step | Procedure |
|------|-----------|



Fig. 6-15: Bleed the nozzles

| Step | Procedure |
|------|-----------|
| 4 | Remove the locking clamp from the nozzle plate and store it in a convenient place. |
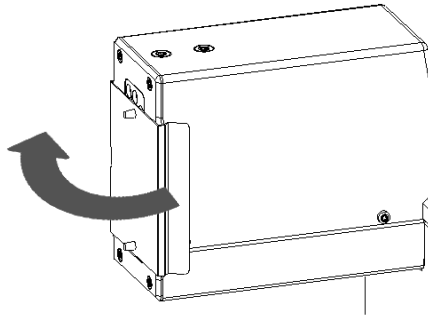


Fig. 6-16: Remove the locking clamp

## Rinsing the MX print head

| | |
|---|---|
| **NOTICE** | **Material damage due to ink leavings!** |
| | Rinsing of the MX-Top print head results increased ink consumption and can lead to undesirable contamination of the environment. |
| | Therefore: |
| | – Secure the environment against leaking ink. |
| | – Afterwards wipe the nozzle plate once with a lint-free cloth |

Rinse the system before the initial operation.

With a short push on the [ON-/OFF]-button and the [INK]-button it happen a flush run, the vacuum pump of the maintenance station runs to suck off the ink rests. The vacuum pump runs after approximately 1 sec. shortly to rinse ink, air and dust from the nozzles. Afterwards the vacuum pump runs approximately 10 sec. to suck off the ink rests completely.

**Instruction**
Please rinse the MX print head as follows:

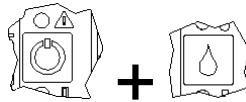| Step | Procedure |
|---|---|
| 1 | Press the [ON-/OFF]-button and the [INK]-button. |



Fig. 6-17: Rinse the nozzles

**After rinsing, a test print should be done. If the print result is not satisfactory, repeat steps bleeding and rinsing.**

# 7. Operation

## User interface of the print system

**LED STATUS**
● **GREEN:** O.K.
**Flashing:** Standby
● **YELLOW:** Printstop
**Flashing:** Read/Write USB-data transfer
● **RED:** Failure print head not identified
**Flashing:** If the text selection is confirmed by pressing the **ON-/OFF-BUTTON**
**Flashing:** Fast = USB failure

**LED SENSOR**
● **GREEN:** Print
● **YELLOW:** Photo sensor activation without data
● **RED:** No shaft encoder signal
**Flashing:** Shaft encoder too fast
**OFF:** No print signal

**LED INK**
● **GREEN:** O.K.
● **YELLOW:** Ink below 5%
● **RED:** Ink empty

**LED NETWORK**
● **GREEN:** Connected
● **YELLOW:** Network activation
● **RED:** Network failure
**OFF:** No network connected

**ON-/OFF-BUTTON**
Short: Print start / Print stop
Short: Text selection confirmation
Long: (>10 Sec.) Standby-mode
Short: Switch on the Off Standby-mode

**ON-/OFF-BUTTON**
**+**
**INK-BUTTON**
activate the purge process

**SELECTION-BUTTON**

1 x short: Selection print image 1
2 x short: Selection print image 2
3 x short: Selection print image 3
…
9 x short: Selection print image 9

Confirm the text selection within 5 sec.by a short pressing the **ON-/OFF-BUTTON**

Up to 9 print images can be saved. If more often pressed than print images are in the memory, the last print image in the memory will be selected.

**SELECTION-BUTTON**
**+ ON/OFF-BUTTON**
increases the start delay +1mm

**SELECTION-BUTTON**
**+ INK-BUTTON**
decreases the start delay -1mm

**INK-BUTTON**
Short: Test print (The last loaded image will be print once)

Long: (>5 sec.) Reset ink level

**INK_BUTTON**
**+**
**ON-/OFF-BUTTON**
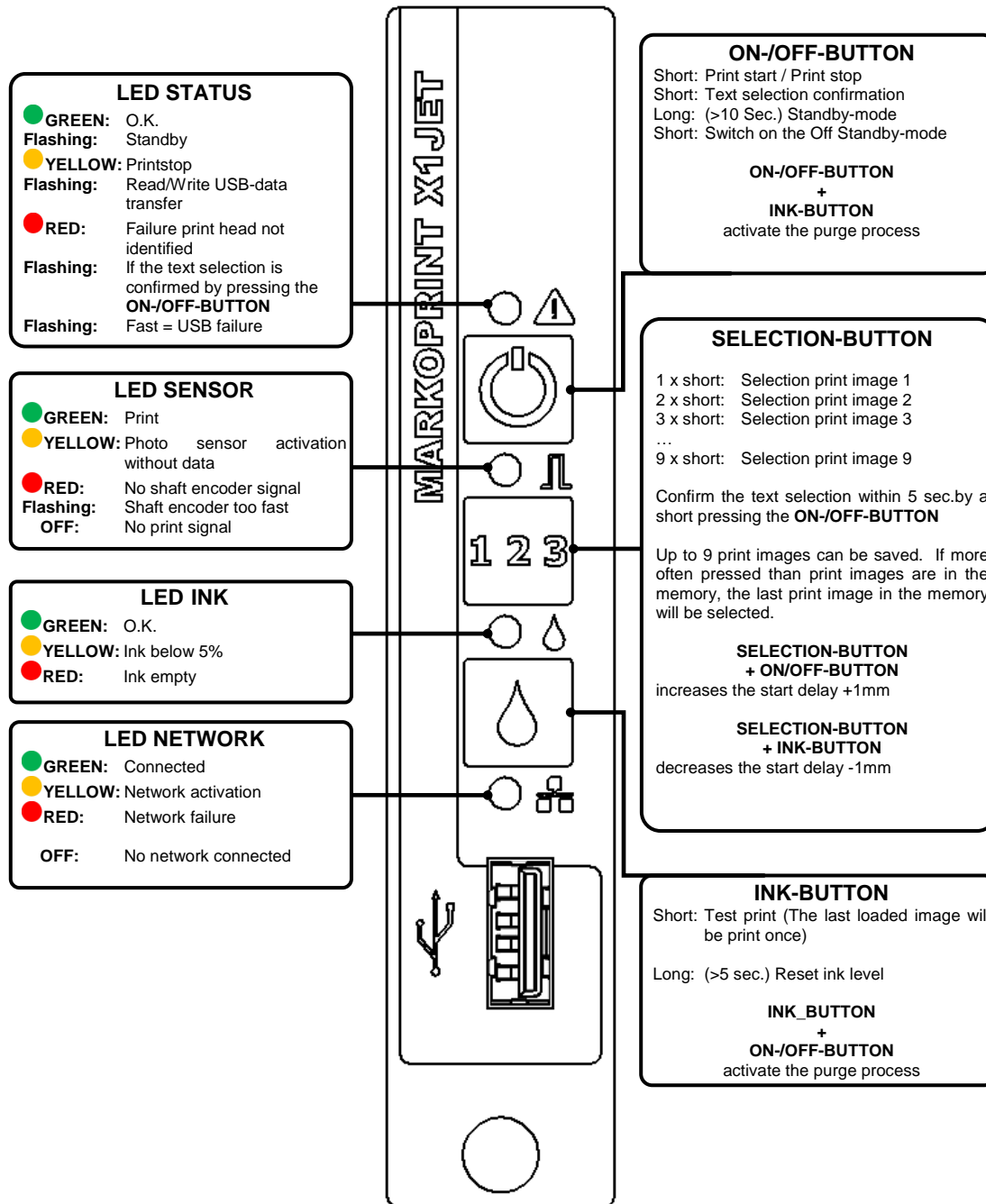activate the purge process

Fig. 7-1: User interface on the back of the system

**When starting the system unit the progress of the starting process can be monitored on the LED's. If errors occur during booting, an error code is transmitted via the LED's and can be analyzed in more detail.**
→ *Chapter* Boot-LED messages*, Page* 84

## Switching ON

### Requirements

- The print system is connected with power.

### Instruction

Please switch the print system on as follows:

| Step | Procedure |
|------|-----------|
| 1 | Set the switch from 0 to I on the back of the device. |
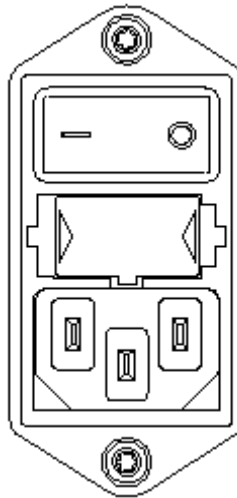


Fig. 7-2: ON-/OFF-BUTTON on the top of the system

| Step | Procedure |
|------|-----------|
| 2 | The controller must conduct a self-test and briefly indicates the unit version number after the company logo has passed through the display. After approx. 20 seconds the status menu-1 appears on the display. |
| 3 | The print head is heated and ready to print after approx. 2-5 min depending on the ink type and environmental temperature. |

## Switching OFF

### Requirements

- The print system is connected with power and switched on.

### Instruction

Please switch the print system off as follows:

| Step | Procedure |
|------|-----------|
| 1 | Set the switch from I to 0 on the back of the device. |

| Step | Procedure |
| --- | --- |
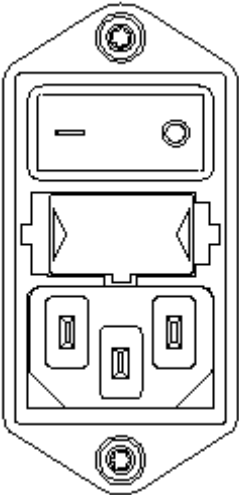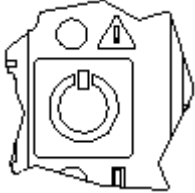


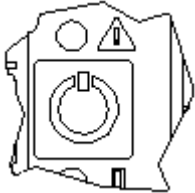Fig. 7-3: ON-/OFF-BUTTON on the back of the system

## Print Stop

### Instruction

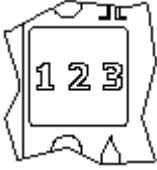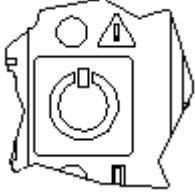Please activate a Print Stop / a Print Pause as follows:

| Step | Procedure |
| --- | --- |
| 1 | Presses once short the [ON-/OFF]-Button on the back side of the print system. |



Fig. 7-4: ON-/OFF-BUTTON on the back of the system

| | |
| --- | --- |
| 2 | The Power LED lights yellow on print stop. |

## Print Start

### Instruction

Please activate a Print Start as follows:

| Step | Procedure |
| --- | --- |
| 1 | Presses once short the [ON-/OFF]-Button on the back side of the print system. |



Fig. 7-5: ON-/OFF-BUTTON on the back of the system

| | |
| --- | --- |
| 2 | The Power LED lights green with successful print activation. |

## Select Print Image

Up to nine print images can be saved in the memory of the Markoprint X1JET MX for a direct call up at the system unit.

### Instruction

Please select a print image as follows:

| Step | Procedure |
| --- | --- |
| 1 | To select the saved print image, ranks third, press the [SELECT]-Button three times short. |



Fig. 7-6: SELECT-BUTTON on the back of the system

| Step | Procedure |
| --- | --- |
| 2 | To confirm the text selection pressing the [ON-/OFF]-Button within 5 seconds. |



Fig. 7-7: ON-/OFF-BUTTON on the back of the system

| Step | Procedure |
| --- | --- |
| 3 | After pressing the [ON-/OFF]-Button, the selected text is confirmed with the flashing STATUS LED. I.e. if text 3 is selected, the STATUS LED flashes three times. |



Fig. 7-8: Status-LED on the back of the system

| Step | Procedure |
| --- | --- |
| 4 | The print images 1.00J to 9.00J can selected for printing in this way. |

## Loading Print Image

Print Images can load to the Markoprint X1JET MX print system as follows:

- USB-Stick
- Software iDesign with existing network connection via RJ45 or
- By serial interface EIA 232

Load print images incl. fonts, logos and parameter with a USB-stick automatically.

The files can load to a USB-stick by iDesign.

After the connection of a USB stick an automatic run of commands will be made to query the system status.
At the same time a directory „Markoprint" and a subdirectory with the name of the serial number of the system, i.e. „L12003-x1" will be created in the main directory of the USB stick. There will be saved all system specific data.
The stick must be connected once on the system to post this information, so that the iDesign software can work with the system after that.

The transfer of the data and commands happen by the **Markoprint X1JET MX** directly after the connection of the stick. After this the „Status.ast" file is created.

### Process:
After the connection and identification of the stick, the data will be read from the stick and the Status LED flashes quickly meanwhile (4x/second)
Thereafter, data written on the stick and the Status LED flashes slowly meanwhile (2x/second)
If the LED lights constant, the stick can removed after 2 seconds.

### Load print image with a USB-Stick

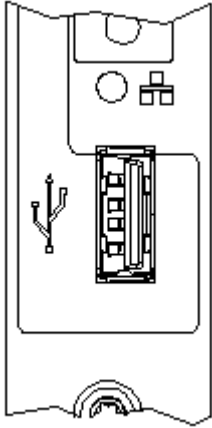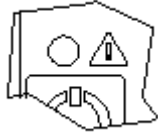### Needed tools
- USB-Stick

### Requirements
- The used USB stick was connected for a Initialization to the Markoprint X1JET MX print system.
- The print image, created with the iDesign Software, is transferred to the USB stick.

### Instruction
Please load the print image from the USB-Stick to the memory of the Markoprint X1JET MX print system:

| Step | Procedure |
|------|-----------|
| 1 | Connect the USB-Stick to the USB-socket on the back of the print system. |

| Step | Procedure |
|------|-----------|

Fig. 7-9: USB-A socket on the back of the system

| 2 | Wait until the data exchange is completed. The STATUS LED flashes during the data exchange and lights constant after finishing. |
|---|---|

Fig. 7-10: STATUS-LED on the top of the system

| 3 | Remove the USB-Stick from the print system (2 seconds after the LED flashes constantly). |
|---|---|

**If the USB-stick is removed early or during data transfer, it can happens a data loss.**

## To set the print start delay

It's possible to change the print start delay at the system with a key combination.

### Instruction

Please set the print start delay at the system as follows:

| Step | Procedure |
|------|-----------|
| 1 | Press the [SELECT]-Button and the [ON-/OFF]-Button to increase the print start delay. |
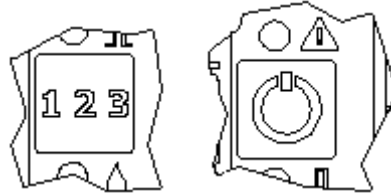


Fig. 7-11: SELECT-BUTTON and ON-/OFF BUTTON

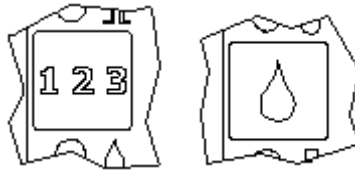| Step | Procedure |
|------|-----------|
| 2 | The delay increase by 1 mm each time the button is pressed. |
| 3 | Press the [SELECT]-Button and [INK]-Button to decrease the print start delay. |



Fig. 7-12: SELECT-BUTTON and INK-BUTTON

| Step | Procedure |
|------|-----------|
| 4 | The delay decrease by 1 mm each time the button is pressed. |

## Loading Print Image with iDesign

### Requirements

- The Markoprint X1JET MX print system is connected with the iDesign Software by a network or serial interface.

### Instruction

Please load a print image from iDesign to the memory of the Markoprint X1JET MX print system as follows:

| Step | Procedure |
|------|-----------|
| 1 | Select the menu Functions on the left side of iDesign |
| 2 | If several print systems are connected with the iDesign software, click on the illustration of the corresponding print system which shall be selected. |
| 3 | Click on the button [Print]. |
| 4 | Select the desired directory by pressing the directory button. The print images, saved in iDesign can be found in the directory C:\user\public\iDesign\label standard. |
| 5 | Click to select the desired print image. The selected print image is shown in the preview. |
| 6 | Click on the button [Print] to print the selected print image. A window with "Print start ok" is shortly shown for the confirmation. |
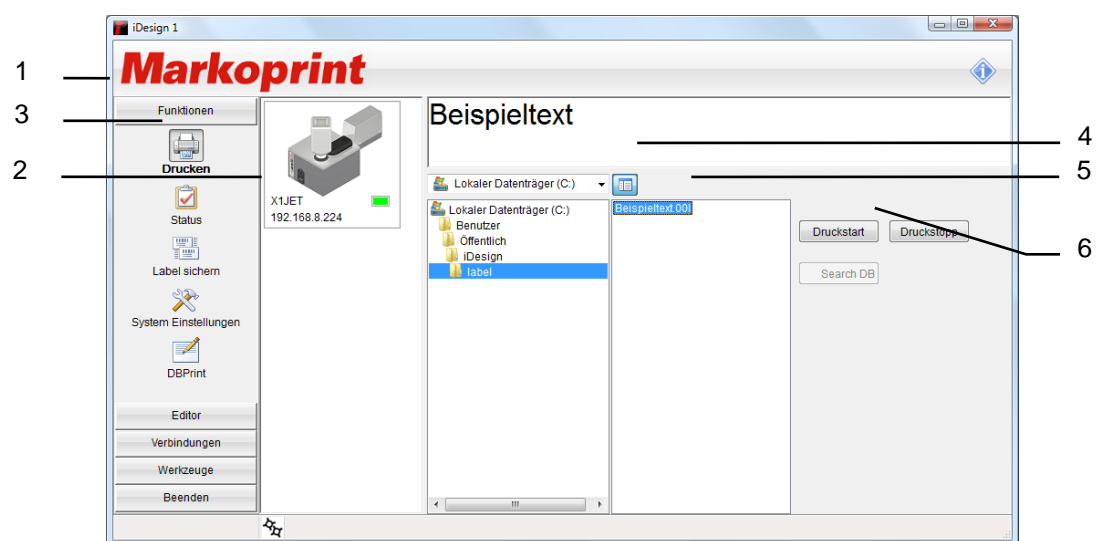


Fig. 7-13: Print image selection in iDesign

## Setting of the parameter by iDesign software, i.e. Print Start Delay

The print start delay can be set in this menu, i.e. by how much is printing delayed in millimeters after the product is detected by the light barrier.
The delay can be selected between 0 and 999 millimeters.
The print start delay relates to the beginning of the print layout.

### Requirements

- The Markoprint X1JET MX print system is connected with the iDesign software via a network or serial interface.

### Instruction

Please set the print start delay via the iDesign software as follows:

| Step | Procedure |
|------|-----------|
| 1 | Select the menu Functions on the left side of iDesign. |
| 2 | If several print systems are connected with the iDesign software, click on the illustration of the corresponding print system which shall be selected. |
| 3 | Click on the button [System Settings]. |
| 4 | Click on the menu slide „Print parameter" to call up the corresponding menu. |
| 5 | Set up the print start delay by click on the arrow keys or by input via keypad. |
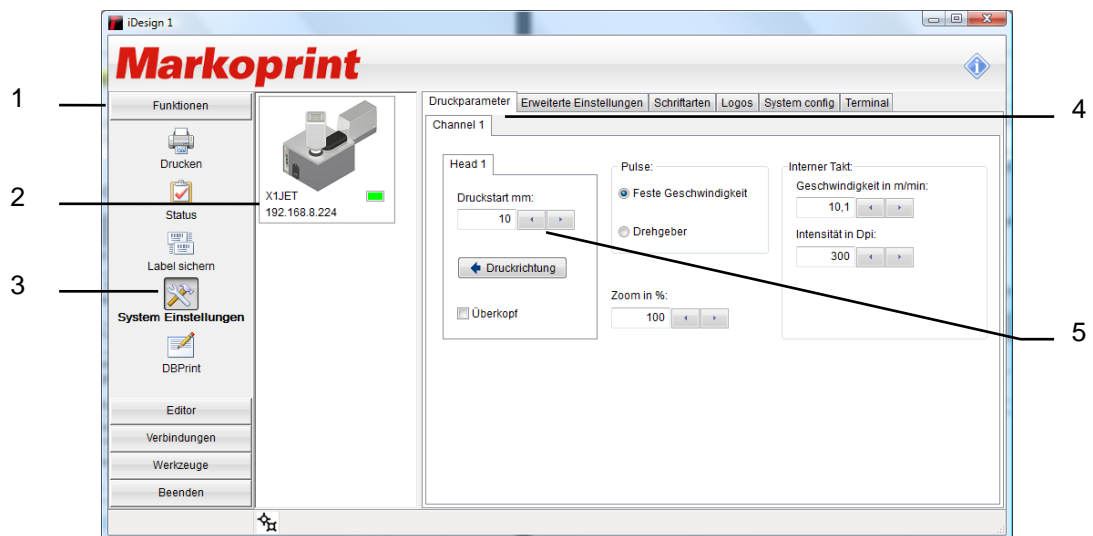


Fig. 7-14: Set up the print start delay in iDesign

## Rinsing and bleeding the MX print head

| **NOTICE** | **Material damage due to ink leavings!** |
|---|---|
| | Rinsing of the MX-Top print head results increased ink consumption and can lead to undesirable contamination of the environment. |
| | Therefore: |
| | – Secure the environment against leaking ink. |
| | – Afterwards wipe the nozzle plate once with a lint-free cloth |

**Rinsing:**

There are no moving parts in the print head requiring regular maintenance.
However, for printing onto outer packaging (e.g. cartons, trays, sacks, etc.) it must be expected that dust and fibre particles carried along are freed and adhere to the nozzle plate of the print head. Over a period of time, this can lead to a worsening of the print quality.

**Instruction**

Please rinse the print head as follows:

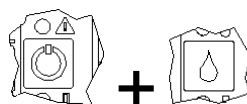| Step | Procedure |
|---|---|
| 1 | Press the [ON / OFF]-button and the [INK]-button. |



Fig. 7-15: Rinse the nozzles

With a short push on both buttons it happen a flush run, the vacuum pump of the maintenance station runs to suck off the ink rests. The vacuum pump runs after ca. 1 sec. shortly to rinse ink, air and dust from the nozzles, afterwards the vacuum pump runs approximately 10 sec. to suck off the ink rests completely.

**Bleeding:**

**Instruction**
Please bleed the MX print head as follows:

| Step | Procedure |
|---|---|
| 1 | Switch the system on. |

| Step | Procedure |
|------|-----------|
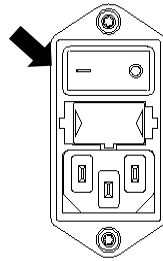


Fig. 7-16: Switch the system on

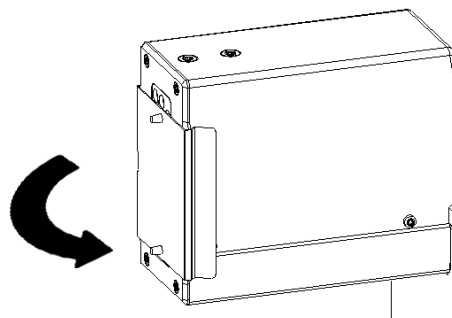| 2 | Put the locking clamp on the nozzle plate. |
|------|-----------|



Fig. 7-17: Put the locking clamp on

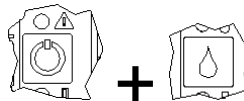| 3 | Press the [ON-/OFF]-button and the [INK]-button and hold them pressed for approximately 30 seconds. ATTENTION, ink may leak out of the nozzle plate of the print head. |
|------|-----------|



Fig. 7-18: Bleed the nozzles

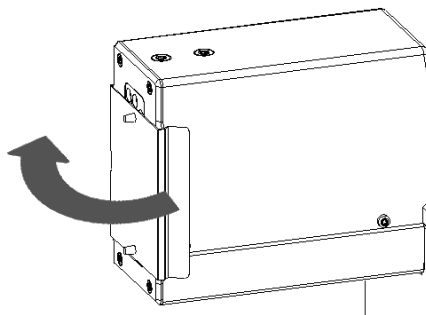| 3 | Remove the locking clamp from the nozzle plate and store it in a convenient place. |
|------|-----------|



Fig. 7-19: Remove the locking clamp

If the [ON-/OFF]-button and the [INK]-button are pressed for more than 10 seconds, the vacuum pump runs continuously to bleed the print head. Therefore the nozzle plate should be closed with the head clamp to rinse the ink in a circulation.

The pump runs as long as the buttons are pressed.
The pump stops pumping after 10 sec. automatically.

**If the contamination is too stubborn and cannot be removed by the rinsing procedure, return the unit to our factory for expert cleaning. Please note that this constitutes a service which entails costs, even during the warranty period.**
**If the normal unit environment is constantly subject to large dust accumulation, we recommend having the unit cleaned at the factory in regular intervals of once or twice per year.**

**Web-Interface**

There is the option to make settings on the Markoprint X1JET MX by the Web browser via a PC, which is connected with Markoprint X1JET MX.
On this the IP of the respective system has to be entered in the address bar of the Web browser.

You maybe need further settings on the PC to have access to the IP-address. (system administrator)

In the WEB interface are not all possibilities available at the moment!
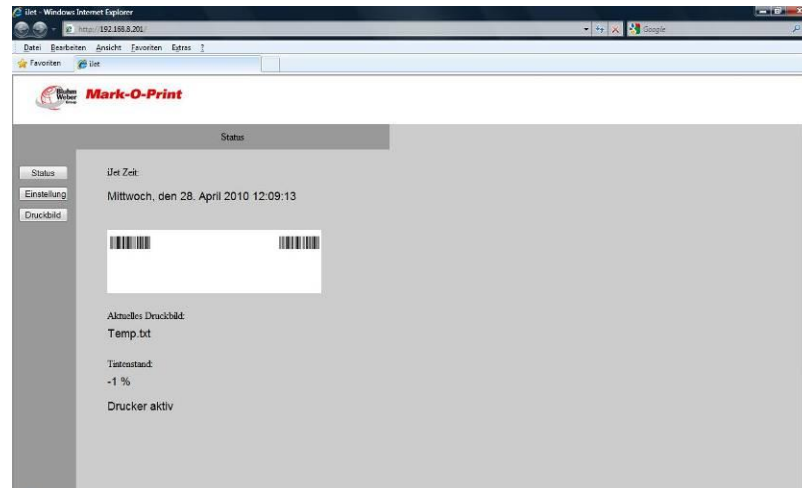


Fig. 7-20: User interface Web-Interface

To set up the parameters, please enter the username and a password.

Username:      user
Password:      1234

If you cannot change the parameters, the functions are not unlock, i.e. HiSpeed in the Advanced version.

Layouts can't be created with the WEB interface.

## Configurable In-/Outputs

| NOTICE | **Material damage due to short-circuit or over voltage!** |
|---|---|
| | The outputs are open Collector outputs and may load with max. 100 mA. |

The **Markoprint X1JET MX** has at the 15-pole option socket two in- and four outputs. A variety of configurations are possible and so the connectors for output of status messages (OK, Warning, Error), ink level messages (5% low / empty), print ready and print pulse are possible to use. On the input side signals for heating, spitting, print direction, upside print, stop and text selection are possible.

The texts for input 1 must be called „!EXT00.00J" and „!EXT01.00J" with an external text selection by the inputs. The texts „!EXT00.00J" to „!EXT03.00J" can be assigned if both inputs are used.

The setting can be done with iDesign Software in *Functions → System settings → Advanced settings* or via Web-Browser in *Settings → Advanced settings*.
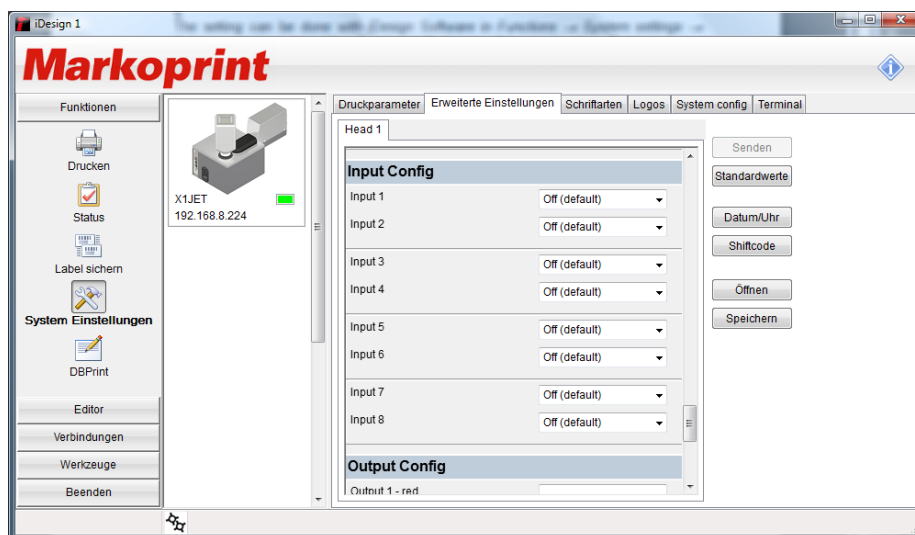


Fig. 7-21: User interface Software iDesign

## Settings by iDesign software

Following print parameter can set up with the iDesign software (Note the instructions of the provided iDesign software manual):

- Print start delay
- Print direction
- Overhead
- Zoom

- Fixed speed
- Speed (Only adjustable if fixed speed is adjusted)
- Intensity (Only adjustable if fixed speed is adjusted)

- Shaft encoder
- Shaft encoder resolution (only adjustable if shaft encoder is adjusted)
- Shaft encoder divider (only adjustable if shaft encoder is adjusted)
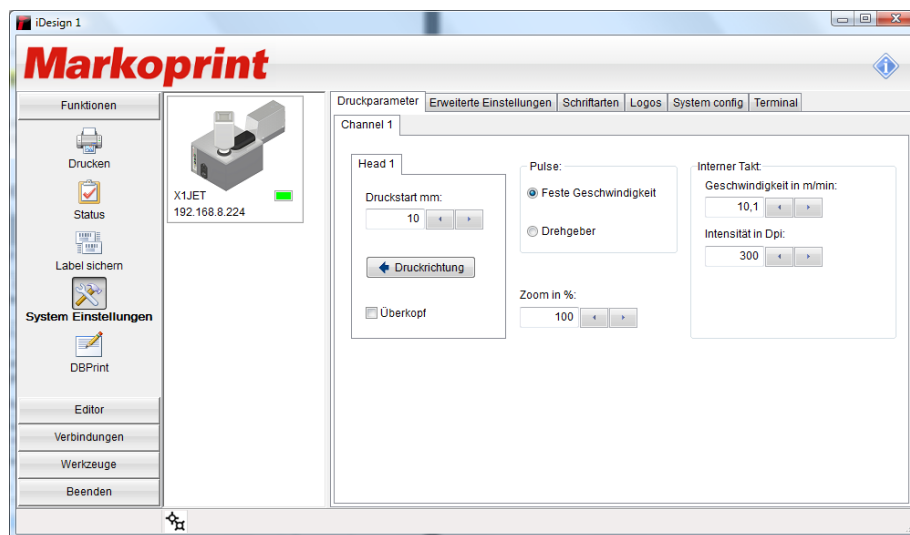


Fig. 7-18: Set print parameter by iDesign

# 8. iDesign

## Create a print image

No print images can be created on the X1JET HP system unit itself.
Print images can be created and processed with the iDesign software stored on the USB stick. For this purpose, this must be installed on a commercially available PC (follow the enclosed iDesign operating instructions).

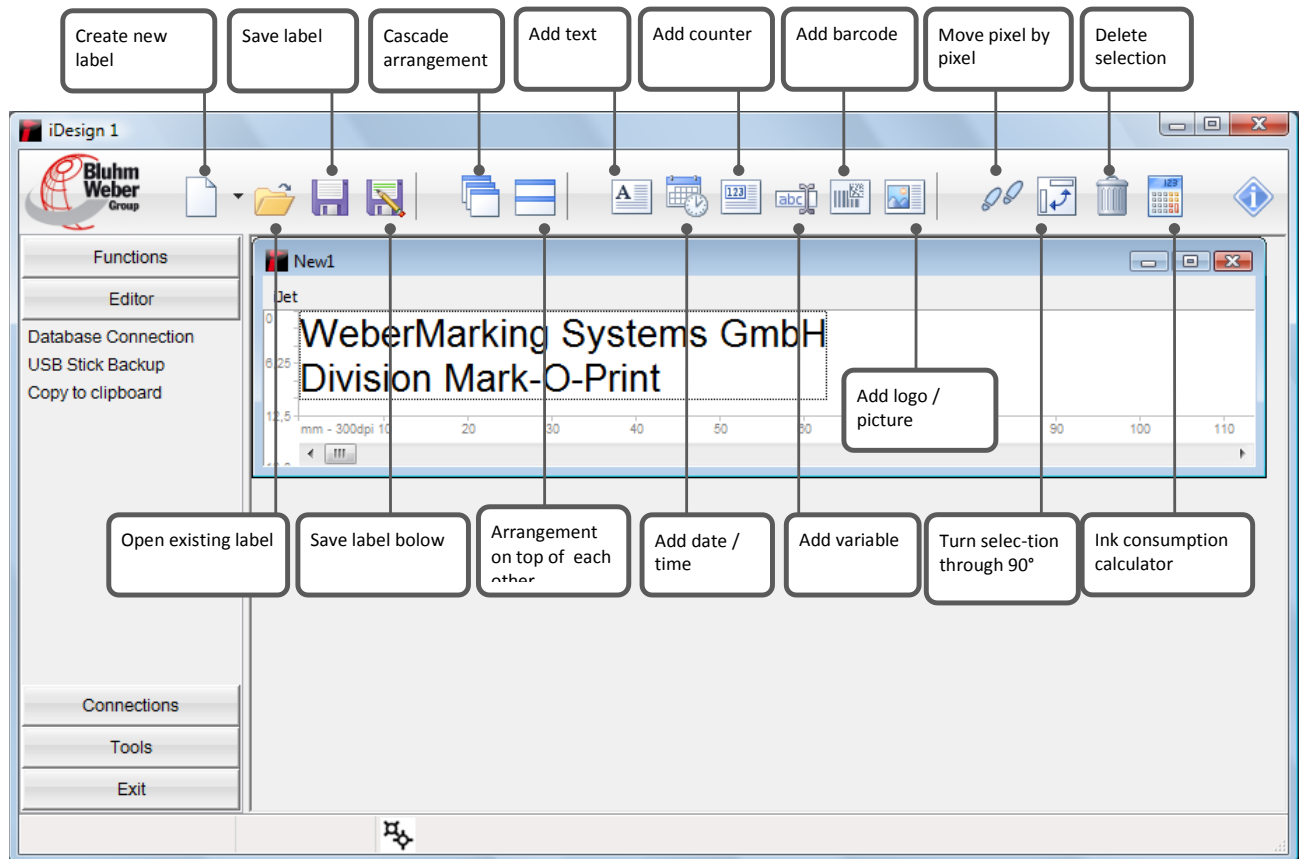The diagram below shows the operating surface of the iDesign software

Fig. 8-1: User interface Editor iDesign Software

# 9. Faults

The following chapter describes possible causes of malfunctions and how to remedy these.

In case of frequent faults, reduce the service intervals depending on the actual work load.

**Please contact your local distributor with regard to faults that cannot be remedied with the information provided below.**

### Safety

#### Staff

- The fault remediation work described here, unless specified otherwise, can be performed by the operator.
- Some tasks may only be performed by specially trained specialized staff or exclusively by the manufacturer; this is specifically pointed out in the description of the individual faults.
- Work on the electrical system may only be performed by electricians.

| ⚠ WARNING | **Danger to life through electric shock!** |
|---|---|
| | ⚡ DANGER TO LIFE! |
| | Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal. |
| | Therefore: |
| | – Immediately switch off the power supply and initiate repairs if the insulation is damaged. |
| | – Work on the electrical system may only be performed by electricians. |
| | – Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off. |
| | – Always disconnect mains before performing cleaning and repair tasks. |
| | – Keep moisture from live parts. Moisture may cause a short-circuit. |

**⚠ CAUTION**     **Risk of injury by improper fault remediation!**

⚠ WARNING!

Improper fault remediation may cause severe injury to persons, or material damage.

Therefore:

–   Ensure adequate working space before starting any work.
–   Keep the working area clean and tidy! Loosely stacked or scattered components and tools are potential causes of accidents.

## Trouble shooting tasks

| Disorder | Possible cause | Troubleshooting | Recovered by |
|---|---|---|---|
| Fine gaps in the print image followed by satellite drops | Paper dust in the nozzle orifices | Run a purging cycle and carefully wipe the print head clean. If this is unsuccessful, send the print head in for cleaning | Electrician |
| Weak and blurred print | Distance between print head and object too large - reduce distance to 1-3 mm | Control unit configured incorrectly in menu Settings - System configuration - Head driver | Qualified person |
| Thick white stripes within the printed text | Air behind nozzle plate | Carry out purging process and wipe carefully | Instructed person |
| The print head does not print at all | Head voltage failure / the print head is not being heated | Check cable and electronic board connections | Electrician |
| | When printing is initiated, the head generates the typical, slightly chirping noise, but no print appears | Air has entered all ink channels. Carry out a purging process | Instructed person |
| | No start pulse | Check photo sensor connection (LED pulse) | Electrician |
| | Start signal too early or late, relative to the print object | Adjust delay in the print parameter menu | Instructed person |
| | Failure in the electronics of the print head or on the printed circuit board in the control box | Send print head in for repair | Manufacturer |
| Ink escaping from head | Incorrect level setting when using a TOP head | No horizontal installation Air in system - remove air from tubes/head | Instructed person |
| Print is too small / too large | Check used and loaded fonts. | All fonts used in the text must be loaded in the system – IDESIGN Font Manager | Instructed person |
| Jagged type face | Incorrect print speed setting | Check speed setting (intensity setting on rotary encoder) | Instructed person |

# 10. Disassembly

When end of the useful life expires, the system must be disassembled and disposed in an environmentally-friendly manner.

**Safety**

### Staff

**⚠ WARNING**  **Danger to life through electric shock!**

⚡ DANGER TO LIFE!

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

– Immediately switch off the power supply and initiate repairs if the insulation is damaged.

– Work on the electrical system may only be performed by electricians.

– Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.

– Always disconnect mains before performing cleaning and repair tasks.

– Keep moisture from live parts. Moisture may cause a short-circuit.

**⚠ CAUTION**  **Risk of injury caused by improper disassembly!**

⚡ WARNING!

Stored residual energy, sharp-edged components, points and corners on and inside the apparatus or on the required tools may cause injuries.

Therefore:

– Ensure adequate space before starting any work.

– Handle exposed sharp-edged components with care.

– Keep the work area clean and tidy! Loosely stacked or scattered components and tools are potential causes of accidents.

– Secure components to prevent falling down or falling over.

– Consult the manufacturer if uncertain.

- Disassembly may only be performed by specially trained specialized staff.

- Work on the electrical system may only be performed by electricians.

## Disassembly of a MX print head

| **NOTICE** | **Material damage due to incorrect disposal!**<br><br>Electronic components are destroyed if allowed to come into contact with escaping ink.<br>Therefore:<br><br>– Close the ink systems before disposal carefully.<br><br>– Remove the waste tank, empty it and clean the rest and screw it back in position. |
| --- | --- |

**Instruction**

Please disassemble the MX print head as follows:

| Step | Procedure |
| --- | --- |
| 1 | Switch off the device. |
| 2 | Close the print head with the cleaned locking clamp. |
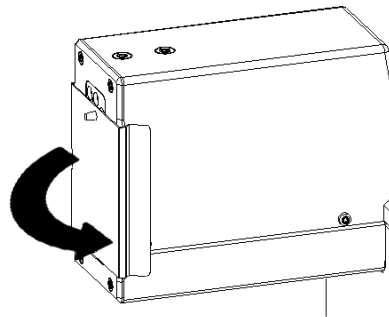


Fig.: 10-1: put the nozzle protection cover back in position.
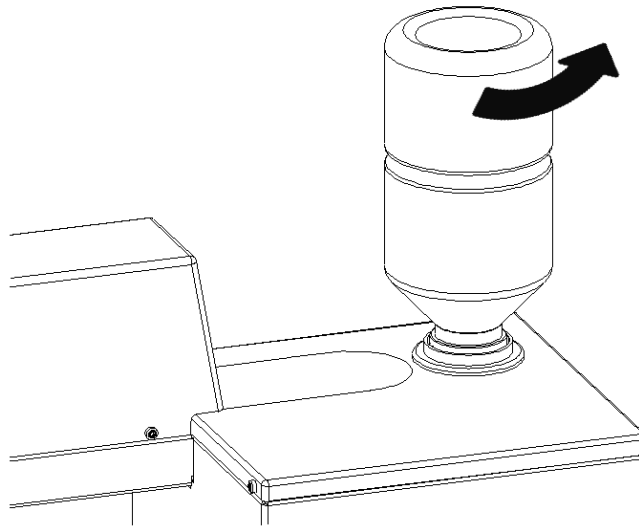
| 3 | Remove the ink bottle. |
|---|---|

Fig. 10-2: remove ink bottle

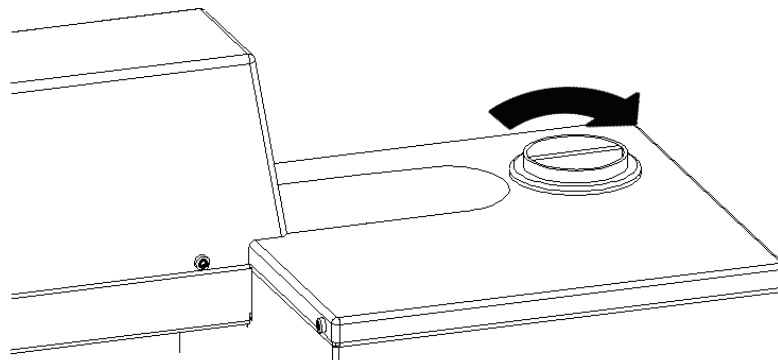| 4 | Check whether the red sealing ring is present. |
|---|---|
| 5 | Place the red sealing ring into the opening of the ink container and close it with the screw cap. |

Fig. 10-3: Close screw cap

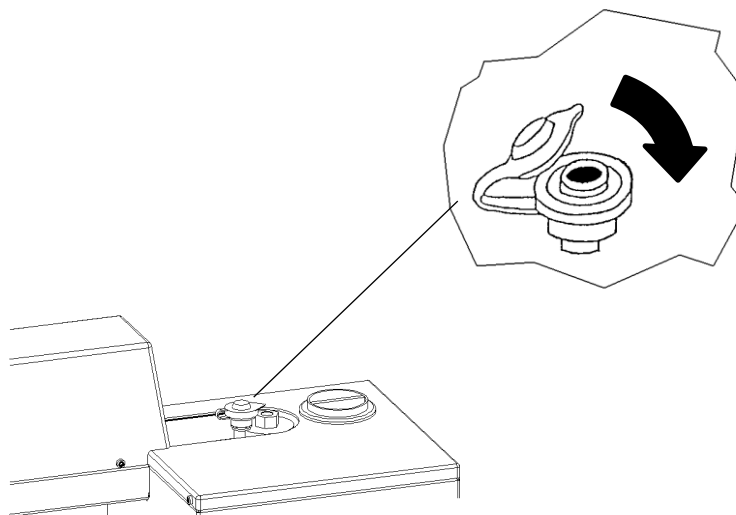| 6 | Close ventilation opening with the plastic cap. |
|---|---|

Fig.10-4: Close vent cap

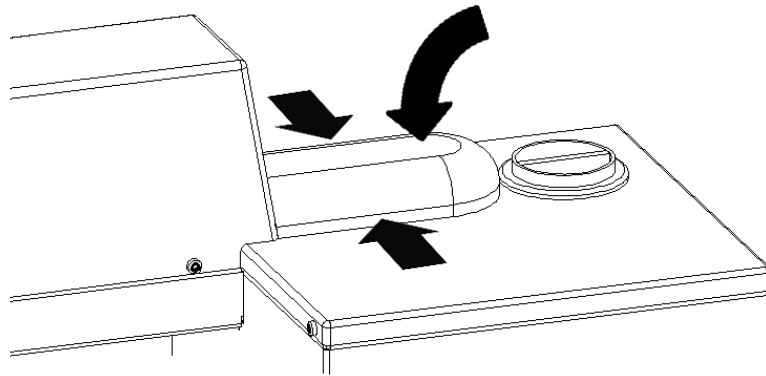| 7 | Put the plastic cover back in position |

Fig. 10-5: put on the plastic cover
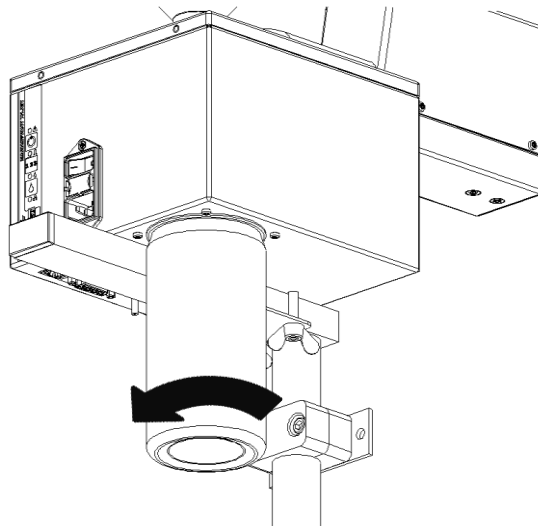
| 8 | Remove the waste bottle. |

Fig. 10-6: Remove waste bottle

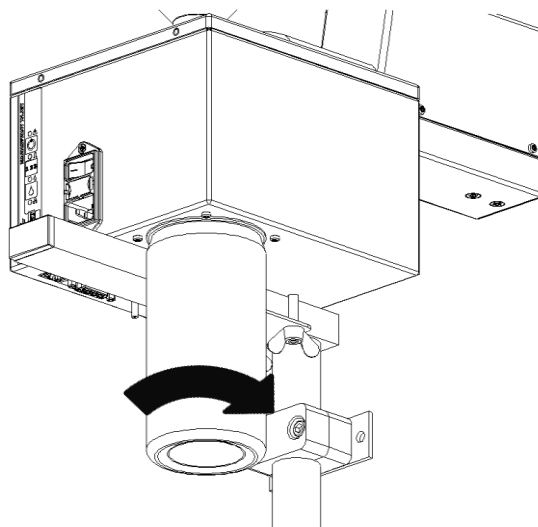| 9 | Clean the waste bottle. |
| 10 | Screw the waste bottle back in position.. |

Fig. 10-7: Screw the waste bottle

| 11 | Disassemble the system and pack it carefully. |
|----|-----------------------------------------------|

**To prevent damage during transportation, choose a box with adequate padding. Leave a gap of at least 5cm between unit and box for filling with absorbent and impact-absorbing filling.**
**Please do not pack unit in plastic bag.**
**Because any escaped ink cannot be soaked up, it spreads over the whole unit causing damage.**

**The resulting damage and cleaning overhead unnecessarily increase repair costs.**

**For best possible transportation, original packaging is available from Weber Marking Systems for this system.**

## Disposal

| **NOTICE** | **Environmental damage due to incorrect disposal!** |
|---|---|
| | Electrical scrap, electronic components, lubricants and other auxiliary materials are subject to hazardous waste treatment regulations and may only be disposed of by approved specialized companies! |

Unless return or disposal agreements were made, submit disassembled components for recycling:

- Scrap metals.
- Submit plastic components for recycling.
- Dispose of other components according to material composition.

The local municipal authorities or specialized disposal companies provide information on environmentally compatible disposal.
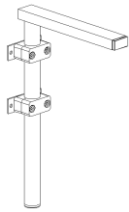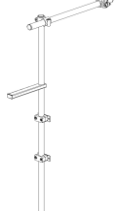
# 11. List of Accessories and Spare parts
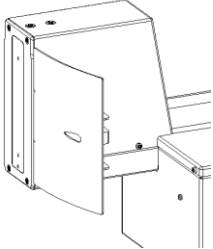
<table>
<tr>
<td><strong>NOTICE</strong></td>
<td><strong>Safety hazard due to incorrect spare parts!</strong><br><br>Incorrect or faulty spare parts may affect safety and cause damage, malfunctions or failure.<br>Therefore:<br>–   Only use original spare parts from the manufacturer.</td>
</tr>
</table>

Procure spare parts via contracted dealers or directly from the manufacturer.

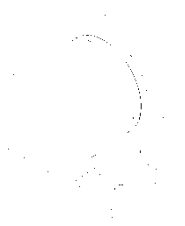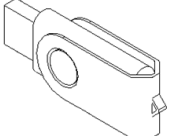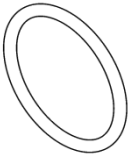| Pos. | Figure | Assembly | Description | Order no. |
|------|--------|----------|-------------|-----------|
| 1 | | Mounting bracket Compact | For a fixing on a conveyor from the side. | 71800027 |
| 2 | | Mounting bracket Top | For a fixing on a conveyor from the top. | 71800029 |
| 3 | | Light barrier NPN, 10…30V DC Standard M8 | including 5.0 m connecting cable and universal holder | 72800002 |
| 4 | | Protection plate with sensor | Incl. connecting cable M8 – 15pin SUB-D connector for X1JET MX 100 Compact | 71800121 |
| 5 | | Shaft encoder Spring arm holder | Push-pull output, 5,000 pulses/rev, with spring arm and friction wheel optimized to 600 dpi, including mounting holder and connecting cable M12 Splitter cable necessary | 72801042 |
| 6 | | Rotary encoder Angle holder | Push-pull output, 5,000 pulses/rev., with angle holder, friction wheel and connecting cable M12 Splitter cable necessary | 72801041 |
| 7 | | USB-data stick | Version 1 | 72901203 |
| 8 | | Measuring wheel | Measuring wheel with O-ring for shaft encoder, optimized for 600 dpi | 72900454 |

| Pos. | Figure | Assembly | Description | Order no. |
|------|--------|----------|-------------|-----------|
| **9** |  | O-Ring | O-Ring for encoder measuring wheel (600 dpi) Dimensions: 55x5; NBR | 72900455 |
| **1ß** | | Splitter cable | Splitter cable for the connection of more than 2 options. Alarm, RS232, Sensor, Encoder | 72900545 |

# 12.  Appendix

## Software-Update

### Software-update with USB-Stick

### Requirements

- The program directories „HMI", „Html" and „SYSTEM" are copied in the main directory of an empty USB-stick.
- The **Markoprint X1JET MX** is not connected to the power supply.

### Instruction

Please proceed the software-update as follows:

| Step | Procedure |
|------|-----------|
| 1 | Connect the Markoprint X1JET MX with the power supply and press the [Ink]-button simultaneously and press it as long as the Sensor LED flashes green/red. |
| 2 | Connect the USB-stick in the USB socket on the top side of the system. |
| 3 | The Sensor LED flashes yellow/red if the program is load. |
| 4 | Confirm by pressing the start-button and wait until the system is restart. |
| 5 | Remove now the USB-stick. |

## Software-Upgrade

A software upgrade with costs is comfortably possible via the Weber Marking Partner Portal
Please contact you distributor for a software upgrade.

**You can find a detailed instruction of the software upgrade below the search key „Configuration upgrade" in the Wiki of Weber Marking Partner Portal.**

## Current software version

| Status | Date | Reason for change |
|--------|------|-------------------|
| 1.001a | 01.11.2012 | |

## USB-Stick files

Following files are saved on the USB-stick:

- iDesign-Software
- Manual X1JET
- Manual iDesign Software
- Leaflet

The required files for software updates:

- HMI-directory
- HTML-directory
- System-directory

### Directory structure:

| *Markoprint* | *L12003-x1* | Status.ast | |
|---|---|---|---|
| | *L12004-x1* | Status.ast | |
| | | Command.ast | |
| | | Result.ast | |
| | | Log.txt | |
| | | *Label* | 1.00J |
| | | | 2.00J |
| | | *Fonts* | A4mm.ft3 |
| | | | A6mm.ft3 |
| | | *Logos* | Cow.bmp |
| | | | HP.bmp |

| - Global.ast | Is only executed if no Command.ast exists for the system. |
|---|---|
| - Result.ast | Result of Global.ast |

The 9 print images which can call up with the keys: 1.00J to 9.00J.

## Boot-LED messages

During booting of the system progress can be determined by means of the LED.
If the system stops during booting the cause can be determined by means of the LED.
FC means flashing. An error can be determined on the basis of the number of flashes.

| Status-LED ⚠ | Sensor-LED ⎍ | Description |
|---|---|---|
| 🟡 ye | 🟡 ye | Boot BF-Intern |
| 🔴 rd | — | Write 64MB memory |
| — | 🔴 rd | Read/invert 64MB memory |
| 🟡 ye | — | Read/test 64MB memory |
| — | 🟡 ye | Test ok / Load BootMain from SPI |
| 🟡 ye | 🔴 rd | Programming and start of BootMain |
| — | — | BootMain initialization |
| 🔴 rd | 🔴 rd | Fatal error |
| 🔴 rd | FC: 🔴 rd | Boot-error 4x = SPI; 5x = GA; 6x = Displ; 7x = SD-Card; 8x = USB; 9x = RTC; 10x = Task |
| 🔴 rd | FC: 🟢 gn | Init-error 1x = Dev; 2x = FS; 3x= UsrCl |
| 🟡 ge | 🟢 gn | Read SD-Card |
| 🟡 ye | 🔴 rd / 🟢 gn | Wait for Stick |
| 🟡 ye | 🔴 rd / — | No boot data |
| 🟡 ye | 🟡 ye / 🟢 gn | Booting of stick? |
| 🟡 ye | 🟡 ye / 🔴 rd | Copying of stick? |
| 🟡 ye | 🟢 gn / — | Copy Ok |
| 🟢 gn | — | Main program loaded and started |

## Plug connections

### Ethernet

**Connection**
Network input RJ 45 on the back side of the system.

| PIN | Description |
|---|---|
| 1 | Transmit+ |
| 2 | Transmit- |
| 3 | Receive+ |
| 6 | Receive- |

### USB A

The USB sockets are standard sockets, as used in commercial PCs and USB devices. Insert the USB-stick without force effect normal to the top side of the system in the USB socket.

| PIN | Name | Color | Description |
|---|---|---|---|
| 1 | VCC | Red | +5 V |
| 2 | D- | White | Data - |
| 3 | D+ | Green | Data + |
| 4 | GND | Black | Mass |

**Option**

**Option socket:** 15 pol Sub-D connector

| PIN | Description | Value | Unit |
|---|---|---|---|
| 1 | GND | 0 | V |
| 2 | Output 1 (OK) | Open Collector, max 24V / 100mA | |
| 3 | Input 1 | Input Standard: NPN | |
| 4 | Input 2 | Input Standard: NPN | |
| 5 | Output 3 | Open Collector, max 24V / 100mA | |
| 6 | Output 4 | Open Collector, max 24V / 100mA | |
| 7 | EIA 232 | TXD | |
| 8 | GND | 0 | V |
| 9 | Output 2 (Error) | Open Collector, max 24V / 100mA | |
| 10 | Start pulse | Input Standard: NPN | |
| 11 | Shaft encoder | Input Standard: NPN | |
| 12 | Not used | | |
| 13 | Not used | | |
| 14 | EIA 232 | RXD | |
| 15 | Power | +12 | V |

**Splitterkable (72900545)**

Pin connection:

| 15 pol Sub-D-Connector | 9pol Sub-D-Connector (EIA232) |
|---|---|
| PIN 7 | PIN 3 |
| PIN 14 | PIN 2 |
| PIN 8 | PIN 5 |

| 15 pol Sub-D-Connector | 4pol M12 Socket (Encoder) |
|---|---|
| PIN 8 | PIN 3 |
| PIN 11 | PIN 4 |
| PIN 15 | PIN 1 |

| 15 pol Sub-D-Connector | 4pol M12 Socket (Sensor) |
|---|---|
| PIN 8 | PIN 3 |

| PIN 10 | PIN 4 |
| PIN 15 | PIN 1 |

| 15 pol Sub-D-Connector | 15 pol Sub-D Socket (Alarm I/O) |
| --- | --- |
| PIN 1 | PIN 1 |
| PIN 2 | PIN 2 |
| PIN 3 | PIN 3 |
| PIN 4 | PIN 4 |
| PIN 5 | PIN 5 |
| PIN 6 | PIN 6 |
| PIN 8 | PIN 8 |
| PIN 9 | PIN 9 |
| PIN 10 | PIN 10 |
| PIN 11 | PIN 11 |
| PIN 15 | PIN 15 |

**Sensors**

**Sensor input:**
**Standard:** NPN (switching to GND)
**Voltage:** 12V (10-30V)
**Threshold level:** 7V

**Encoder**

**Encoder input:**
**Standard:** Push-pull or NPN (switching to GND)
**Voltage:** 12V (10-30V)
**Threshold level:** 7V
**Frequency:** Max. 150 kHz

**Mac address**

The MAC address of the respective Markoprint X1JET MX can be seen on the name plate of the system. In addition, the Mac address can be seen in the iDesign software.

**Instruction**

Please see the MAC address by the iDesign software as follows:

| Step | Procedure |
|------|-----------|
| 1 | Select the menu Functions on the left side of the iDesign software. |
| 2 | If several print systems are connected with the iDesign software, click on the illustration of the corresponding print system which shall be selected. |
| 3 | Click on the button [System Settings]. |
| 4 | Click on the menu slide „System Config" to call up the corresponding menu. |
| 5 | The MAC address can be seen in the corresponding line. |
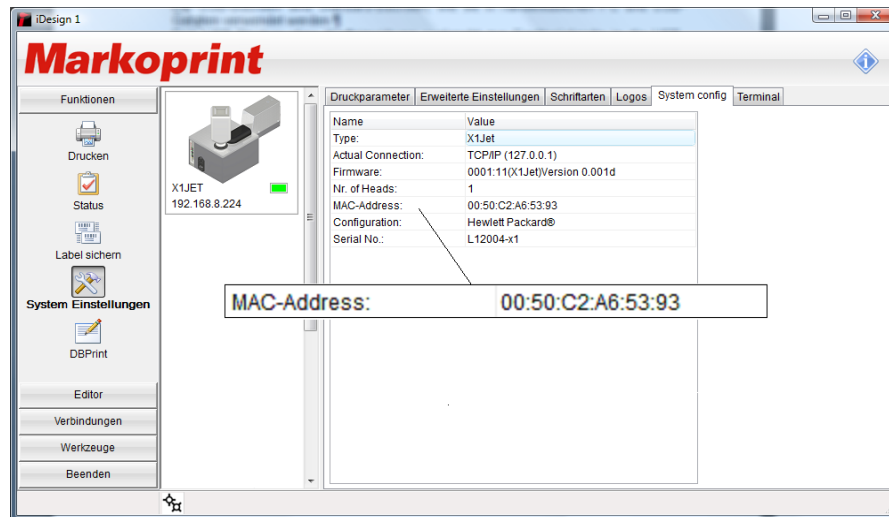


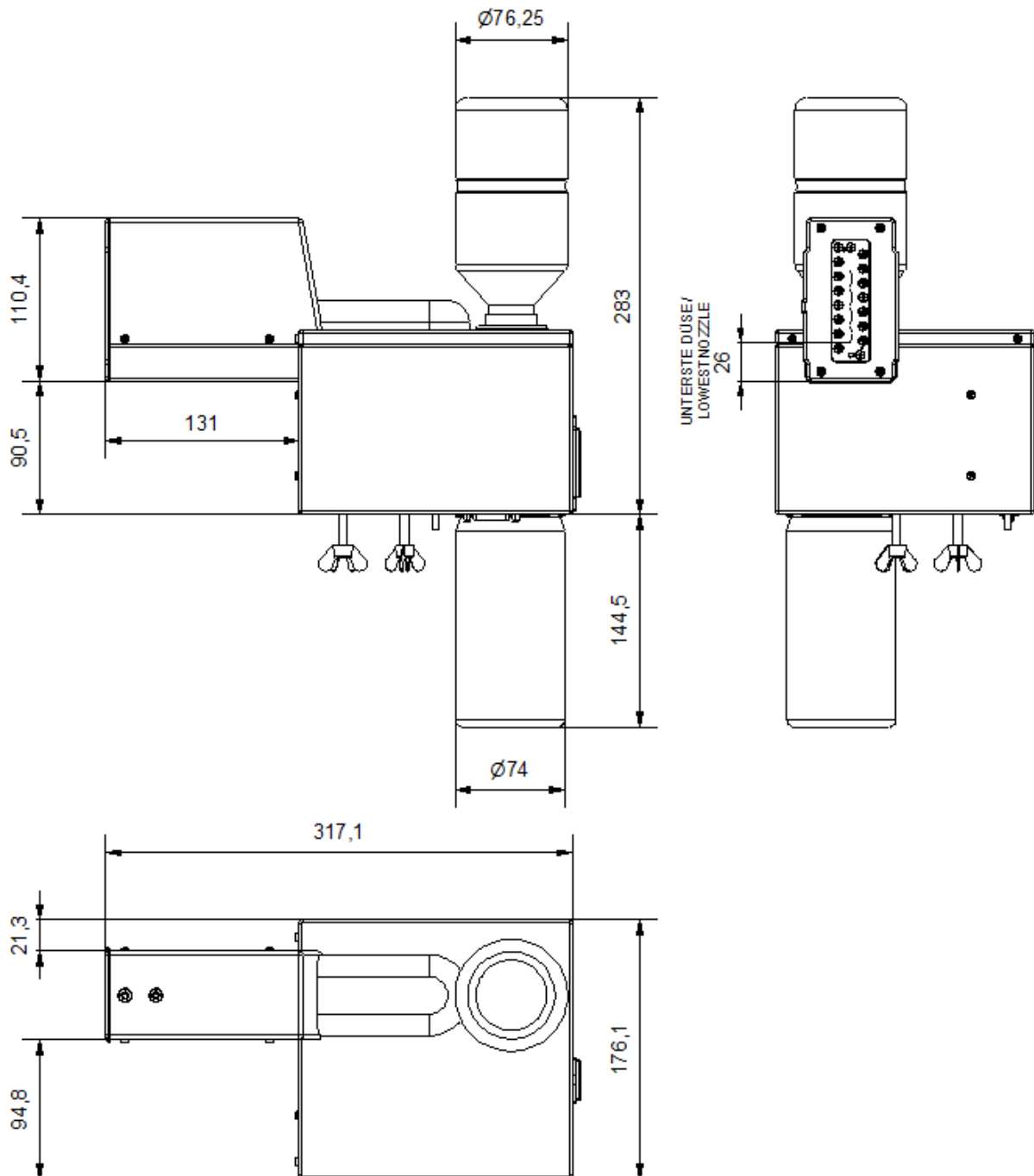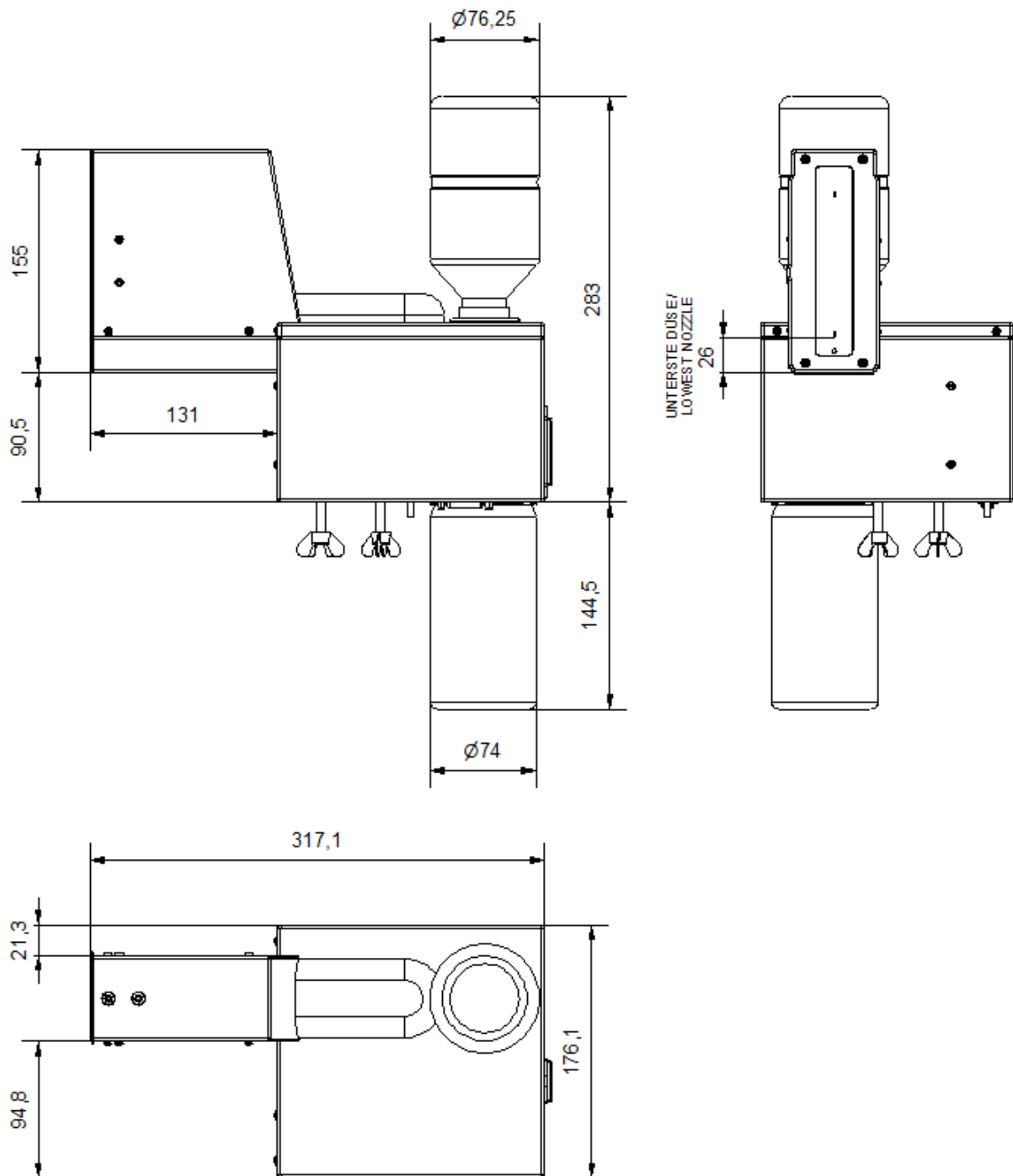Fig. 12-1: iDesign System Config

| Range from: | To: |
|-------------|-----|
| 00:50:C2:A6:50:00 | 00:50:C2:A6:5F:FF |

## Technical Drawings

### System unit X1JET MX 50 Compact

## System unit X1JET MX 100 Compact

Ø76,25

155

90,5

131

283

144,5

Ø74

UNTERSTE DÜSE/
LOWEST NOZZLE

26

317,1

21,3

176,1

94,8

## System unit X1JET MX 50 Vario

Ø76,25

283

144,72

110

92,5

144,5

Ø74

UNTERSTE DÜSE/
LOWEST NOZZLE

26

330,82

28,61

102,3

176,1
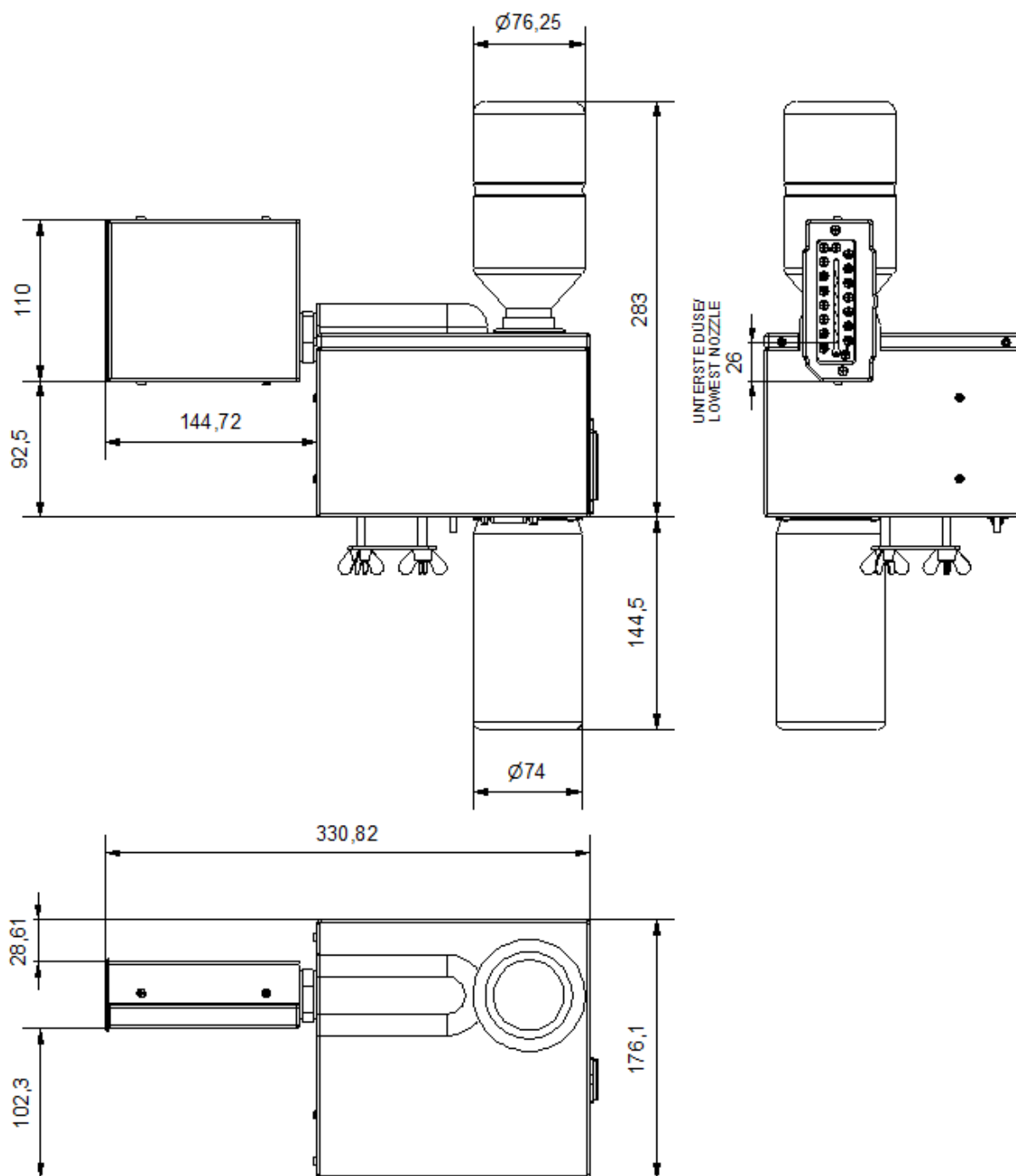
## System unit X1JET MX 50 Compact with mounting bracket

VARIABEL/
VARIABLE
0 - 360

103,5

20

Ø7

381

72,5

Ø30
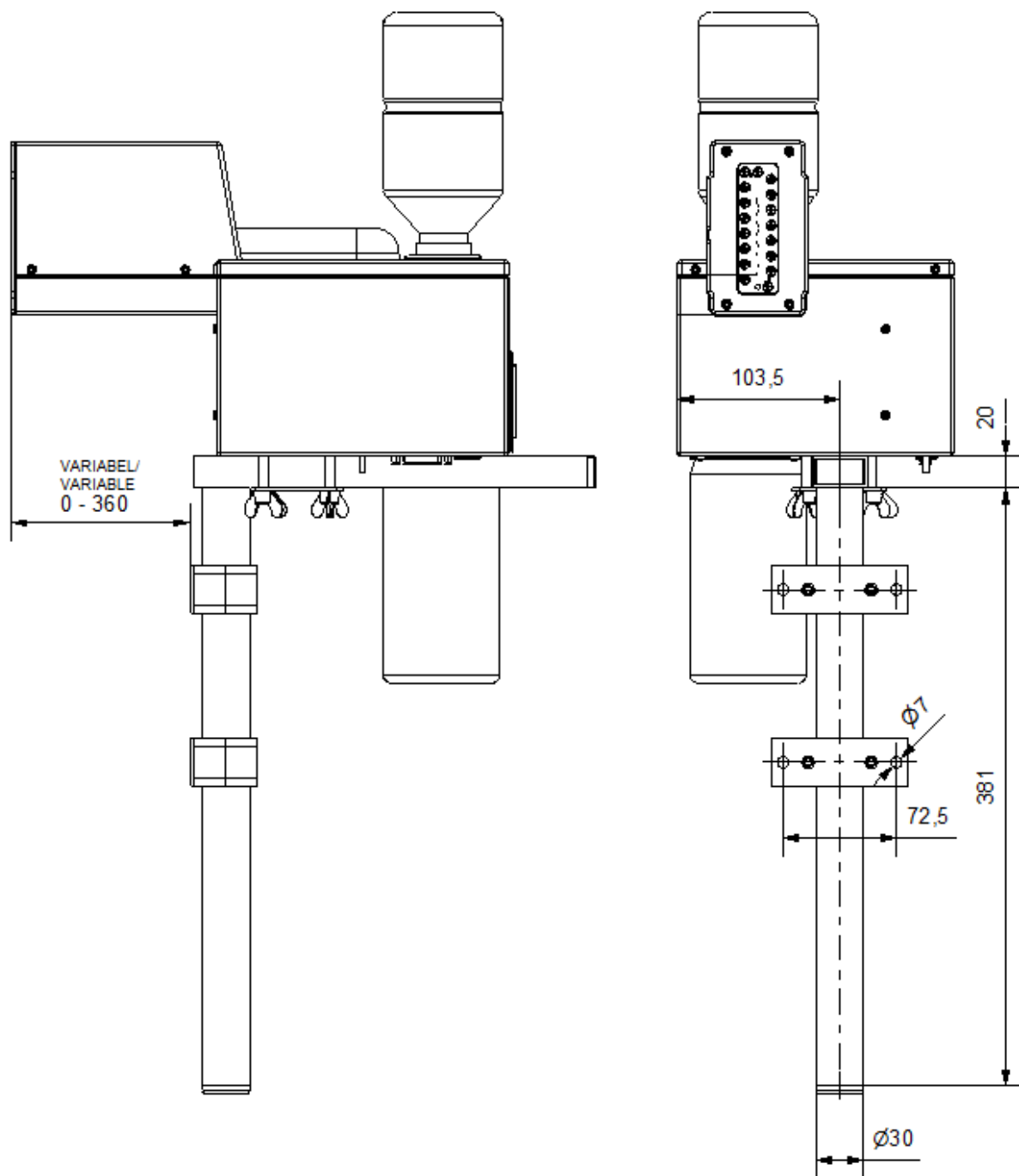
**System unit X1JET MX 100 Top with mounting bracket**
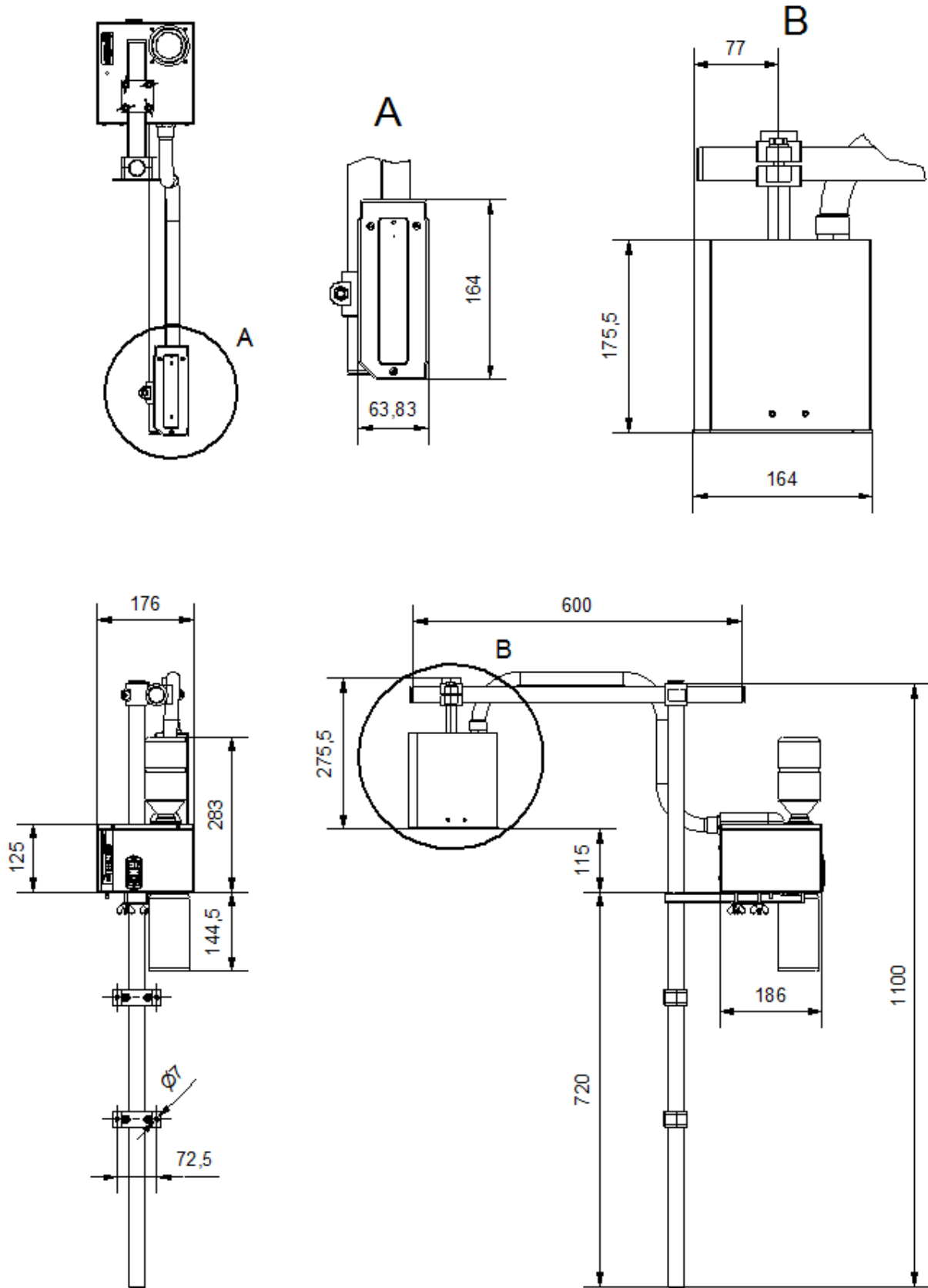
## Instruction sheet

**Copy the instruction sheet before completing.**
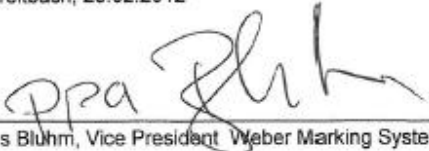
| Date | Name | Type of instruction | Instruction by | Signature |
|---|---|---|---|---|
|  |  |  |  |  |
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|  |  |  |  |  |
|  |  |  |  |  |

**Instruction sheet**

**Parameter list**

| Parameter | After Reset | Min. | Max. | Current value | Unit |
|---|---|---|---|---|---|
| Print start delay | 10 | 0 | 999 | | mm |
| Speed | 15 | 1,0 | 300,0 | | m/min |
| Divider shaft encoder | 4 | 1 | 50 | | - |
| Intensity | 300 | 50 | 900 | | dpi |
| Print width | 100 | 10 | 900 | | % |
| Direction | R -->L | R -->L | L--> R | | - |
| Nozzle row | A~B | A | A+B | | - |
| Overhead | no | no | yes | | - |
| Sensor | Internal | Internal | External | | - |
| Encoder | Internal | Internal | External | | - |
| IP-address | | 0.0.0.0 | 255.255.255.255 | | - |
| IP-mask | 255.255.255.0 | 0.0.0.0 | 255.255.255.255 | | - |
| Gateway | 0.0.0.0 | 0.0.0.0 | 255.255.255.255 | | - |
| Voltage | 11,0 | 4,0 | 11,2 | | V |
| Fire time | 190 | 50 | 300 | | s |
| Fire pause | 190 | 100 | 300 | | s |
| Ink Min | 5 | 0 | 99 | | % |
| Spitmode | Off | Before | Intervall | | - |
| Columns | 1 | 1 | 99 | | - |
| Delay | 1 | 1 | 999 | | s |
| Intervall | 1 | 1 | 999 | | s |
| Auto Off | 0 | 1 | 999 | | min. |
| Repeat Delay | 0 | 0 | 999 | | mm |
| Repeat Number | 0 | 0 | 999 | | |
| Warming | No | yes | no | | |
| Warming Temp. | 20 | 20 | 80 | | °C |
| Warming off timer | 0 | 0 | 999 | | s |
| Language | Englisch | | | | - |
| Ink type | STABL | | | | - |
| User 1 | 0 | 0 | 4 | | - |

## Declaration of Conformity

The Markoprint X1JET MX corresponds to the design and construction as well as the system version with the essential safety requirements of the Low-Voltage- and EMV-Directives including whose changes for this time period.

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### EU – DEKLARATION OF CONFORMITY
according to EU Directive **2006/95/EG // 2004/108/EG**

We hereby declare that the below mentioned in their
Design and construction and in the version marketed by us in the essential
safety requirements of EU Directive low voltage and electromagnetic
compatibility conforms.

**Manufactured by:**

Weber Marking Systems GmbH
Maarweg 33

D-53619 Rheinbreitbach

**Product:**

Type:     Markoprint X1JET
Model:    „Print", „Basic", „Advanced", „Pro"
Function:  Ink-Jet-Printer

is complying with the essential protection requirements of:

The Low Voltage Directive        2006/95/EG
The EMC Directive                2004/108/EG

In order to judge the products with respect to above mentioned directive, the
following standards were taken as a basis:

**Interference resistance:**
- EN 55022          Interfering voltage
- EN 55022          Interference field strength
- EN 61000-6-2:     Interference resistance against electromagnetic fields
- EN 61000-6-2:     Interference resistance against high frequency on cables
- EN 61000-6-2:     Interference resistance against ESD
- EN 55024          Interference resistance against Burst
- EN 61000-6-2:     Interference resistance against Surge
- EN 55024:         Interference resistance against voltage changes and interrupts

**Emitted interference:**
- EN 61000-3-2:     Limits of harmonic current emissions
- EN 61000-3-3      Limits of voltage changes, fluctuation and flicker
-

**If the product is changed without our agreement, this declaration
loses its validity.**

Rheinbreitbach, 20.02.2012

Andreas Bluhm, Vice President  Weber Marking Systems GmbH

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