1.1 Table of contents

1.2 Group directory

The group directory serves as a guide through the device manual at hand to be able to find specific subject areas quickly.

1.3 Publisher

For questions regarding the operation and running of the LEIBINGER JET3 as well as in service case please contact the listed dealer address.

Dealer address

Paul Leibinger GmbH & Co. KG
Special factories for numbering machines
Daimlerstraße 14
D-78532 Tuttlingen
Federal Republic of Germany

Phone +49 74 61/92 86-0
Fax +49 74 61/92 86-1 99
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We reserve the right to make alterations to the scope of delivery at any time in the form of technology, hardware, software as well as the corresponding materials (and manual extracts) as a result of innovative further development of our devices.

Texts, illustrations and technical drawings have been compiled with the greatest of care. Nevertheless errors cannot be excluded. Consequently no guarantee can be assumed for the correctness of the content of this manual and no claims can be asserted against Paul Leibinger GmbH & Co. KG.

We shall be grateful for information regarding possible printing errors as well as for suggestions for the further optimisation of the device manual.

Authoritative for the scope of delivery is not the manual but rather the written order confirmation.

1.4 Introduction

We are pleased that you have decided in favour of a LEIBINGER JET3 device and welcome you as one of our customers.

You now own a LEIBINGER JET3 device that has been developed and constructed on the basis of many years of experience and using the latest Leibinger technology. This results in a high degree of quality and the renowned Leibinger reliability.

This manual shows you the fundamental advantages of the Leibinger Jet system manufactured by us, such as for example the fully automatic working, low maintenance etc..

The manual must be read thoroughly prior to first start up in order to ensure that no damage to the device and/or endangering of the operating personnel results from a defective electrical connection and/or from incorrect operation.

Please pay particular attention to the safety instructions of the groups **Safety instructions** and **accident prevention** when handling consumables (ink and solvent).

Our devices are subjected to a quality control in our plant prior to delivery. If despite this the device or parts of it should be damaged or their function disturbed please advise us of this as fast as possible.

It is only through the use of inks and solvents from Paul Leibinger GmbH & Co. KG that optimum operating characteristics can be achieved. **Should other inks and solvents be used all guarantee claims will expire.**

Product liability!

No alterations whatsoever must be carried out on the entire LEIBINGER JET3 device. No liability will be accepted for damage or dangers resulting from inadmissible alterations.

Caution – risk of explosion!

The device must not be operated in rooms where there is a risk of explosion!

1.5 Document information

The instruction Release R1.05e of 27th.July.2009 is valid for LEIBINGER JET3 machine with the given below serial number.

Seriennummer einkleben
Stick in serial number

1.6 Guarantee

The guarantee conditions for the LEIBINGER JET3 can be seen from the order confirmation. The warranty presupposes that the device or the installation is operated correctly in accordance with the available guarantee manual and any possible additional manuals and descriptions prepared by us.

At this point we wish to make explicit reference to the fact that it is only when using solvent and ink from Paul Leibinger GmbH & Co. KG that the optimum operating characteristics can be achieved. **In the event of use of other inks and solvents all guarantee entitlements shall cease to apply.**

2. Safety

2.1 Scope of risks

The high performance printer LEIBINGER JET3 has been built in accordance with state-of-the-art standards and recognized safety requirements and has been equipped with protective devices.

Operational and safety checks of the installation were carried out before it left the factory. In case of improper handling or misuse, however, there are dangers for

- the health of the operating staff
- the high performance printer JET3 and other real assets of the plant operator
- the efficient operation of the high performance printer

All persons entrusted with the putting into service, the operation, the maintenance and the overhauling of the high performance printer must

- have the necessary qualification and
- strictly comply with this operating manual.

YOUR safety matters!

2.2 Safety instructions and recommendations

This operating manual use the following SYMBOLS with DANGER WARNINGS:

Indicates impending electrical danger!

Failure to observe this instruction can lead to **serious** injuries or to **death**!

Indicates a dangerous situation through pressurised media!

Failure to observe this instruction can cause injuries!

Indicates a dangerous situation!

Failure to observe this instruction can lead to material damage or to injuries!

Indicates a dangerous situation!

Failure to observe this instruction can cause **serious** hand injuries!

Indicates a dangerous situation through flammable materials!

Failure to observe this instruction can lead to material damage, to **serious** burns or to **death**!

Indicates a dangerous situation through irritating materials!

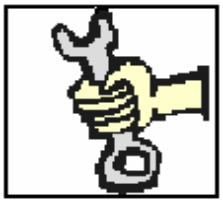
Failure to observe this instruction can lead to poisoning and to irritation of the eyes, the skin as well as of the respiratory organs!

Indicates the necessity of personal protective clothing!

Sufficient protective equipment must be worn. Failure to observe this instruction can lead to injury!

Indicates the necessity of observing the device manual and other instructions!

Failure to observe this instruction can lead to material damage, the loss of guarantee and to injury!



Indicates service activities!

This work must only be carried out by trained personnel or by Leibinger service technicians!

Indicates important user information

for safe and effective working.

Indicates recommendations for use

and other useful pieces of information.

2.3 Intended use

The high performance printer JET3 serves exclusively the contact-free marking, inscribing and coding of surfaces using the continuous ink jet process.

The high performance printer can be used on the most varying materials (e.g. metal, synthetic material, glass, paper, wood, pressed materials, rubber etc.) with both, smooth as well as uneven, rough and stepped surfaces.

The intended use of this device also includes the observance of all instructions in this manual.

Using the installation for other purposes is considered contrary to its intended use!

For safety reasons conversions and alterations are only admissible following consultation with the manufacturer. Repairs to the device must only be carried out with original replacement parts.

The manufacturer shall not be liable for damage resulting from use for other than the intended purpose or misuse.

2.4 Safety sticker

Figure 1

Safety sticker

2.5 Operating staff

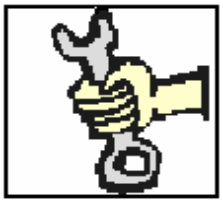
Only trained personnel must operate the device. The personnel must have appropriate training to enable them to be able to operate the JET3 high performance printer professionally.

Within the working area of the LEIBINGER JET3 device the operator is responsible with regard to third parties.

The operator must

- put this operating manual at the operating staff's disposal and
- make sure that they have read and understood them.

2.6 Dangers due to electric energy



The electrical and electronic components of the high performance printer are under voltage. The device must only be opened by trained personnel or by Leibinger service technicians.

Prior to the opening of the device the device must be switched off and the mains plug removed.

2.7 Personal protective equipment

Materials are processed in this device that cause irritations and which are under pressure. In order to avoid injury and damage the personnel must wear the following personal protective equipment during certain work procedures:

- suitable work clothing
- suitable eye protection
- suitable hand protection

More detailed information can be found in the corresponding chapters of this manual as well as possibly in information and data leaflets of consumables.

2.8 Protective devices

In **an emergency** the device is placed idle by removal of the mains plug.

2.9 Safety measures at the place of installation

Mains connection!

The device has no mains switch and must only be connected to a easy accessible plug socket in the direct vicinity of the place of setting up!

Caution – risk of explosion!

The device must not be operated in rooms where there is a risk of explosion!

Installation of the device

The device must be installed in a well ventilated room only and must be kept away from any source of heat, flame or sparks, e.g. radiant heater, etc.

A place of setting up must be selected with sufficient load bearing capacity and stability. When setting up it must be observed that sufficient movement space is available for the operating and service personnel. Solvents are processed in the device, sufficient room ventilation must be ensured!

Prior to assembly the place of setting up must be cleaned of dirt and contamination (residue of lubricants etc.). The working place surroundings should be kept clean at all times in order to ensure unrestricted access to the LEIBINGER-JET3 device.

2.10 Dangers through consumables

Inks are coloured liquids on a solvent basis. The safety instructions on the containers of the consumables as well as the instructions in the group **Accident prevention** must be especially adhered to in order to exclude dangers for persons and the surroundings. Further instructions can be found in the Safety Data Sheets.

When handling consumables (inks/solvents) the danger instructions and safety advice on the containers (transport, storage, distribution and correct disposal) must be observed!

In addition we recommend **observance of the safety information leaflets** of the inks and solvents used.

In the following you will find examples for the marking of inks and solvents.

Figure 2

Examples: Labels for the marking of inks and solvents.

3. Accident prevention

The following presentation shows the measures in the event of an accident with **ink** and **solvent** with the **danger marking**,

- slightly ignitable
- irritates the eyes and the respiratory organs.

3.1 Storage and handling (normal use)

GENERAL

These products must only used at points that are free from open flames and other ignition sources. Do not use pressure for emptying – the container is not a pressure vessel. Good household practice and regular, safe removal of the waste materials restrict the danger of self-ignition and other risks of fire to a minimum. The product can charge statically. When pouring from one container to another use a mass lead. The workers must wear anti-static shoes and clothing and the floors must be conductive.

STORAGE

Observe the marking information. Store at 5 to 25°C in a warm, well ventilated location at a safe distance from heat and ignition sources and direct sunlight.

Do not smoke! Do not grant access to unauthorised persons. Open containers must be properly closed and stored upright in order to avoid leakage.

Smoking, eating and drinking must be forbidden in the storage and working areas. Always keep in containers from the same material as the delivery containers.

HANDLING

The development of combustible or explosive vapour concentrations must be prevented and vapour concentrations avoided that are above the threshold values of the employers liability insurance association. Keep containers closed tightly.

Keep sources of heat and sparks as well as open flames well away.

Use only spark-free tools. Electrical devices must be protected in accordance with the corresponding standard.

Avoid contact with the skin and eyes. Do not inhale vapours and spray mist.

3.2 First aid measures

EYES Contact lenses must be removed. Rinse thoroughly with pure, fresh water for at least 10 minutes, keep eyelids spread and call a doctor.

SKIN Remove contaminated clothes. Wash skin thoroughly with soap and water or with a branded skin cleansing agent. **DO NOT** use solvents or thinners.

INHALING Take patient into the fresh air and keep warm and calm. In the event of irregular breathing or of breath being missed resuscitate artificially. Do not give anything orally, place unconscious patients on their side and call a doctor.

MISCELLANEOUS In case of doubt or with persistent symptoms call a doctor. Never give anything orally to unconscious patients.

3.3 Fire fighting measures

EXTINGUISHING AGENTS Recommended: Alcohol-resistant foam, spray water/mist, CO_2 or powder

DO NOT use water jets. Cool closed containers exposed to the fire with spray water.

RISK OF FIRE AND EXPLOSION As the product contains combustible organic constituents, a thick, black smoke develops in the event of fire that contains dangerous combustion products. Decomposition products can constitute a danger to health. Extinguishing waste water must not enter the waste water channels or waters.

PROTECTIVE MEASURES If necessary suitable, independent breathing apparatus is required.

3.4 Measures in the event of accidental release (spillage)

PRECAUTIONARY MEASURES Switch off sources of ignition and ventilate room. Keep personnel that is not absolutely necessary away. Do not inhale any vapour. Observe the protective measures listed.

ENVIRONMENTAL PROTECTION MEASURES **DO NOT** allow to enter waste water channels or waters.

Should the product enter waste water channels or the drainage system the local water supply authority must be informed immediately. In the event of contamination of streams, rivers or lakes inform the national water authorities. Vapour is heavier than air and can spread out on the ground. In combination with air it can form an explosive mixture.

RESTORATION Restrict and suck up spilled substances with a non-combustible absorbent material *(e.g. sand, earth, vermiculite, infusorial earth)* and collect in a suitable container for removal. Preferably clean areas with spilled substances with a detergent. Avoid solvents.

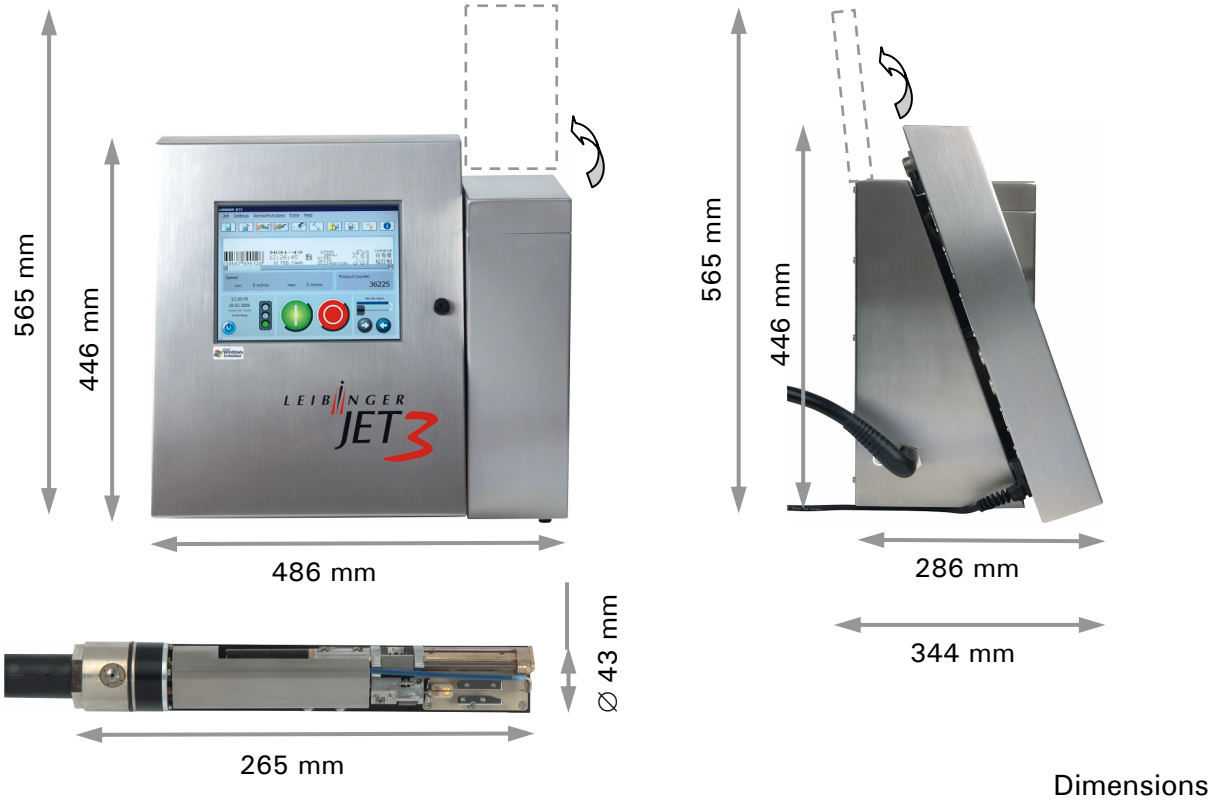
4. Technical data

4.1 Dimensions, weights, connections

Cabinet : Stainless steel
Width 486 mm, depth 286 mm, height 446 mm
Weight: 20,5 kg

Print head: Stainless steel cabinet
Length (total) 265 mm, diameter 43 mm,
Length of the print head lead 3 m, as option 6 and 10 m available
Weight: 1,5 kg
Any fitting position, also for overhead conveyor applications

Figure 3



Dimensions

Protection class: IP 54 (as option: IP 65)

4.2 Electrical connection values

Input voltage (voltage range): 100 - 240 V AC ,50-60 Hz

Power consumption: max. 60 VA

4.3 Ambient conditions

Temperature range:	+ 5° C to + 45° C (no rapid change of temperature)
Relative humidity:	max. 90 % relative humidity (non-condensating)

4.4 Interfaces, Inputs, Outputs

Product sensor input:	NPN/PNP 24V
Incremental encoder input:	TTL 5V, HTL 24V, RS422 5V
Inputs:	6 digitals, free selectable 10 inputs for ext. job selection
Outputs:	8 digitals, e.g. for alarm, re-filling, etc.
Interfaces:	Ethernet (Industry standard M12D) Serial Interface (V24/RS232) up to 115.200 Baud USB
Others:	Remote maintenance via RS232

4.5 Performance parameter

Printing capacity:	Character height: approx. ■ min.: 0,8 mm ■ max.:16 mm Depending on font, distance of head, nozzle diameter, ink, product surface and type of print head Up to 3200 characters/sec.
Printing speed:	Up to 6,6 m/sec (10 cpi)

4.6 Fonts

All fonts can be combined arbitrarily

Printing of 1-5 lines

Tower print

Capitals and lower case letters, umlaut, special characters

Fonts 5x5 up to 32x24

Multistage contrast- and bold text

All common Barcodes (Barcode 39, Code 128C, Postnet etc.) and Data-Matrix-Codes (ECC 200), GS1-Data-Matrix (EAN/ECC)

4.7 Types of writing

Double distance

Texts backwards

Symbols mirror-inverted

Symbols mirror-inverted and upside down

Symbols mirror-inverted, upside down and text backwards

Alternating readable font, reverse, bold text, inverse

4.8 Font combinations

All fonts can be presented in one writing in the requested matrix.

4.9 Function

Full automatic function by:

- The automatic nozzle seal guarantees that the print head is ready to print immediately after starting.
- Automatic, electronic drop control for compensation of changing ambient- and operating temperatures
- Automatic viscosity control
- Splash-free re-filling of ink and solvent during the printing operation

4.10 Software

Functions:

- Selectable print delay or print repetition
- Any combination of constant and variable texts within a printing line
- 10 individually programmable counters
- Current date- and time printing, original date
- Free programmable graphics/logos, creatable in the integrated editor
- Jobeditor allows the saving and calling of texts and all printing relevant parameters
- Programmable batch processing of jobs and bonding of several jobs
- „External-Text“ function
- Variable text (Data base processing)
- Replacements: all date-, time- and counter functions are codable by replacements
- Shift operation

5. Transport/Start up (Putting into service)

5.1 Transport, storage, shipping

In order to avoid damage during transport the following instructions must be observed.

The LEIBINGER JET3 must only be transported in a standing position. It is packed in a cardboard box with special polystyrene inserts for safe dispatch during delivery. Transport of the device must only be made in this packing in order to avoid damage.

The printer should be only transported in an empty condition! A special draining routine ("ServiceFunctions ▶ Hydraulic ▶ Special Functions/ Tools ▶ Drain Routine") is available for the draining of the device.

You will find further information in the **group *Data input/Programming*** in the **chapter *Draining routine***!

Note! Storage temperatures below +5°C and above +50°C as well as storage at outside are not admissible and can lead to damage!

5.2 Mounting

Caution – risk of explosion!

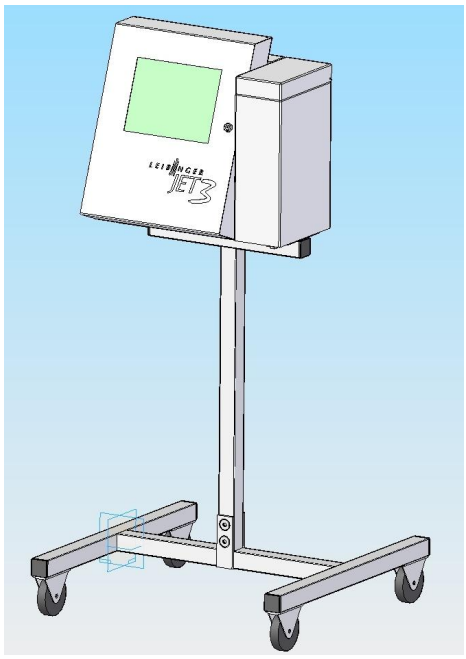
The device must not be operated in rooms where there is a risk of explosion!

Installation of the device

The device must be installed in a well ventilated room only and must be kept away from any source of heat, flame or sparks, e.g. radiant heater, etc..

Check device for damage! When determining a suitable place of setting up, the necessary additional space requirement for the movement room of the operating and service personnel must be taken into consideration. Solvents are processed in the device, adequate room ventilation must be ensured!

Figure 4

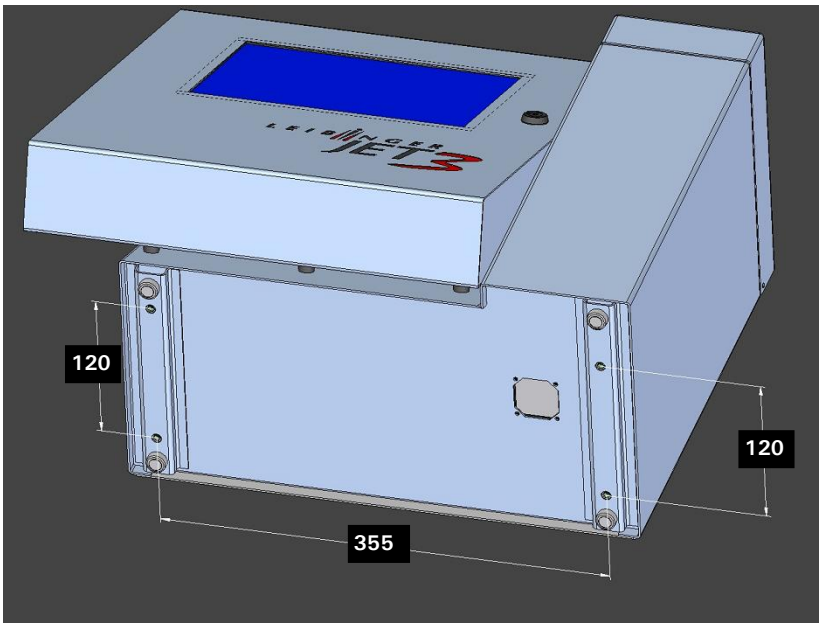


Movable underframe for JET3:

For this it is expedient to place the device on a device support.

The device has four fastening possibilities for secure seting up and should be screw connected at the place of setting up.

Figure 5



Fastening posibilities

A place of setting up with sufficient load bearing capacity and stability must be chosen. Prior to assembly the place of setting up must be cleaned of dirt and contamination (residue of lubricants etc.) .

5.3 Installation

For adaption to the production line several works have to be carried out and operating parameters have to be set before start of operation.

5.3.1 Mains supply

Mains supply!

The device does not have a mains switch and should be only connected to an easy accessible socket close to the installation location!

The LEIBINGER JET3 should be connected to AC voltage 100 - 240 V AC, 50 – 60 Hz with an appropriate plug. **The socket should be provided with a clear designation (e.g.: JET3).**

After connecting to the mains power supply the initialization of the device will be carried out automatically. After this process the JET3 is ready for operation.

You will find further information regarding the initialization in the **Chapter *Initialization of device*!**

5.3.2 Grounding (Potential equalization)

Grounding (Potential equalization)!

In case of a non existing grounding or that the grounding of the printer is not carried out properly, this could cause serious injury or death and it can also cause malfunctions or damages at the printer!

These dangers or demolitions can happen for example because of electrostatic discharge (ESD) or potential difference.

Specially for countries without existing protected earth connection, there is a special grounding point located at the side of the printer.

This threaded socket must be connected to ground if there is no ground pin in the mains socket/plug.

The threaded case is sealed inwards and thus IP 65 conform. With a screw and a ring terminal (cable lug) the grounding can be fixed easily.

Please note, that the grounding point (6) is hidden behind the round grounding-symbol-label (7) on the lower left hand side of the cabinet of the printer.

Grounding instructions

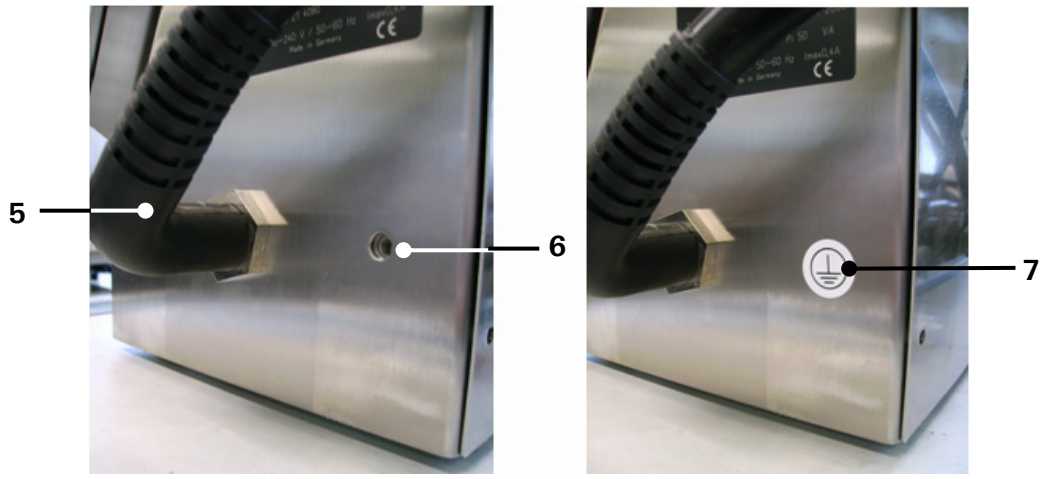
- A separate grounding line (min. cable cross-section 2,00 mm^2) to the printer cabinet must be installed **before** the print head is mounted in the installation and **before** the printer is plugged to the power supply.
- The connection must be carried with a solid bonding that corresponds with existing guidelines.

Annotation: *A suitable grounding cable is available optionally (accessories).*

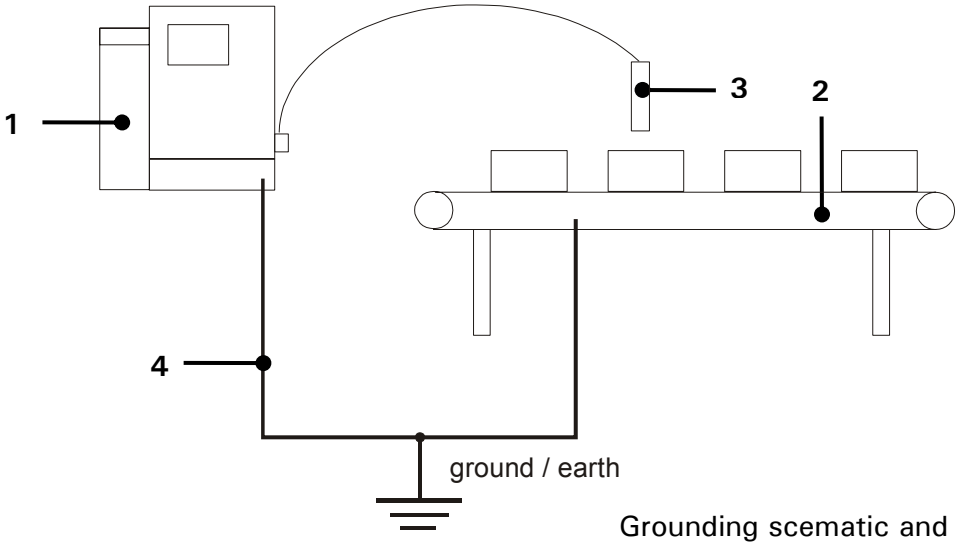
- The installation (machine) and the printer must have the same potential/ground.

The printer must be always be switched off and the mains plug must be always unplugged if you plug and/or unplug any connectors!

Figure 6



Grounding scematic



Grounding scematic and gounding point

1 – Printer cabinet
2 – Installation (machine)
3 – Print head
4 – Grounding line
5 – Umbilical
6 – Grounding point (M6)
7 – Grounding symbol-label

5.3.3 Print head

Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!

Risk of injury!

Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

The print head should be mounted to the printed product that the notch in the head cover is placed vertical to the moving direction of the product. It can be installed horizontal, vertical, from the top or from the bottom.

For installation from the bottom it has to be prevented that dirt can enter in the print head. For this a head ventilation is required which can be purchased optionally.

The print head mounting should be carried out that a fast separation of the print head from the device for cleaning purposes is possible.

The print head should be attachted vibration-free. The hose connection of the print head should not be smaller as a radius of R60 statistically and dynamically not below R100!

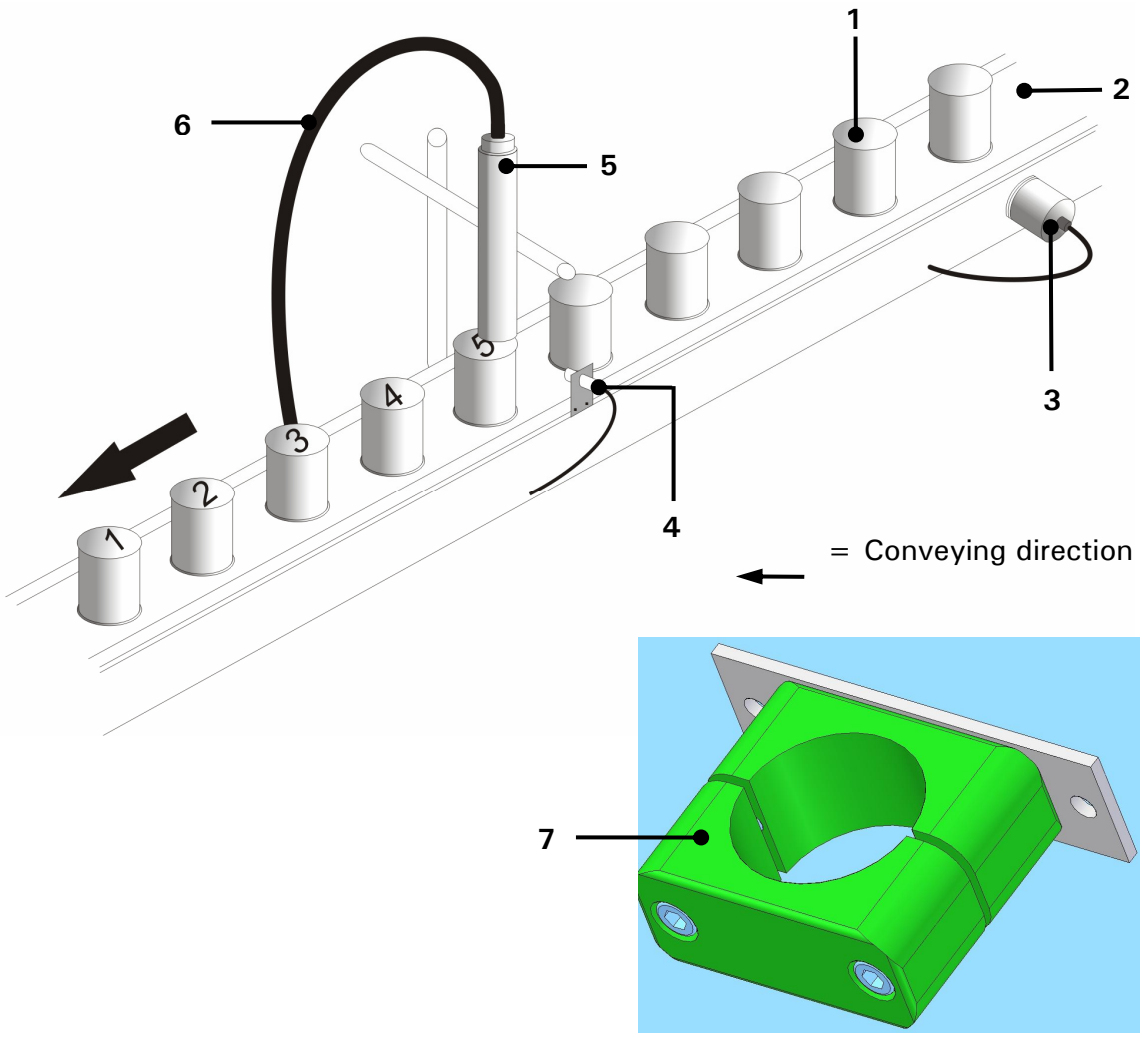
The distance of the print head to the product depends on the required character height. As smaller the required character height, as smaller the distance of the print head to the product (smaller distances produce better type quality)

<u>Note:</u> In general a distance of round about 8-10mm is recommended.
For applications with extreme small or large character heights a micro- and macro print head are available optionally.

Installation of print head

During an installation of a device in a production line, the operating staff should be not endagered. Due to moving products under the print head danger of bruisings and shearing can be caused. The regulations of the machinery directives should be observed!

Figure 7



Print head installation (Example)

1 – Product
2 – Conveyor belt
3 – Encoder
4 – Sensor
5 – Print head
6 – Umbilical (Hose connection)
7 – Print head adapter *(accessories)*

5.4 Starting (Commissioning)

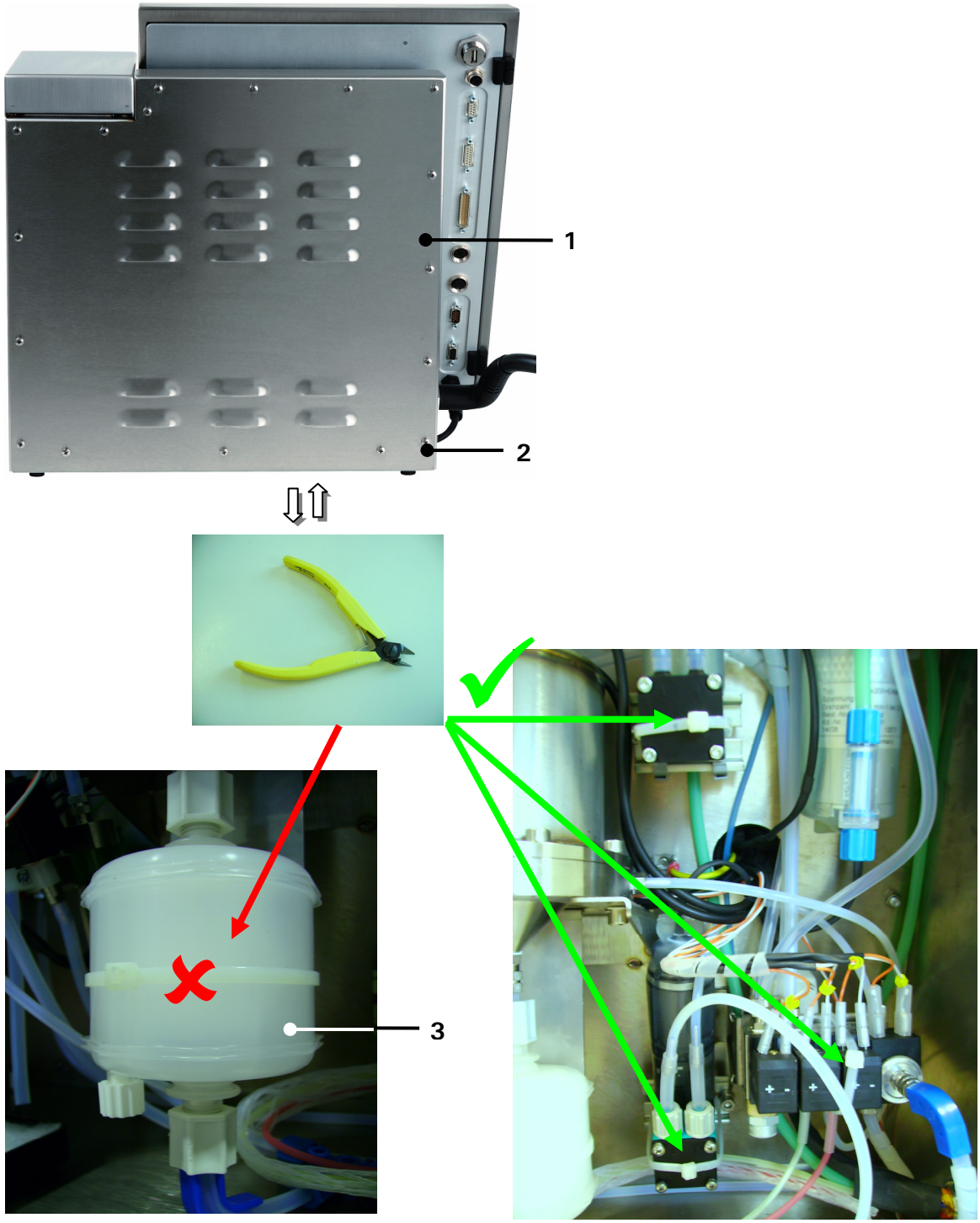
For a safe transport some hydraulic components are supplied with transportation protection (cable ties) and the reservoir tanks are evacuated. The following steps have to be carried out before the initial operation

- Remove the transportation protection (cable ties) (Step 1)
- Fill the reservoir tank (Step 2)
- Carry out the function <Filling Routine> (Step 3)

5.4.1 Remove transportation safety devices (Step 1)

The pumps and valves of the hydraulic system are secured with cable ties. These **have to be** absolutely removed

Figure 8



Remove transportation safety devices

1 – Backplane (Hydraulic cabinet) 2 – Fixing screws 3 – Main filter

Proceeding:

- Dismantle the backplane of the hydraulic cabinet (1) by loosing the fixing screws (2).

Attention!

The cable tie at the main filter (3) should not be removed!

- Remove the transportation protection (cable ties).
- Now attach the backplane of the hydraulic cabinet again with the according fixing screws.

5.4.2 Fill reservoir tank (Step 2)

To avoid damages of the device during the transportation the reservoir tanks should be evacuated and have to be filled before the initial operation.

Dangerous material in the machine!

Danger of serious damage through burns, skin irriation and poisoning!

Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the divice!

Dangerous material in the machine!

Read the safety leaflets and the regulations on personal safety equipment!

The storage containers for ink and solvent are installed beneath the cover flap of the refill unit *(see illustration below).*

The two reservoir tanks are monitored by level sensors. They are always unpressurized and can be opened in every device condition.

The reservoir tanks and the sealing cap are color-coded and labelled to avoid any mistakes in filling. Additionally the sealing caps are marked with the ink-no. or solvent-no. which are admissible for the device.

After filling the containers (reservoir tanks) as well as the empty refill bottles, they have to be closed carefully again.

Proceeding

(Example: Filling of solvent)

- Open the cap (2) of the re-filling unit (1).
- Open the screw cap of the solvent tank (4) and of the re-filling bottle (5).

Attention! Do not open the seal of the re-filling bottle!

- Put the re-filling bottle on the solvent tank. The seal of the bottle will be breached and the closing valve of the tank will open automatically and the reservoir tank is filled up.
- Wait until the re-filling bottle is completely emtpy.
- Take out the empty re-filling bottle. The closing valve of the reservoir tank will be closed automatically.
- Finally screw off the sealing cap of the reservoir tank as well as the empty refill bottle carefully.

Figure 9

Reservoir tank and re-filling process (Example: solvent re-filling)

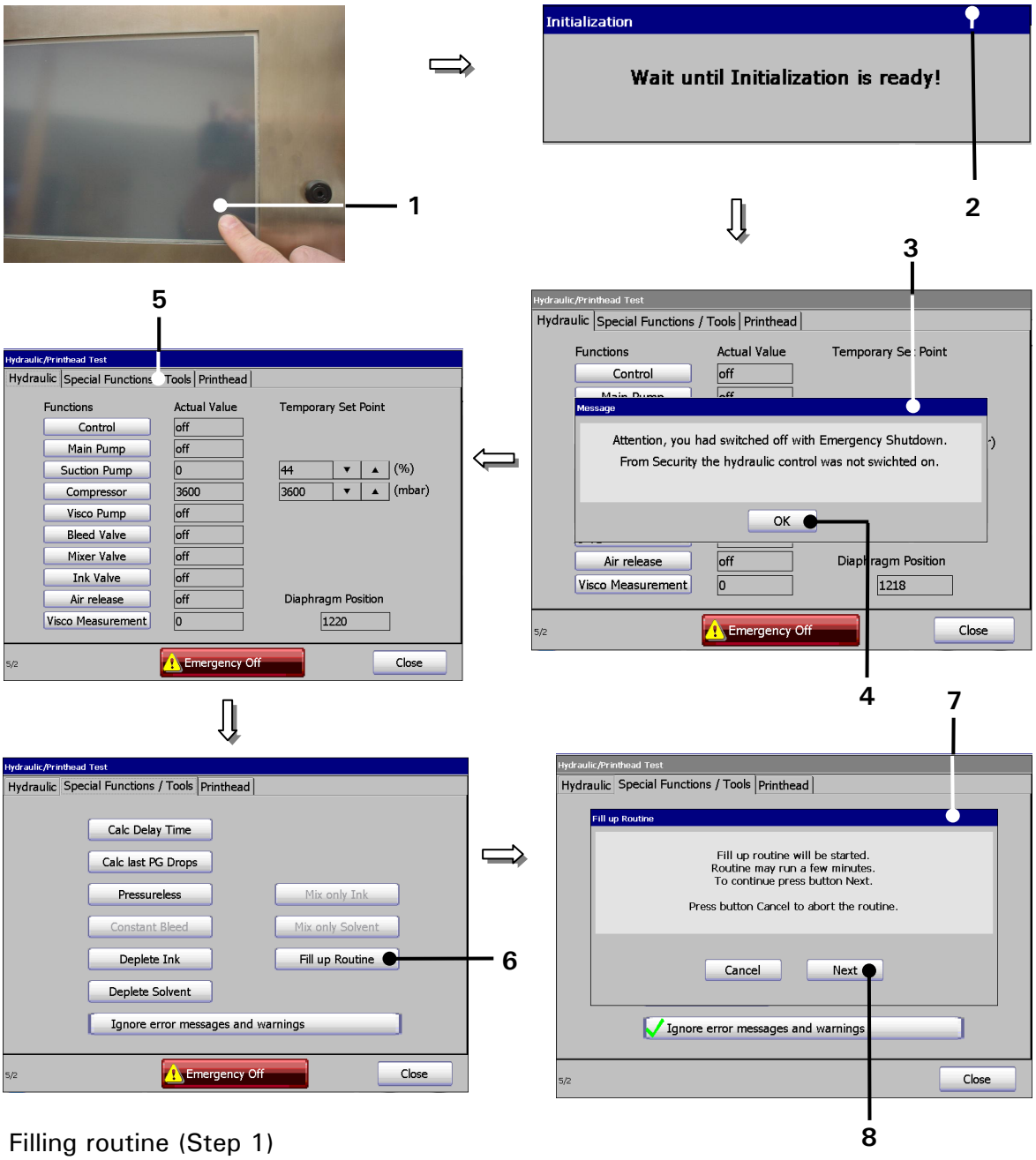
1 – Re-filling unit
2 – Cap (cover flap)
3 – Reservoir tank „Ink“
4 – Reservoir tank „Solvent“
5 – Re-filling bottle „Solvent “
6 – Seal of re-filling bottle

5.4.3 Carry out filling routine (Step 3)

After filling the consumables you have to carry out the filling routine.

Proceeding:

Figure 10



Filling routine (Step 1)

1 – TFT-Touch-Display
2 – Message <Initialization>
3 – Message <Emergency Shutdown
4 – Button <OK>
5 – Register card <Spec. functions /Tools>
6 – Button <Fill up Routine>
7 – Message <Fill up Routine>
8 – Button <next>

- Turn on the printer. For this touch the dark **touch-display** (1) at any position for approx. 2 sec..
- The device turns on and the main menu with the **message <Initialization>** (2) is displayed. Wait until the initialization is finished. After this process the **message <Emergency Shutdown>** (3) is displayed.
- Press the button **<OK>** (4).
- Change to register card **<Special functions /Tools>** (5).
- Now press the button **<Fill up Routine>** (6). The **message <Fill up Routine>** (7) is faded-in.
- Press the button **<Next>** (8) to start the filling routine.

Note: *This process takes approx. 10 minutes.*

- After finishing the process an according message (9) is displayed. Press the button **<OK>** (10) to finish the routine.
- Press the button **<Close>** (11) to leave the menu **<Special functions /Tools>**.
- The message **<Hydraulic control>** (12) is faded-in.

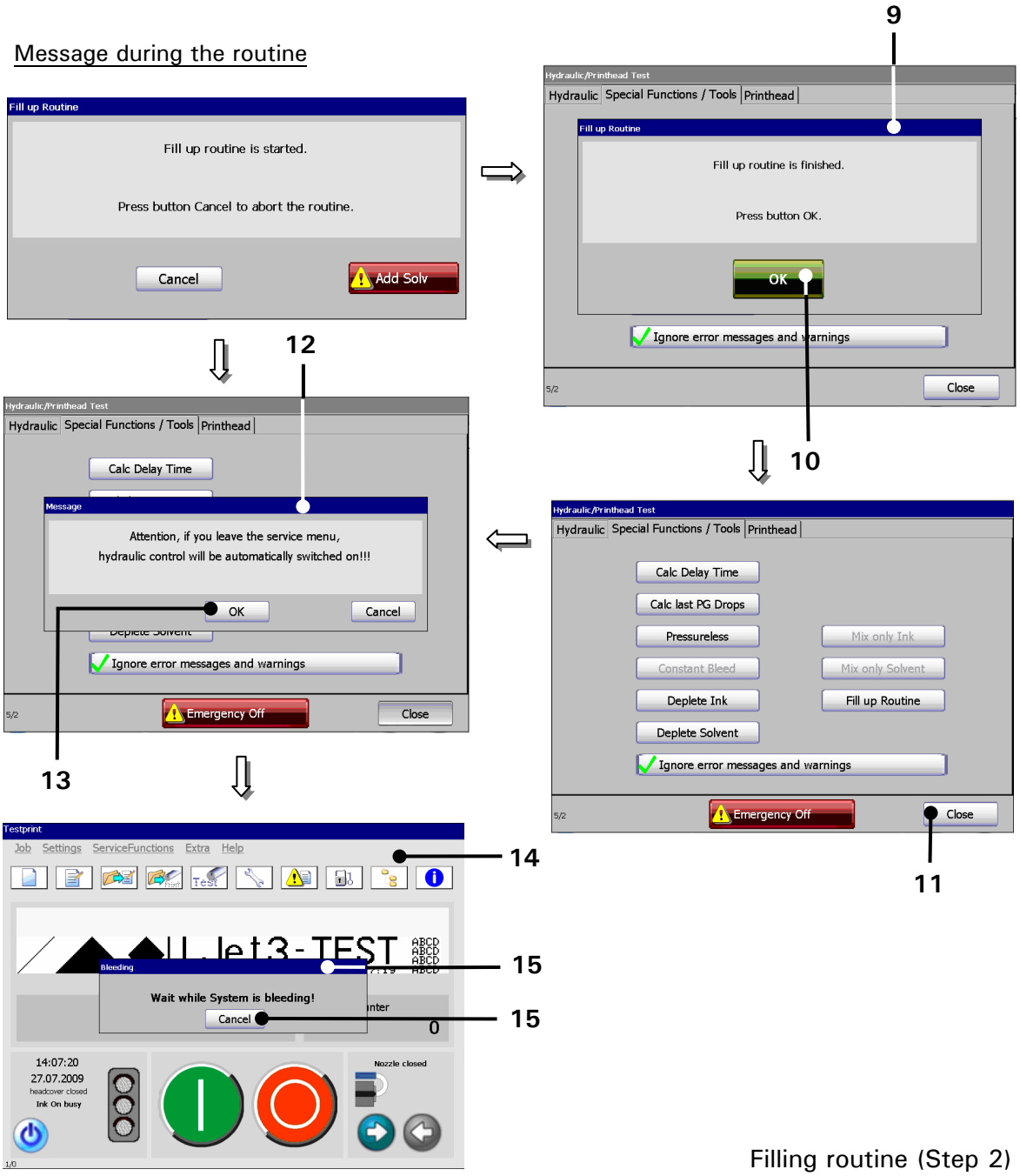
Note: *For leaving the service menu the hydraulic control will be turned on again automatically.*

- Press the button **<OK>** (13) to close the service menu.
- The m**ain menu** (14) is now displayed. If required the device starts automatically with the bleeding of the system.

During the process the message **<Bleeding>** (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button **<Cancel>** (5).

- Now the printer is ready to operate.

Figure 11



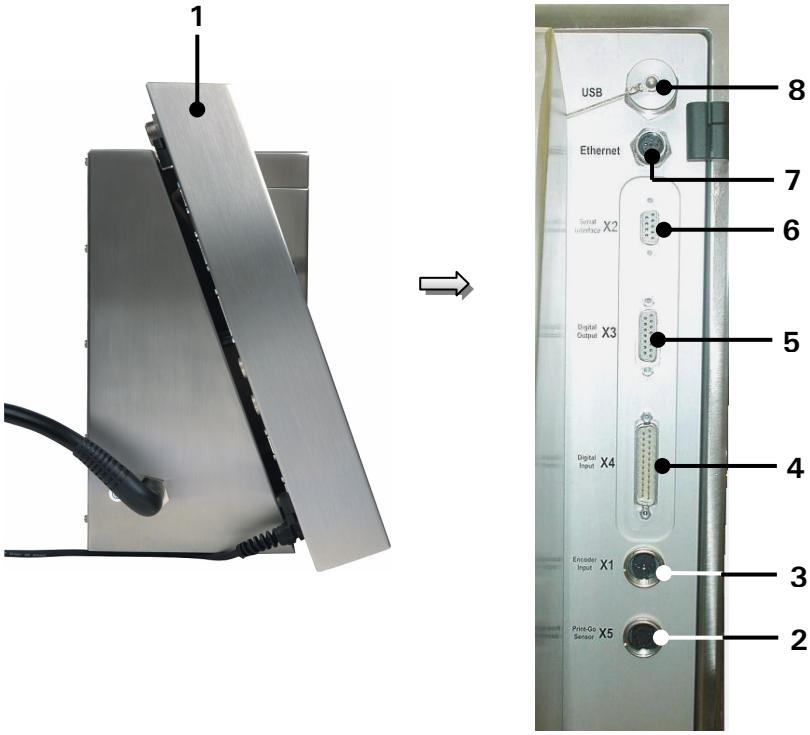
Filling routine (Step 2)

9 – Message <Fill up Routine finished>
10 – Button <OK>
11 – Button <Close>
12 – Message <Hydraulic control>
13 – Button <OK>
14 – Main menu
15 – Message <Bleeding>
16 – Button <Cancel>

5.5 Interfaces

The following interfaces are available on the rear side of the electronics cabinet.

Figure 12



Interfaces

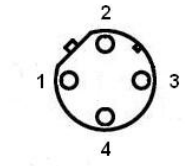
1 – Electronic cabinet
2 – Interface X5 – PrintGo
3 – Interface X1 – Encoder
4 – Interface X4 – digital inputs
5 – Interface X3 – digital outputs
6 – Interface X2 – Serial Interface
7 – Ethernet-connection
8 – USB connection

5.5.1 Ethernet-connection

The Ethernet-connection is implemented with a sturdy M12D coded socket and is designed for high transfer rates and long cable lengths. It provides the networking of several devices in multi-head applications. The data exchange happens via the „LEIBINGER JET3-interface protocol“.

Plug assignment:

M12-D Ethernet Connector



Pin connection:

Pin No	Designation		Pin No.	Designation
1	Tx +		3	Tx -
2	Rx +		4	Rx -

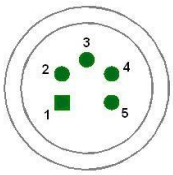
5.5.2 Interface X5 (PrintGo)

The interface "X5" provides the connection of an external PrintGo-signal. All common product detectors (*e.g. light barrier, product sensor ect.)*, 24V NPN- as well as 24V PNP-switching can be connected.

Regarding the software you can select additionally if the positive edge or the negative edge should be used for the release of the print out.

Note: *To inform the JET3 when a print text should be printed, you require a so-called Print-Go signal.*

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
1	+24 V (1)		4	PrintGo
2	/PrintGo		5	PrintGo_Gate
3	GND			

Basic data/Recommended working conditions:

Signal	Parameter	Value
PrintGo	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Minimum pulse duration	100µS
	Input resistance	6,8 kOhm
/PrintGo	Input level High	20 up to 28V (or high resistance)
	Input level Low	-6V up to 9V
	Minimum pulse duration	100µS
	Input resistance	6,8kOhm
PrintGo Gate	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Minimum pulse duration	100µS
	Input resistance	6,8 kOhm

You will find a circuit diagram of the interface in the appendix of this manual!

(1) *All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.*

5.5.3 Interface X1 (Encoder)

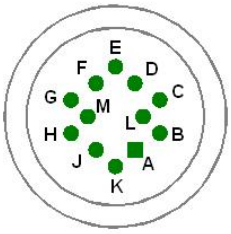
5.5.3.1 Description and configuration

The interface "X1" provides the connection of a shaft encoder.

Due to the input for which you can set the software individually, the encoders can be connected according to different norms without an additional converter.

Note: *For variable product speed you have to use a shaft encoder to synchronize the printing speed or to control the constant font width.*

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
A	+5 V (max. 400 mA)		G	Encoder port /B RS422
B	GND		H	Encoder port A TTL (5V)
C	+24 V (1)		J	Encoder port B TTL (5V)
D	Encoder_port A RS422		K	Encoder port A HTL (24V)
E	Encoder port /A RS422		L	Encoder port B HTL (24V)
F	Encoder port B RS422		M	PowerOn Option

Basic data /Recommended working conditions:

Signal type	Parameter	Value
RS422	Input level	Difference input ≥ +/-200mV Input voltage range: -0,3 bis 5,5V
	Max. frequency	10 MHz
	Terminating resistor	100 Ohm
TTL	Input level High	2,4V up to 5,5V
	Input level Low	-0,5V up to 0,7V
	Max. frequency	500 kHz
	Input resistance	1 MOhm
HTL	Input level High	12 up to 28V
	Input level Low	-0,5 up to 3,5V
	Max. frequency	500 kHz
	Input resistance	4 kOhm

(1) All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.

The signal type which should be used as encoder source has to be set in the software of the JET3 under **Settings ▶ Basic Settings ▶ Encoder Interface.**

You will find a circuit diagram of the interface in the appendix of this manual!

5.5.3.2 Mechanical installation

For the mechanical installation of the shaft encoder you have to pay attention in any case that the encoder is protected against axial and radial strain during the mounting and the continuous operation. For this a rubber gaiter or a plastic coupling is used.

If the conditions allow it, the shaft encoder can be also adapted to a production line with a friction wheel.

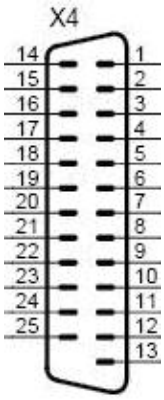
Attention – Risks of injury!

The shaft encoder has to be installed or mounted that no risks of injury can occur!

5.5.4 Interface X4 (Inputs)

19 inputs for special functions are available whereof the connections of 6 inputs can be freely selected.

Plug assignment: Pin connection:



Pin	Designation		Pin	Designation
1	+ Reset Counter		14	+ 24V (1)
2	+ Increment Counter		15	GND Reset Counter / Increment Counter
3	+ Jobselect 0		16	+ Jobselect 1
4	+ Jobselect 2		17	+ Jobselect 3
5	+ Jobselect 4		18	+ Jobselect 5
6	+ Jobselect 6		19	+ Jobselect 7
7	+ Jobselect 8		20	+ Jobselect 9
8	GND Jobselect 0-9		21	GND Input 0-5
9	+ Input 0		22	+ Input 1
10	+ Input 2		23	+ Input 3
11	+ Input 4		24	+ Input 5
12	+ Power ON		25	GND Power On
13	GND 24V			

Basic data /Recommended working conditions:

Signal	Parameter	Value
All signals	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Input resistance	6,8kOhm
Increment Counter/ Reset Counter	Minimum pulse width	250µs
Power ON	Minium pulse width	2,5 s
Jobselect 0-9	Maximum duration of bounce	10 ms [2]
Input 0-5	Minimum pulse widths	Depending on assigned function *(see following table)*

In the following table you will find the minimum pulse widths which are required to release the assigned function at the X4 plug.

Function	Minium pulse width
Open nozzle	300ms
Close nozzle	300ms
Print start	500ms
Print stop	500ms
Turn off printer	750ms
Mirrored horizontally	200ms
Gauger synchronization signal	200ms

The function allocations of the inputs 0 up to 5 happens by the software of the JET3 in the menu **Settings ▶ I/O-Settings ▶ Inputs**.

You will find a circuit diagram of the interface in the appendix of this manual!

[1] All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.

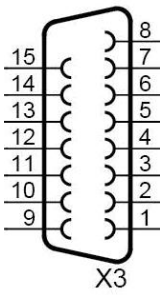
[2] For a change of the Jobselect inputs it has to be carried out within the duration of bounce, that means only after termination of this period of time the new Jobselect No. is validated.

5.5.5 Interface X3 (Outputs)

8 outputs which can be freely selected are available for special functions. The outputs 1-3 are predefined as a standard and should be not changed.

- Output 1 = Print stop error
- Output 2 = Refill warning
- Output 3 = Ready to print

Plug assignment: Pin connection:



Pin	Designation		Pin	Designation
1	Output 1		9	Output 5
2	Output 2		10	Output 6
3	Output 3		11	Output 7
4	Output 4		12	Output 8
5	+24V (1)		13	Reserved
6	Reserved		14	Reserved
7	Reserved		15	GND
8	GND			

Reserved = Do not connect

Specifications Output 1-8:

Parameter	Value
Driver type	24V high side driver ON = +24V OFF = high resistance
Output current	max. 700mA/output max 700 mA totally(1)
Max. switching frequency	2 kHz (2)
Max. delay time	100µs
Turn on resistance	max. 0,28 Ohm
Features	■ Short-circuit-proof ■ Overcurrent- and excess temperature –proof

The function allocations of the outputs is carried out with the software of the JET3 in the menu **Settings ▶ I/O-Settings ▶ Outputs**.

You will find a circuit diagram of the interface in the appendix of this manual!

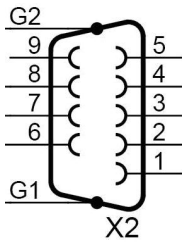
(1) All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700mA, that means the sum of all output currents which are supplied of this 24V should not exceed 700mA.

(2) Depending on the set function.

5.5.6 Interface X2 (Serial interface)

The interface "X2" is a serial data interface with a transfer rate up to 115200 Baud. The access is suitable for a connection to the printer to application-specific software for the data management and for the remote control of the printer.

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
1	NC		6	Connected with 4
2	RxD		7	RTS
3	TxD		8	CTS
4	Connected with 6		9	NC
5	GND			

NC = not connected

The function allocations of the outputs is carried out by the software of the JET3 in the menu **Settings ▶ I/O-Settings ▶ Outputs**.

You will find a circuit diagram of the interface in the appendix of this manual!

5.5.7 USB-Connection

By the USB-connection you can connect all common USB-devices as e.g. mouse, keyboard or USB-stick very simply. All data can be exchanged comfortable and simply by the USB-connection. Software updates, exchange of variable printing data or memory expansions can be carried out simply with the USB-stick.

Plug assignment:

Pin connection:

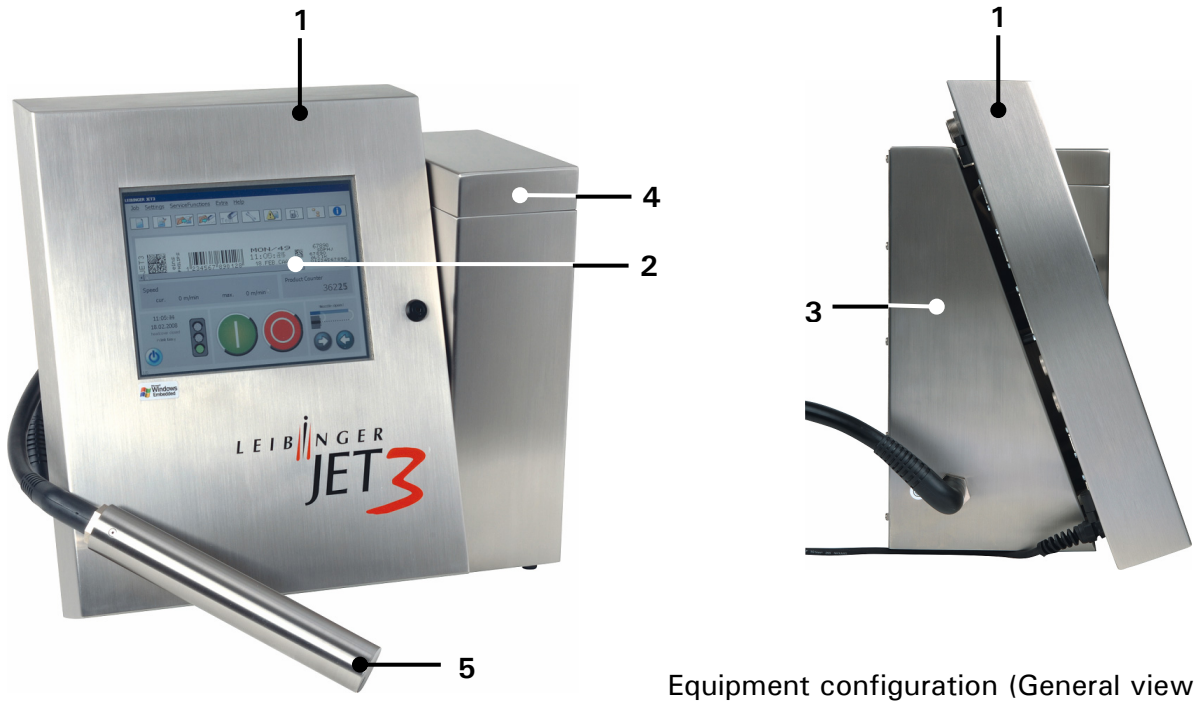
Pin	Designation		Pin	Designation
1	+V (+5V)		3	Data +
2	Data -		4	GND

6. Operation

6.1 Construction/Structure of the device

The high-performance LEIBINGER JET3 is manufactured of a solid two parts stainless steel cabinet. Due to the two parts construction you will get a thermal separation between the hydraulic- and electronic section. The device consists of the following main components.

Figure 13



Equipment configuration (General view)

1 – Electronic cabinet
2 – TFT – Touch Display
3 – Hydraulic cabinet
4 – Refilling unit
5 – Print head with umbilical

In the closed **electronic cabinet** you will find the essential electronic components as power supply, the TFT-Touch Display as well as the controller board.

The large central arranged **TFT-Touch Display** describes the interactive interface for the operator. This central entry medium with its extensive 10,4" color display with backlight allows a clear, self-explaining operator guidance without additional keys and switches.

In the **hydraulic cabinet** you find all components which are required for the transportation and preparation of ink.

The **refilling unit** provides a supply of consumables. It contains two separate reservoir tanks for ink and solvent. The unpressurized tanks can be refilled without interrupt procedure, odorless and splash-free during the operation.

The **print head** contains all mechanical, electronical and hydraulic components which are required for the creation of print out. It is connected with the hydraulic cabinet by a flexible umbilical.

6.2 Functional principle

6.2.1 Method of working

The JET3 works in accordance with the continuous ink jet process. In this a constant ink jet is emitted from a jet nozzle which is broken down into a series of equal size drops under the influence of mechanical oscillations.

If required these drops are individually charged up electrostatically and deflected into a constant electrical field depending on the charge. As a result not just one point but rather a line of points can be applied contact-free with one jet. If the product used is moved vertically to the drop deflection two-dimensional patterns (characters) can be created.

The drops that are not required for a programmed inscription are not charged and flow uninfluenced through the electrical deflection field into a gutter. In the gutter the drops are sucked up by a suction pump and fed back into the ink tank. Depending on the application alphanumeric data and graphics can be entered with the TFT touch display.

Data for font and texts are stored in the device (even in the event of power failure). If required it can be called up, altered or deleted quickly and easily.

Further more, all jobs, fonts and graphics can be saved as a back-up e.g. on a USB-stick or a SD-card.

6.2.2 Drop creation

During the drop creation the ink is pressed through a jet nozzle under pressure and at the same time modulated in such a way by highly frequent sinus oscillations that are imposed on the drop that it attaches itself to the nodal points of the oscillations and breaks down into individual drops at a specific distance l_A *(please see the following figure "Creation of a character")* from the jet. The oscillations are created with an oscillatory system that is excited by a Piezo oscillator.

6.2.3 Drop charging

In order to be able to charge the drops it is necessary for the ink to have electrical conductivity. This is possible through the use of specific salts that dissociate in the solvent used. The drop brake-off point of the modulated jet is automatically set in such a manner that this happens inside the charging electrode.

The drops can now be charged up by creation of voltage between jet and charging electrode, because they are given a negative charge through the charge shift resulting in the charge electrode gap. A specific charge voltage is clearly allocated for each drop charge.

6.2.4 Drop deflection

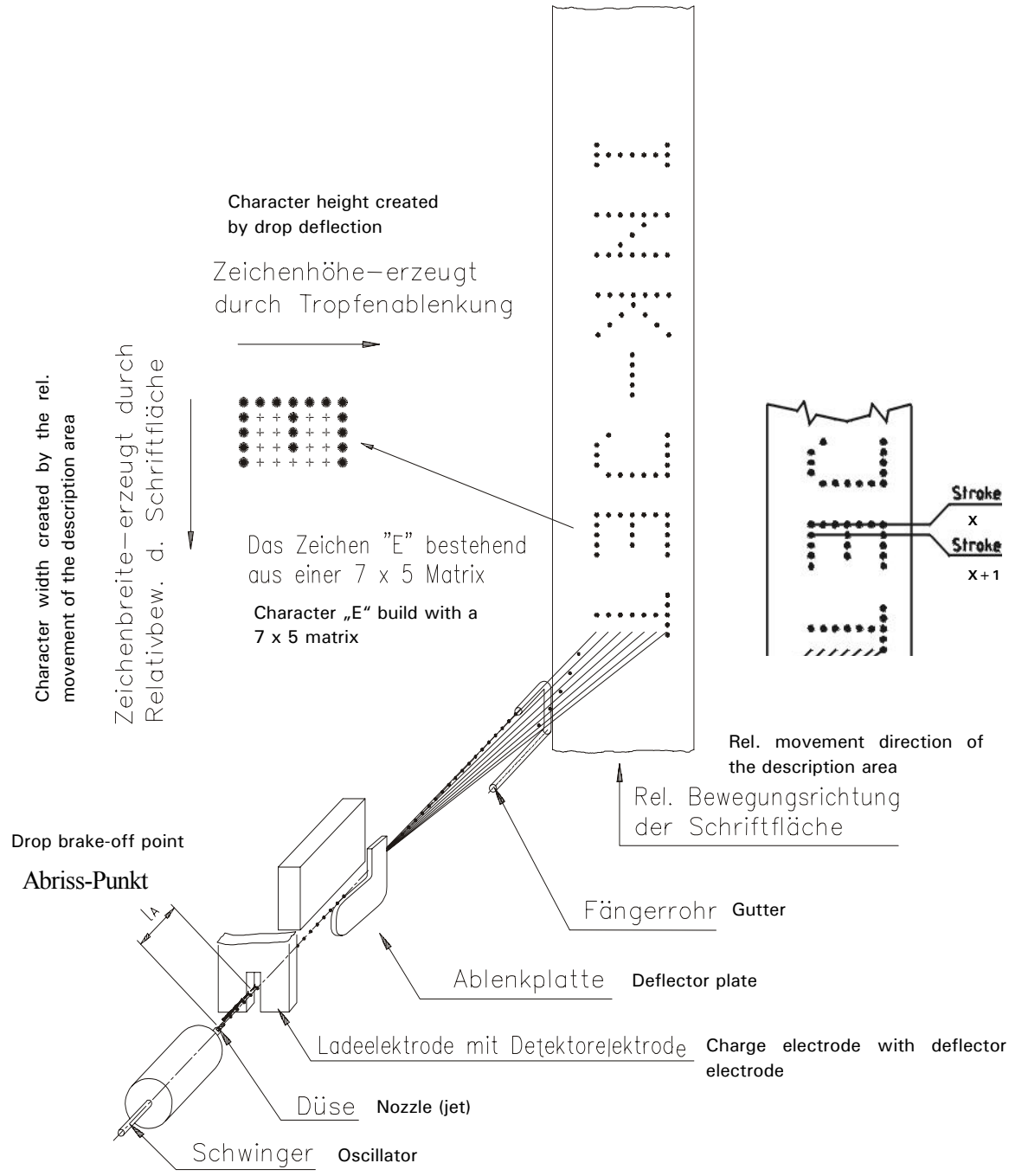
After the drops have left the charging electrode they fly through an electrical field. Here, those droplets that were previously charged in the charging electrode are deflected. The drops that have not been charged fly straight ahead into the gutter. Here they are sucked up and fed back to the circular flow of ink. The charged drops are only deflected in one direction, the other direction is performed by the product to be inscribed.

6.2.5 Creation of a character

Each character is defined by a two-dimensional matrix, e.g. 7 x 5. An ink drop can be assigned to every point of intersection. The character is formed by deflecting the ink drops in a vertical direction and by moving the product which is to be imprinted horizontally. The ink drops which are not to be positioned are not given electrostatic charges in the charging electrode, and pass through the electrical field without being deflected and on into the gutter tube. The controller (CPU) of the printer calculates the values which are required for the generation of charging voltages of the single characters.

6.2.6 Summary of the individual procedures

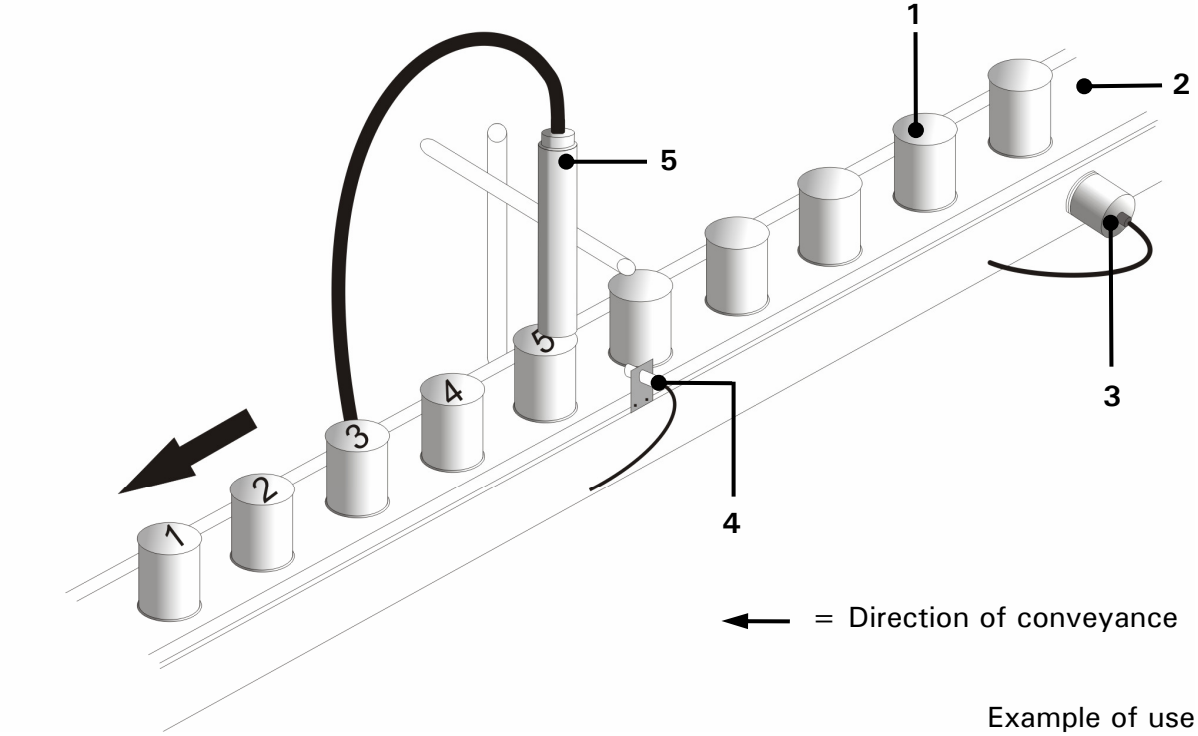
Figure 14



Creation of a character

6.2.7 Example of use

Figure 15



Example of use

1 – Product
2 – Conveyor belt
3 – Encoder
4 – Sensor
5 – Print head

6.3 Safety instructions

Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!

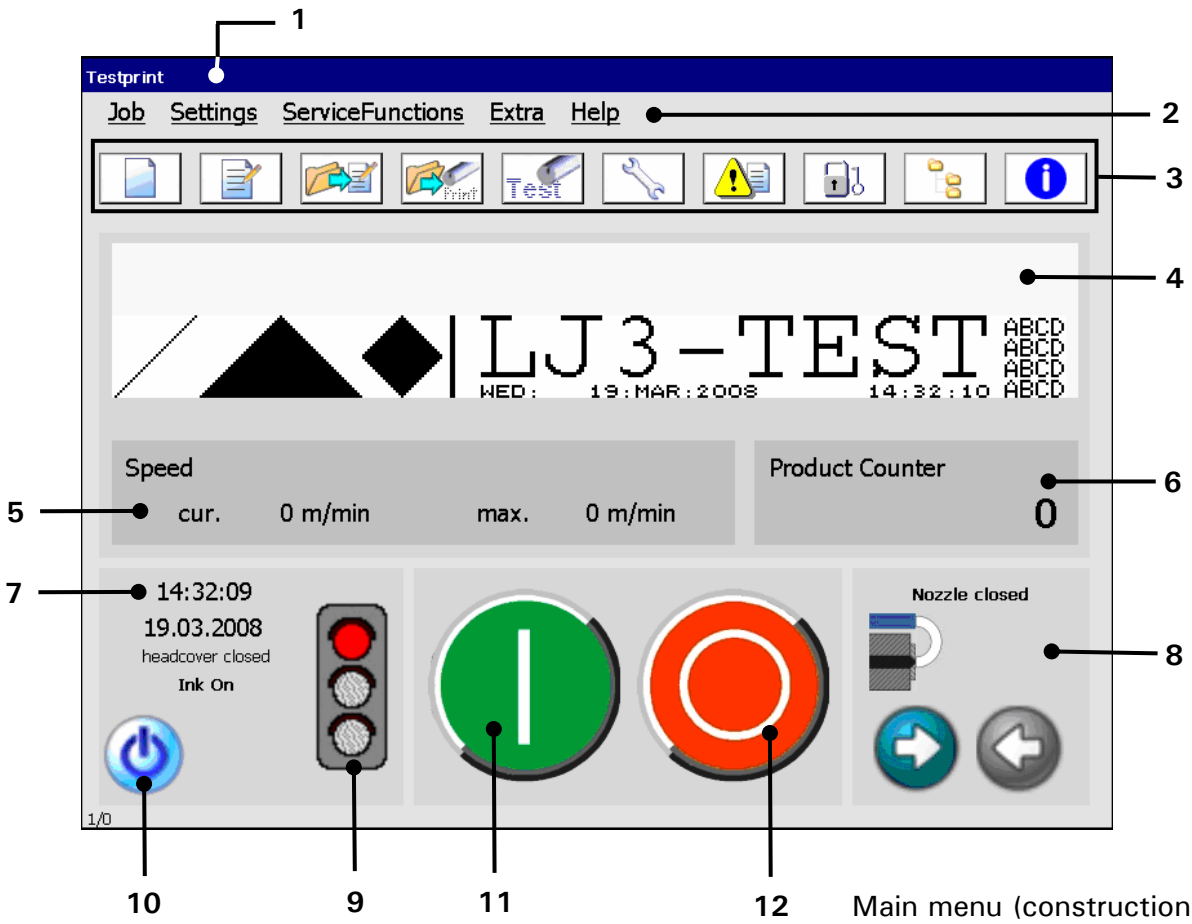
Risk of injury!

Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

6.4 Essential operating- and information elements

This chapter describes the essential operating- and information elements of the LEIBINGER JET3 main menu.

Figure 16



Main menu (construction)

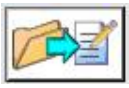
1 – Title bar
2 – Main menu bar
3 – Direct buttons
4 – Display range
5 – Status field <Printing speed>
6 – Status field <Product counter>
7 – Status field <General>
8 – Status field <Nozzle>
9 – Device status (traffic light)
10 – Button <Off/Shut down>
11 – Button <Printstart>
12 – Button <Printstop>

- **Title bar (1):** The title bar is displayed at the top of the main menu and contains the name of the active printing job.

- **Main menu bar (2):** The corresponding menus of the JET3 can be called with the buttons in the main menu bar. The following menus are available:

  - Job
  - Settings
  - Servicefunctions
  - Extra
  - Help

- **Direct buttons (3):** Several menus or submenus of the JET3 can be called directly with the direct buttons. The following direct buttons are available:

Pos.	Button	Function-/menu designation	Comment
1.		Create new job	Editor opens
2.		Edit current job	Editor with the current loaded job opens.
3.		Open job to edit	Job selection menu opens.
4.		Open job to print	Job selection menu opens.
5.		Test-print function	Special appliance for a fast print control and troubleshooting
6.		Hydraulic/Printhead test and maintenance menu	
7.		Data Logging	
8.		Login	
9.		Explorer	Data file manager to import jobs, graphics and fonts
10.		Info	System information menu opens

- **Display area (4):** In this area the printing data of the loaded job which should be currently printed or loaded is displayed in the WYSIWYG-mode.

- **Status field <Printing speed> (5):** In this field the current reached printing speed as well as the max. possible printing speed under consideration of the made settings are displayed. The display is carried out in the measurement m/min or inch/min, depending on the selected adjustments in the basic settings.

- **Status field <Product counter> (6):** The current value of the production counter is displayed in the field. By pressing on the field you can change or reset the value of the counter.

If a print stop is defined after a pre-defined amount of prints, the value is also shown in the status field. For better visualization that a pre-defined print stop has been defined, the field is displayed with a red frame.

Figure 17

Status field <Product counter>

You will find further information also in the **Chapters Reset Production counter** *and* ***Change Production counter*** as well as in the **Chapter Production counter**!

- **Status field <General> (7):** In this field the current time, date as well as the status of the head cover and the ink supply are displayed.

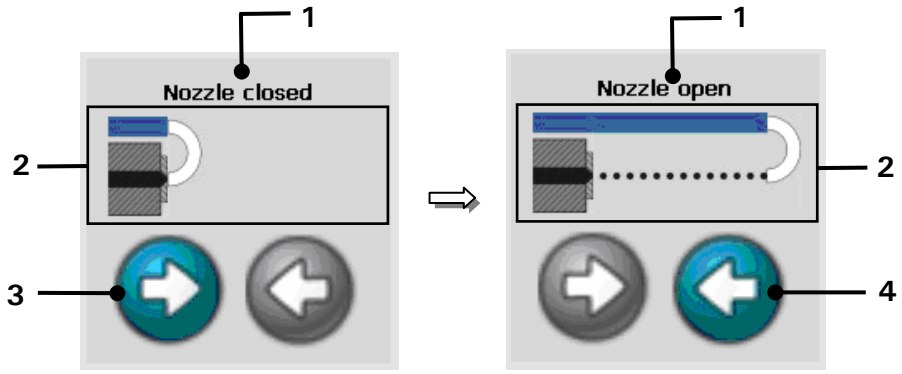
- **Status field <Nozzle> (8):** This field shows the current operating condition of the nozzle and enables the opening or closing of the nozzle. The condition is displayed in the form of a text message (1) and of an active visualization graphic (2).

Operating conditions:

- Opening nozzle
- Closing nozzle
- Nozzle open
- Nozzle closed

With the buttons **<Opening nozzle>** (3) and **<Closing nozzle>** (4) you can open or close the nozzle. The executable button is backgrounded blue-grey.

Figure 18

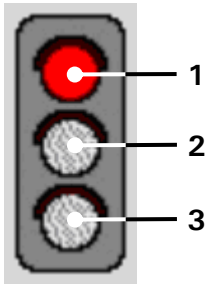


Status field <Nozzle>

1 – Status report
2 – Visualization field
3 – Button <Opening nozzle>
4 – Button <Closing nozzle>

■ **Device status (traffic light) (9):** The status traffic light visualizes the current condition of the JET3.

Figure 19



1 – red LED
2 –yellow LED
3 – green LED

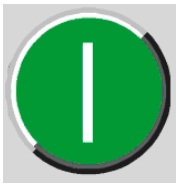
Status traffic light

Display	Device status	Causation/Comment
all LEDs off	No errors or warnings are pending, but the LJ3 is not ready to change to the print mode.	e.g.: Nozzle is closed, head cover is open, etc.
red LED on	An error is pending which requires an immediate intervention of the operator to get the print readiness or to continue an active print process.	e.g.: Phasing error, PrintGo-error, HV-error, etc.
yellow LED on	An intervention of the operator is required in the foreseeable future because an warning is pending. If the JET3 is in the print mode, the print process will be continued.	z.B.: Refill, Leakage, etc. If the message is acknowledged without changing the condition (e.g. no refill has been carried out) the message will appear again after one minute.
green LED on	The printer signalizes the readiness to print or that it can be switched to the active print mode.	The button **<Print stop>** is illuminated.

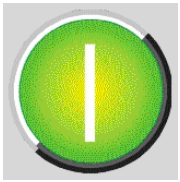
■ **Button <Off> (10):** With this button you can switch off the device.

You will find further information also in the **Chapter *Switch off device!***

- **Button <Printstart> (11):** With this button the print job will be released for processing. If a print job is activated, the button is displayed backlighted. It will be printed as soon as a PrintGo is released.



= Print start inactive (Print job is not released for processing)

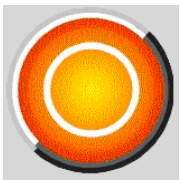


= Print start active (Printer is in active print mode)

To carry out a print process, you have to enter a text or you have to select an existing job. You will find further information regarding this topic in the group **Jobeditor**.

- **Button <Printstop> (12):** The released print job is stopped with this button. If a print stop is activated, the button is displayed backlighted.

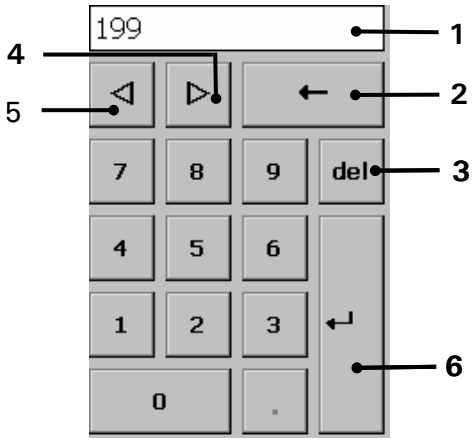
= Print stop inactive



= Print stop active (current print job is stopped or no job for processing is released)

6.4.1 Number blocks

Figure 20



1 – Display
2 – Button <Backspace>
3 – Button <del>
4 – Button <▷>
5 – Button <◁>
6 – Button <Return>

Structure of the number blocks

The figures are entered with the number blocks.

The entered value is shown in the **Display** (1).

The button < **Backspace** ←> (2) deletes the character in front of (to the left of) the current cursor position.

The button <**del**> (3) enables the deletion of the characters behind (to the right of) the current cursor position.

With the button <▷> (4) you can shift the current cursor position by one digit to the right.

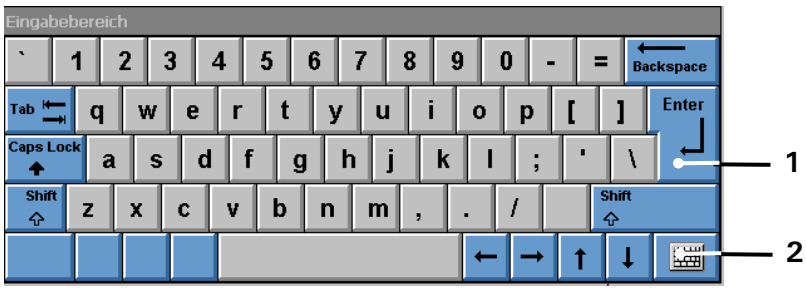
With the button <◁> (5) you can shift the current cursor position by one digit to the left.

With the button <**Return** ↵> (6) you can take over the input and the number block closes.

6.4.2 Keyboard fields

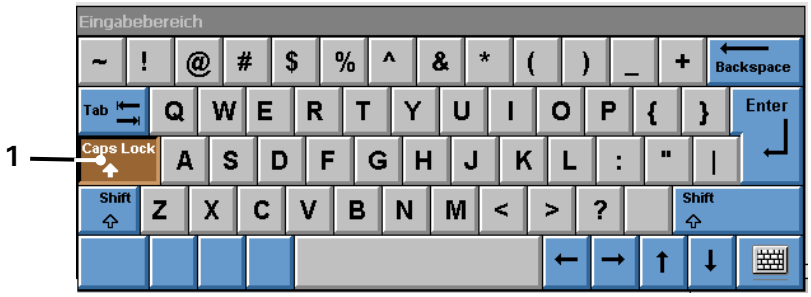
Figure 21

Standard characters



Special characters (advanced font)

Caps Lock/Standard characters



Caps Lock/ Special characters (advanced font)

Structure of keyboard field

1 –Button <Return>
2 –Button <Special characters>
3 – Button <Caps Lock>

The characters are entered with the keyboard fields. The structure of the keyboard fields corresponds to the common computer keyboards.

Note: *Depending on the installed language package (e.g. Cyrillic) the structure can vary from the shown display.*

With the button <**Return** ↵> (1) the input is taken over and the number block will be closed.

With the button <**Special characters**> (2) you can change between the standard characters and the special characters.

6.5 Basic operating processes

This paragraph describes the basic operating processes of the LEIBINGER JET3.

6.5.1 General

The complete control of the JET3 can be carried out with a connected PC-mouse or directly with the TFT-Touch-Display.

For the operation with the Touch-Display the control of the device happens by a slight touch on the buttons (touch-fields) with the finger or with the touch pin (included in the delivery). Here the targeted precision is decisive and not the pressure.

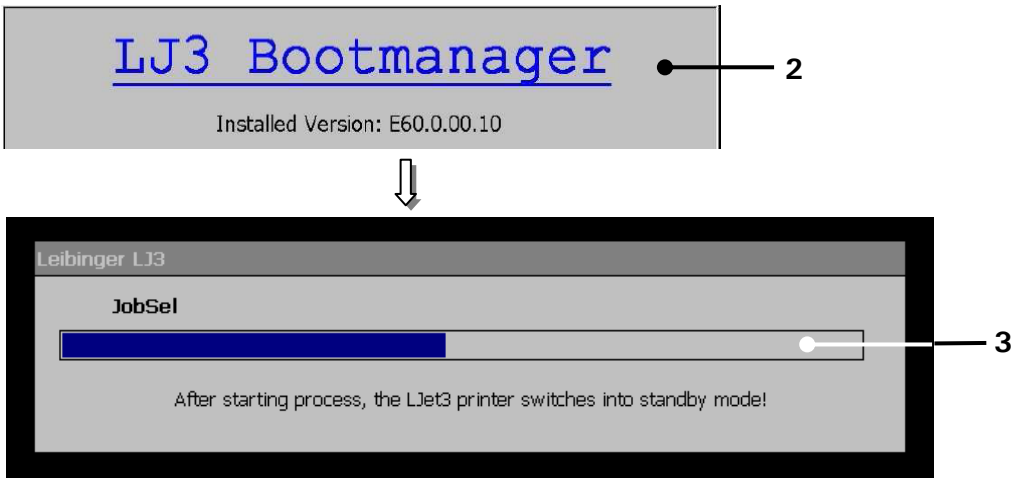
The operation with the Touch-Display is described subsequently.

Accidentally touching can release unintentional device conditions.

6.5.2 First initialization of the device

After connection to the mains power or after a power interruption, the initialization of the device will be carried out automatically. For this procedure the boot-manager is started. The progress of the initialization is shown by a bar. After finishing the process the device is switched to the standby-mode (monitor is dark) and the JET3 is now ready to switch on by pressing the touch screen.

Figure 22



Initialization process

1 – Bootmanager 2 – Progress display

6.5.3 Switch on device

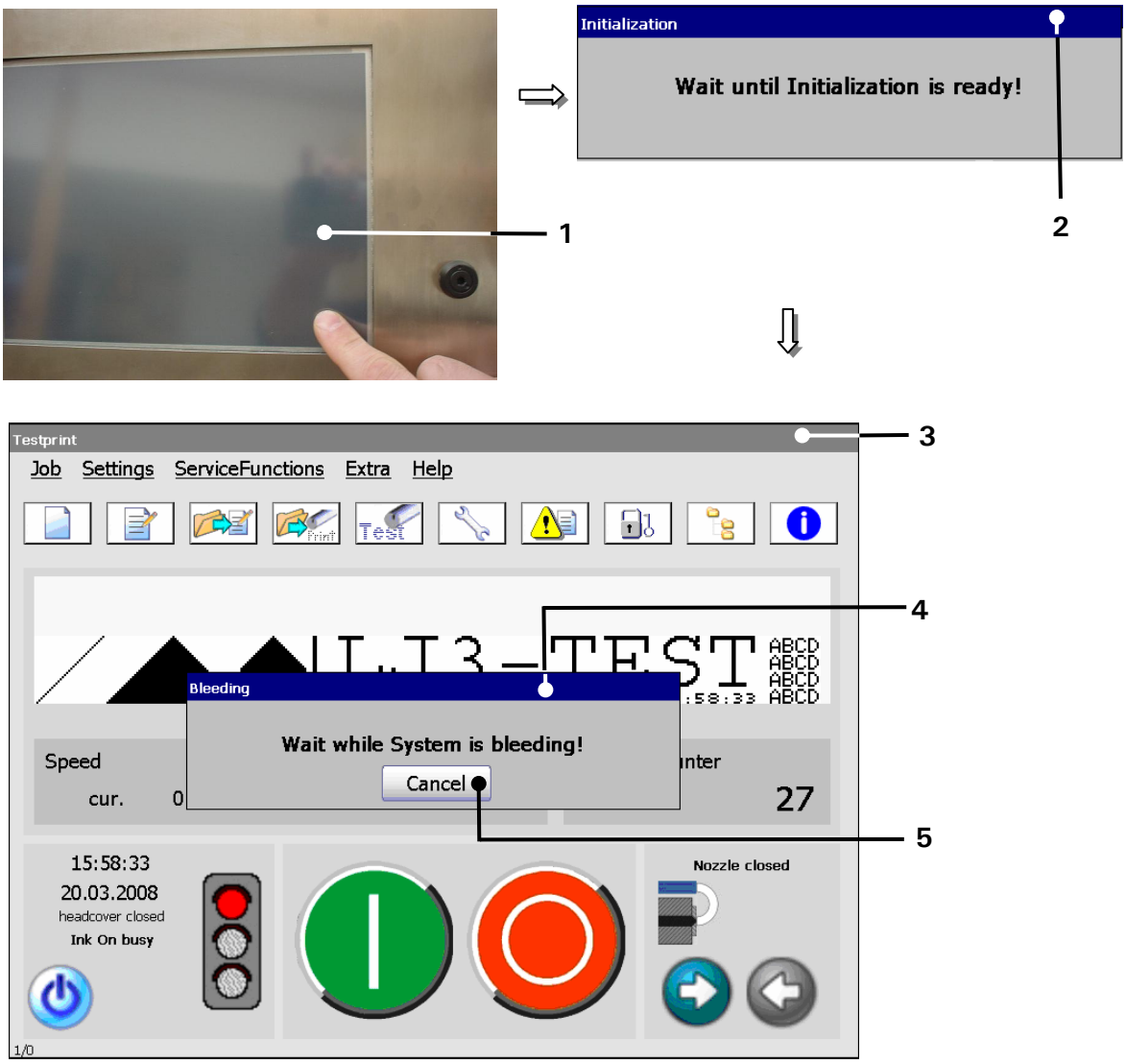
6.5.3.1 Switching on without password protection

Proceeding:

- Touch the dark **Touch-Display** (1) at any point. Period of touching approx. 2 sec..
- The device turns on and the main menu (2) is displayed with the message <**Initialization**> (3).
- After the initialization the device starts with the bleeding of the system automatically.
- During the process the message <**Bleeding**> (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button <**Cancel**> (5).

Note: *For starting the device the job which has been used at last will be loaded automatically.*

Figure 23



Switch-on procedure without password protection

1 – TFT-Touch-Display
2 – Message <Initialization >
3 – Main menu
4 – Message <Bleeding>
5 – Button <Cancel>

6.5.3.2 Switching on with password protetction

Proceeding:

- Touch the dark **Touch-Display** (1) at any point. Period of touching approx. 2 sec..
- The device turns on and the main menu (2) is displayed with the message <**Initialization**> (3).
- After the initialization the device starts with the bleeding of the system automatically.
- During the process the **message** <**Bleeding**> (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button <**Cancel**> (5).

Note: *For starting the device the job which has been used at last will be loaded automatically.*

- The dialog field <**Current login**> (6) and a keyboard field (8) is faded in.

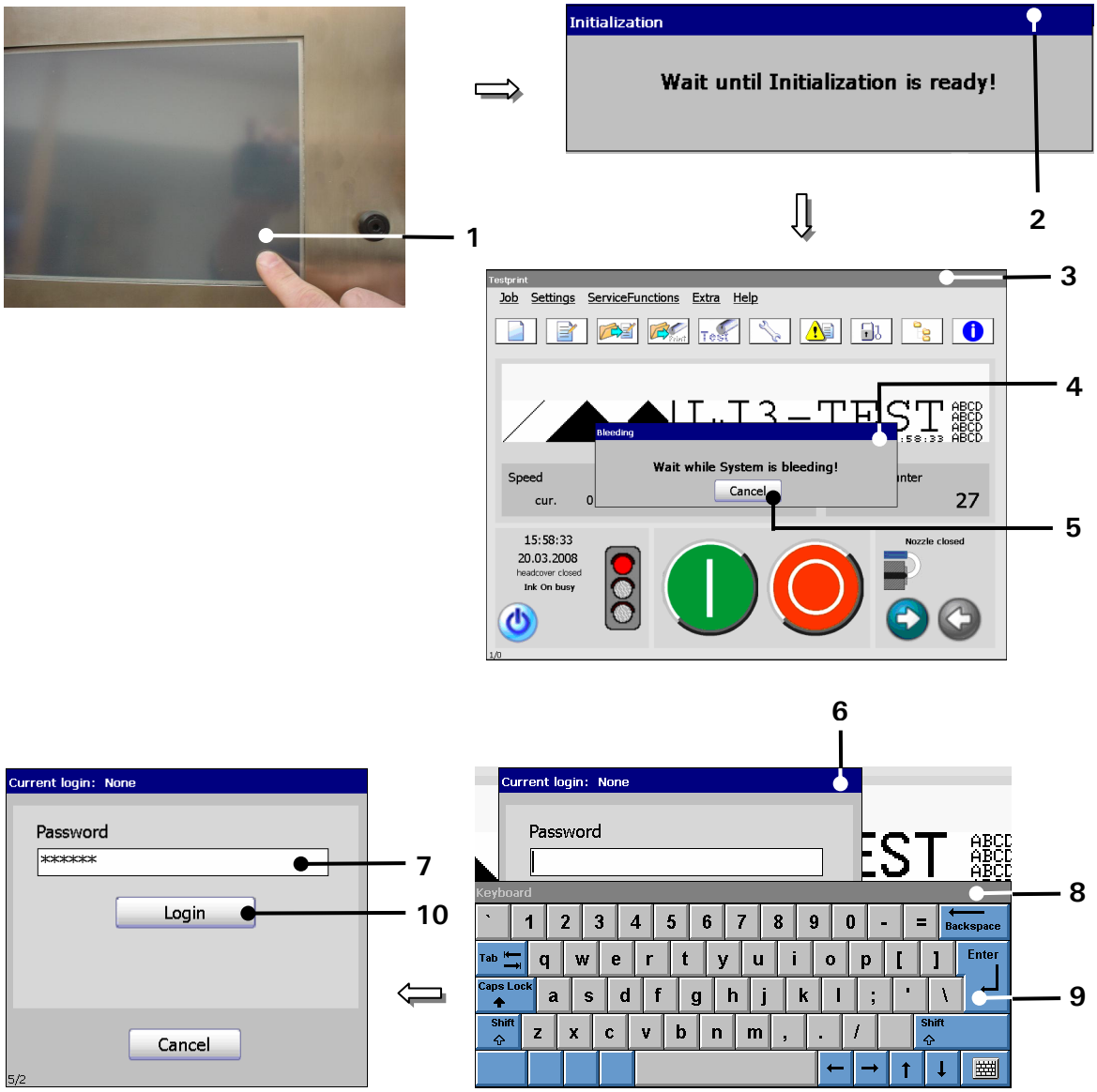
You will find further information regarding the operation with keyboard fields in the **Chapter *Keyboard fields***!

- Enter your password with the keyboard field.
- Press the button <**Enter**> (9) of the keyboard field to finish the input.
- Now press the button <**Login**> (10) to finish the login.

Attention! The login can be also carried out without a password. In this case only several basic functions of the device are available for the user.

You will find further information in the **Chapter *Password protection***!

Figure 24

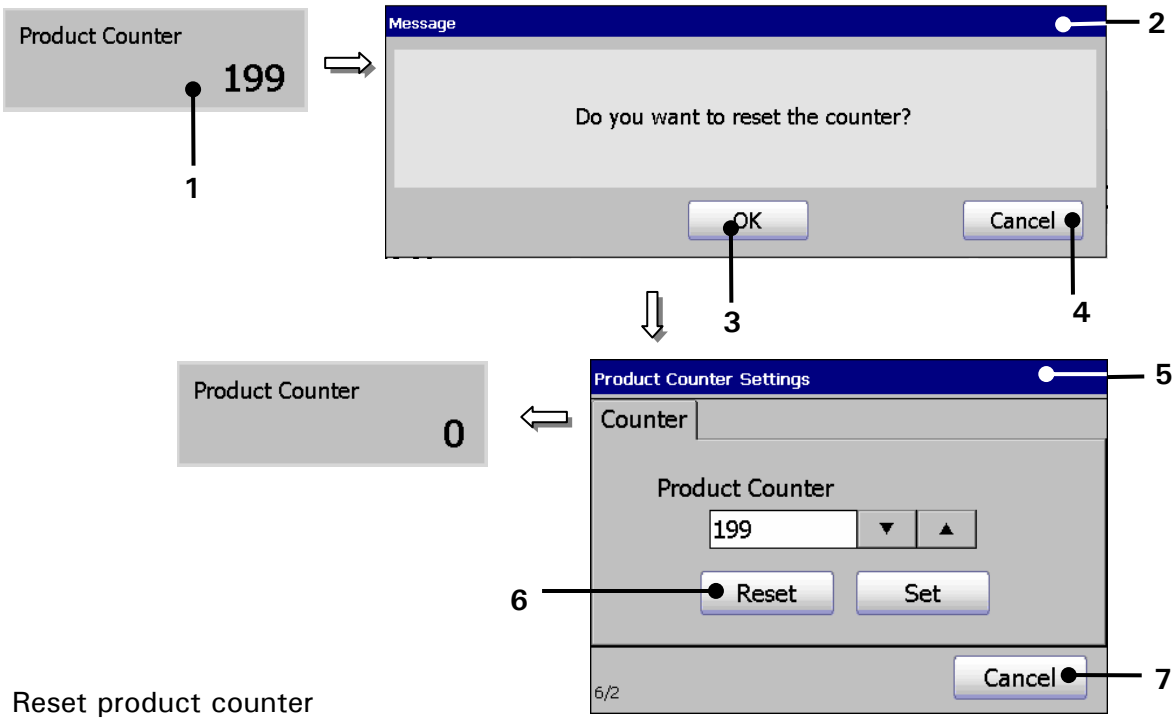


Switch-on procedure with password protection

1 – TFT-Touch-Display
2 – Message <Initialization>
3 – Main menu
4 – Message <Bleeding>
5 – Button <Cancel>
6 – Dialog field <Current login>
7 – Input field <Password>
8 – Keyboard field
9 – Button <Enter>
10 – Button <Login>

6.5.4 Reset product counter

Figure 25



Reset product counter

1 – Status field <Product Counter>
2 – Message <Safety query>
3 – Button <OK>
4 – Button <Cancel>
5 – Window <Product counter settings>
6 – Button <Reset>
7 – Button <Cancel>

Proceeding:

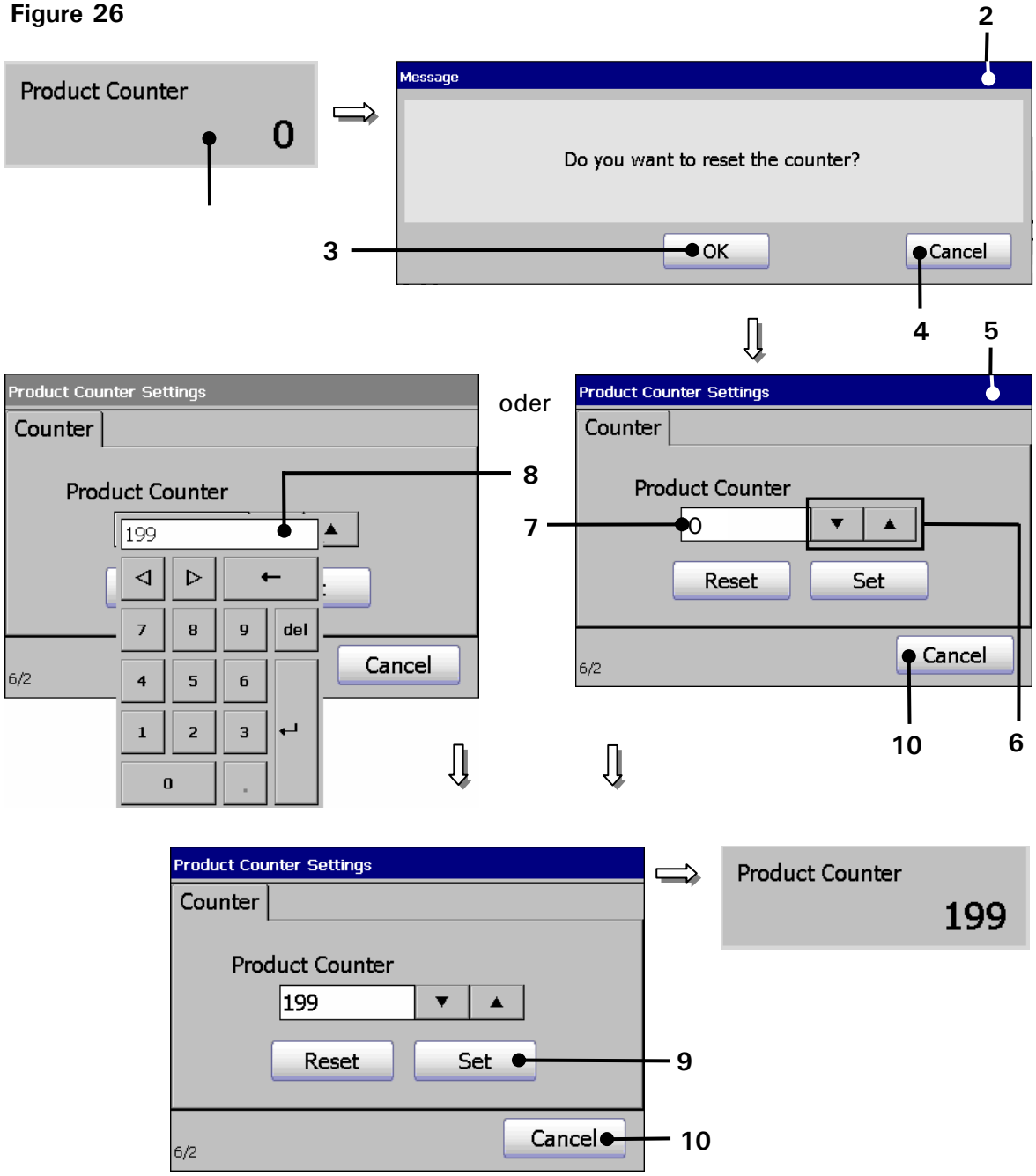
- Press on the status field <**Product counter**> (1).
- A **safety query** (2), if the counter should be really reset is faded in.
- Confirm the reset by pressing on the button <**OK**> (3) or cancel the process with the button <**Cancel**> (4).
- The window <**Product Counter Settings**> (5) is faded in.
- Confirm the reset of the counter again by pressing on the button <**Reset**> (6) or cancel the process with the button <**Cancel**> (7).

Attention! If job counters (object counters) whose existing settings <**Counter Reset**> have been applied with the attribute „Product Counter“ are available in the current job, they will be also reset.

You will find further information also in the **chapter *Change product counter*** as well as in the **chapter *Product counter***!

6.5.5 Change product counter (Change value)

Figure 26



Change product counter (change value)

1 – Status field <Product counter>
2 – Message <Safety query>
3 – Button <OK>
4 – Button <Cancel>
5 – Window <Product counter settings>
6 – Arrow buttons
7 – Counter display field
8 – Number block
9 – Button <Set>
10 – Button <Cancel>

Proceeding:

- Press on the status field <**Product Counter**> (1).
- A **safety query** (2), if the counter should be really changed is faded in.
- Confirm the query by pressing on the button <**OK**> (3) or cancel the process with the button <**Cancel**> (4).
- The window <**Product Counter Settings**> (5) is faded in.
- Change the value of the counter with the **Arrow buttons** (6). The value of the counter will be increased or reduced by pressing on the corresponding buttons.

or

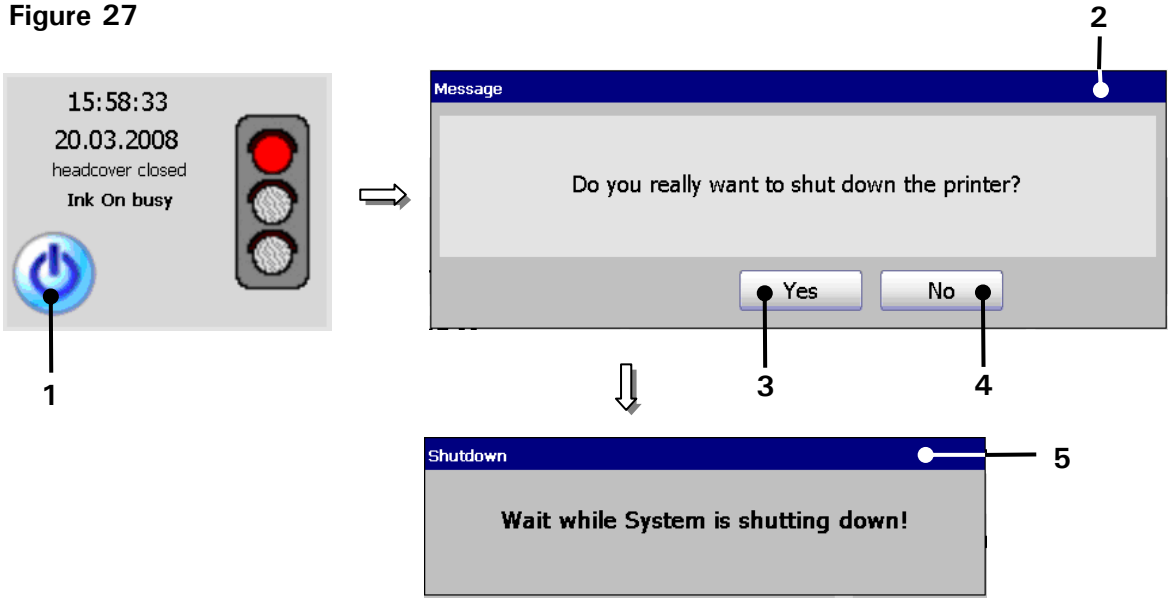
- Click in the **Counter display field** (7). The **number block** (8) opens for input.

You will find further information regarding the operation with number blocks in **chapter *Number blocks***!

- Confirm the change of values by pressing on the button <**Set**> (9) or cancel the process with the button <**Cancel**> (10).

6.5.6 Switch off device

Figure 27



Switch-off procedure

1 – Button <Off>
2 – Message <Safety query>
3 – Button <Yes>
4 – Button <No>
5 – Message <Shutdown>

Proceeding:

- Press the button **<Off>** (1).
- A **safety query** (2), if the printer should be really switched off is faded in.
- Confirm the shut down of the device by pressing the button **<Yes>** (3) or cancel the process with the button **<No>** (4) ab.
- Now the device is turned off. During the shut down the message **<Shutdown>** (5) is displayed.

Comment: *If the nozzle is still open during the turn-off procedure, it will be closed automatically.*

Turning off the device is only possible after a print stop has been carried out!

After turning off you have to wait approx. 5 sec. to turn on the device again.

6.6 Menu layout

Title bar:

The title bar is displayed at the top of a menu and contains the designation of the menu.

Example:

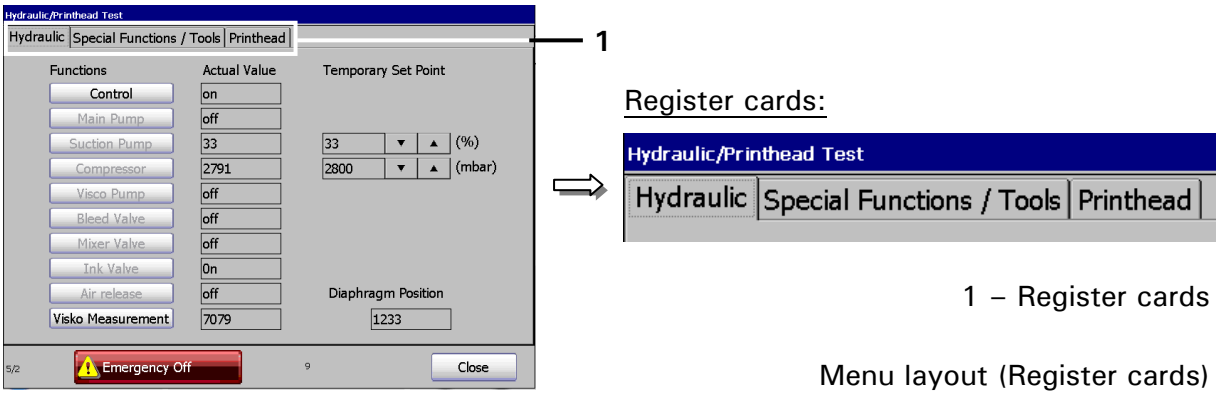
Register cards:

Complex menus are divided into so-called registers to get a better clearness. A register arranges the several menu points to logical functional areas.

The selection of a functional area happens by clicking on the corresponding register card.

Comment: *The proceeding corresponds to the Window™-standard procedure.*

Figure 28



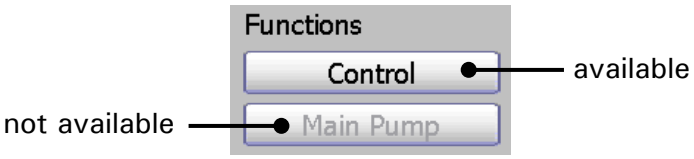
1 – Register cards

Menu layout (Register cards)

Display of functions:

If a function (menu item) is displayed slightly grey, it is not available at the moment.

Example:



If a function is activated or just carried out the background of the button will be displayed blue-grey during the process.

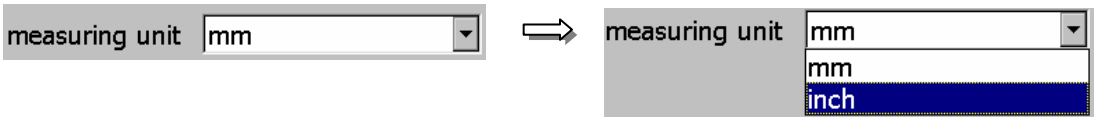
Example:

available, but not activated — Export — Export — activated

Pop-up window:

If several functions can be selected in one menu point or different parameters can be set, the selection happens by a so-called pop-up window.

Figure 29



Menu layout (Pop-up window)

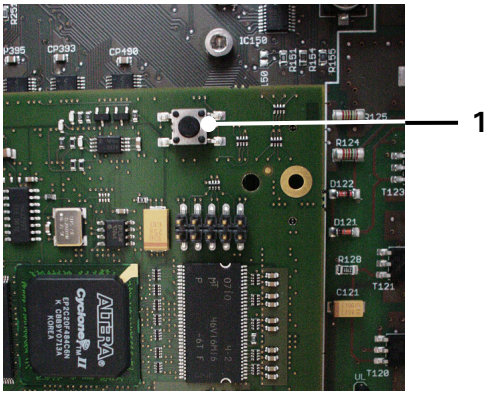
6.7 Other settings and functions

6.7.1 Carry out Hardware Reset

Reset-switch:

Enables the reset of the electronic in case of error. It is placed in the electronic-cabinet on the main board (controller board).

Figure 30



1 – Reset-switch

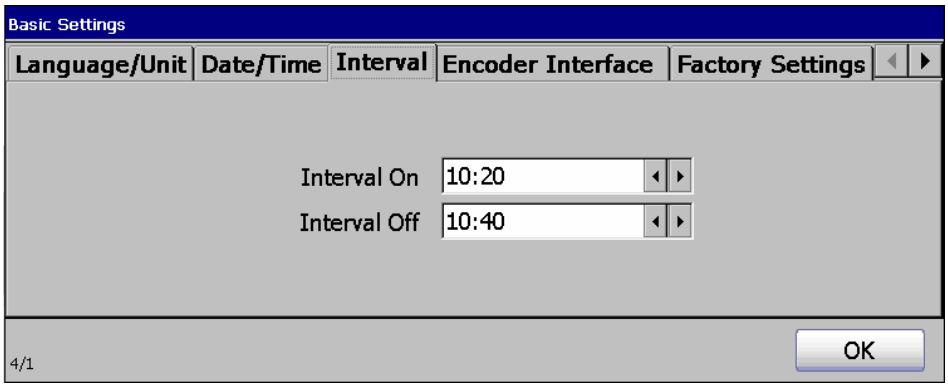
Reset-switch (Hardware Reset)

6.7.2 Interval operation (integrated clock timer)

The device has to be connected to the mains supply.

The device turns on automatically irrespectively of the ambient conditions!

The integrated interval function activates the LEIBINGER JET3 automatically in the on-state according to the times which have been set under the option **<Interval>** (“Settings ▶ Basic Settings ▶ Interval“).



The circulation of the ink prevents a drying up of ink and accumulation of ink components. The viscosity of the ink is constant.

You will find further information regarding setting of interval times in the **Chapter *Set Interval Operation***!

7. Data entry/Programming

7.1 General

Data which should be printed by the LEIBINGER JET3 can be entered, called, changed and saved with several input devices, e.g. TFT-Touch display, mouse etc..

The printer can also be programed and controlled with the (RS232/Ethernet) per external software (according to the Leibinger interface protocol for the LJ3).

Further more the LEIBINGER JET3 can also carry out several functions (e.g. job selection) by the control with digital signals (e.g. out of a SPS) and can be therefore also controlled locally.

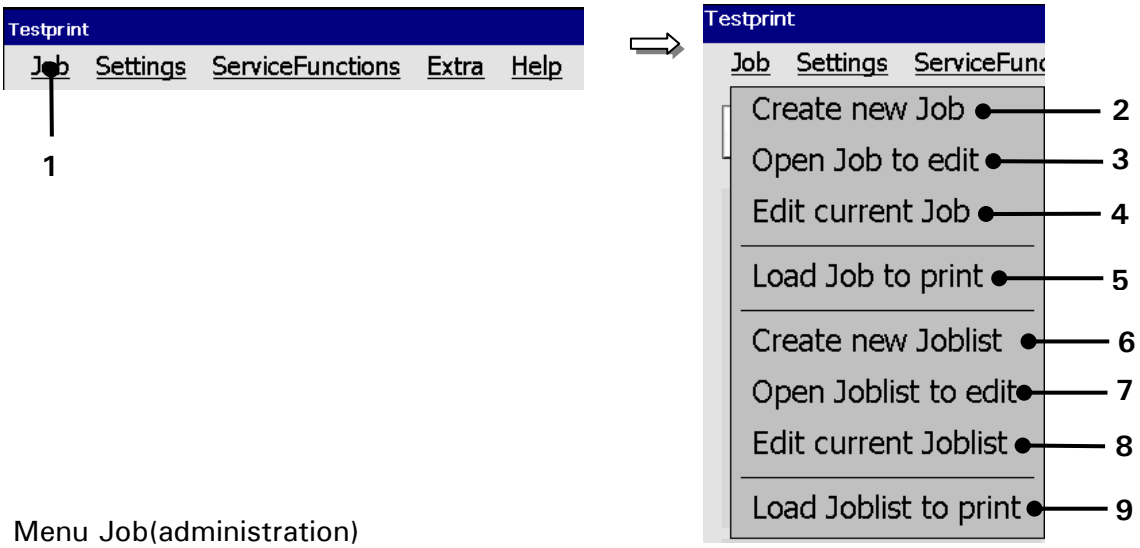
In the following the operation and programming with the TFT-Touch display are described.

7.2 Job administration

With the button <**Job**> in the main menu bar the submenu „Job“ is displayed. The following options are available:

- Create new Job
- Load Job to print
- Edit current Joblist
- Edit current Job
- Open Job to edit
- Create new Joblist
- Load Joblist to print
- Open Joblist to edit

Figure 31



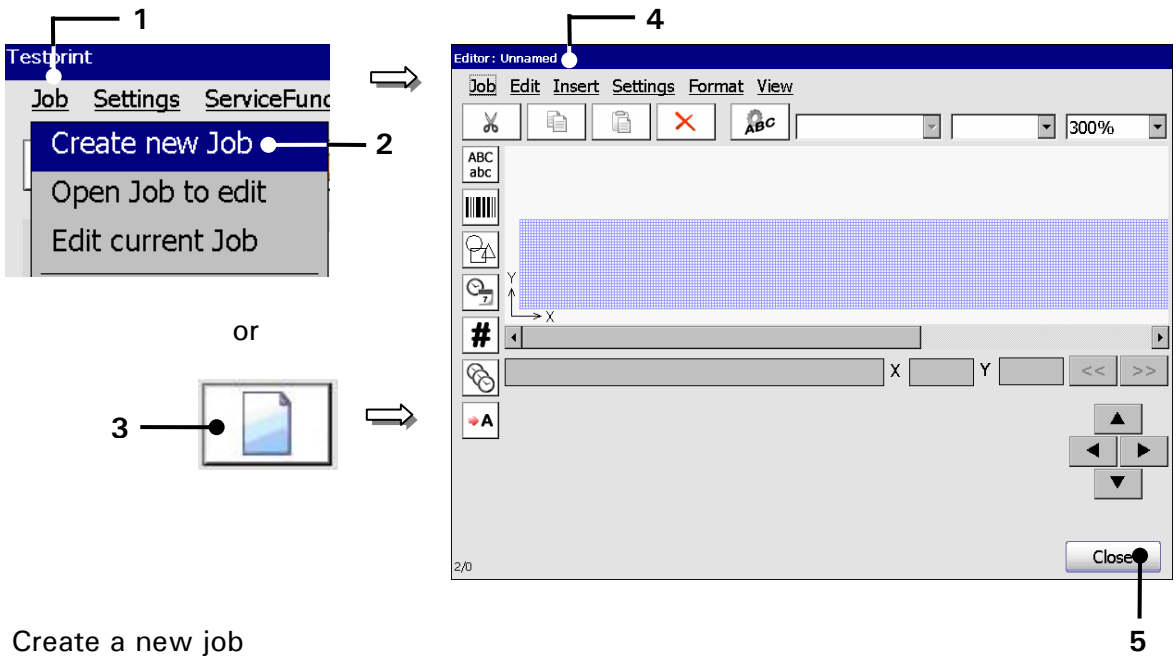
Menu Job(administration)

1 – Button <Job>
2 – Option <Create new Job>
3 – Option <Open Job to edit>
4 – Option <Edit current Job>
5 – Option <Load Job to print>
6 – Option <Create new Joblist>
7 – Option <Open Joblist to edit>
8 – Option <Edit current Joblist>
9 – Option <Load Joblist to print>

7.2.1 Create a new job

With the option <**Create a new Job**> or by pressing on the accordant direct buutton (Icon) you can create a new job. For creation the job editor opens where you can create the printing data and save it as a job. A variety of Windows® similar tools make the operation easier.

Figure 32



Create a new job

1 – Button <Job>
2 – Option <Create new Job>
3 – Direct button (Icon)
4 – Menu <Jobeditor>
5 – Button <Close>

Proceeding:

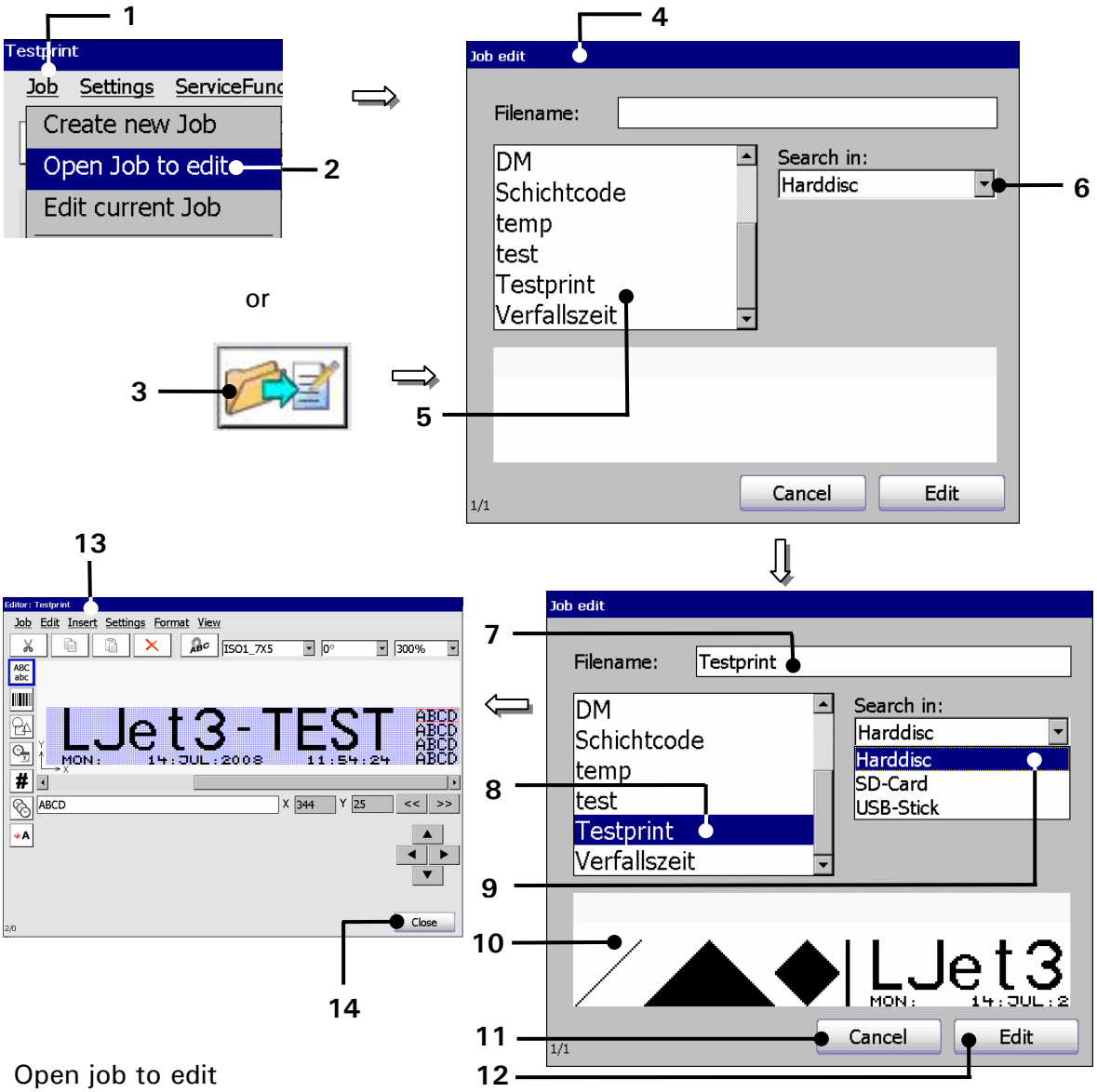
- Press the button <**Job**> (1) and the option <**Create new Job**> (2) or press the accordant direct button [icon] (3).
- The menu <**Jobeditor**> (4) opens to create the printing data.
- Carry out the requested inputs and save the job data. You will find further information regarding the memory process in the **group *Jobeditor*** in the **chapter Save *job/Save job as***.

You will find further information regarding the operation of the job editor in the **group *Jobeditor***.

7.2.2 Open job to edit

With the option <**Open Job to edit**> or by pressing on the accordant direct button (Icon) you can open an existing job for editing. For selection of a job the window „Job edit“ is faded in.

Figure 33



Open job to edit

1 – Button <Job>
2 – Option <Open Job to edit>
3 – Direct button (Icon)
4 – Window <Job edit>
5 – Selection field <Job list>
6 – Pop-up window <Search in>
7 – Display <Filename>
8 – Selected job
9 – Selected data carrier
10 – Display <Job preview>
11 – Button <Cancel>
12 – Button <Edit>
13 – Menu <Job editor>
14 – Button <Close>

Proceeding

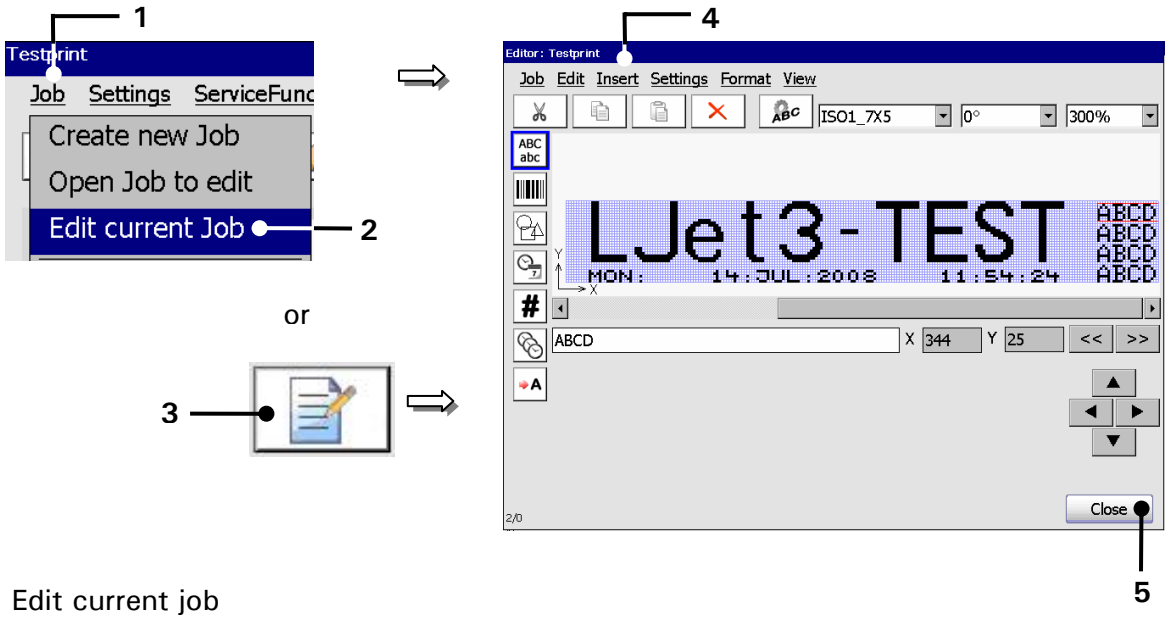
- Press the button <**Job**> (1) and the option <**Open Job to edit**> (2) or press the accordant direct button [icon] (3).
- The window <**Job edit**> (4) is faded in.
- Select the requested job in the selection field <**Job list**> (5). With the Pop-up window <**Search in**> (6) you can select the various memory locations.
- The name of the selected jobs is now shown on the display <**Filename**> (7). Additionally a preview of the printing job is faded in on the display <**Job preview**> (10).
- Press the button <**Edit**> (12) to take over the selected job or press the button <**Cancel**> (11) to cancel the process.
- The menu <**Jobeditor**> (4) opens to change the printing data. The name of the opened job is displayed in the title bar of the editor.
- Carry out the requested changes and save it. You will find further information regarding the memory process in the **group** ***Jobeditor*** in the **chapter** ***Save job/Save job as***.

You will find further information regarding the operation of the job editor in the **group** ***Jobeditor*****.**

7.2.3 Edit current job

With the option <**Edit current Job**> or by pressing on the accordant direct button (Icon) you can edit the current job.

Figure 34



Edit current job

1 – Button <Job>
2 – Option <Edit current Job>
3 – Direct button (Icon)
4 – Menu <Jobeditor>
5 – Button<Close>

Proceeding:

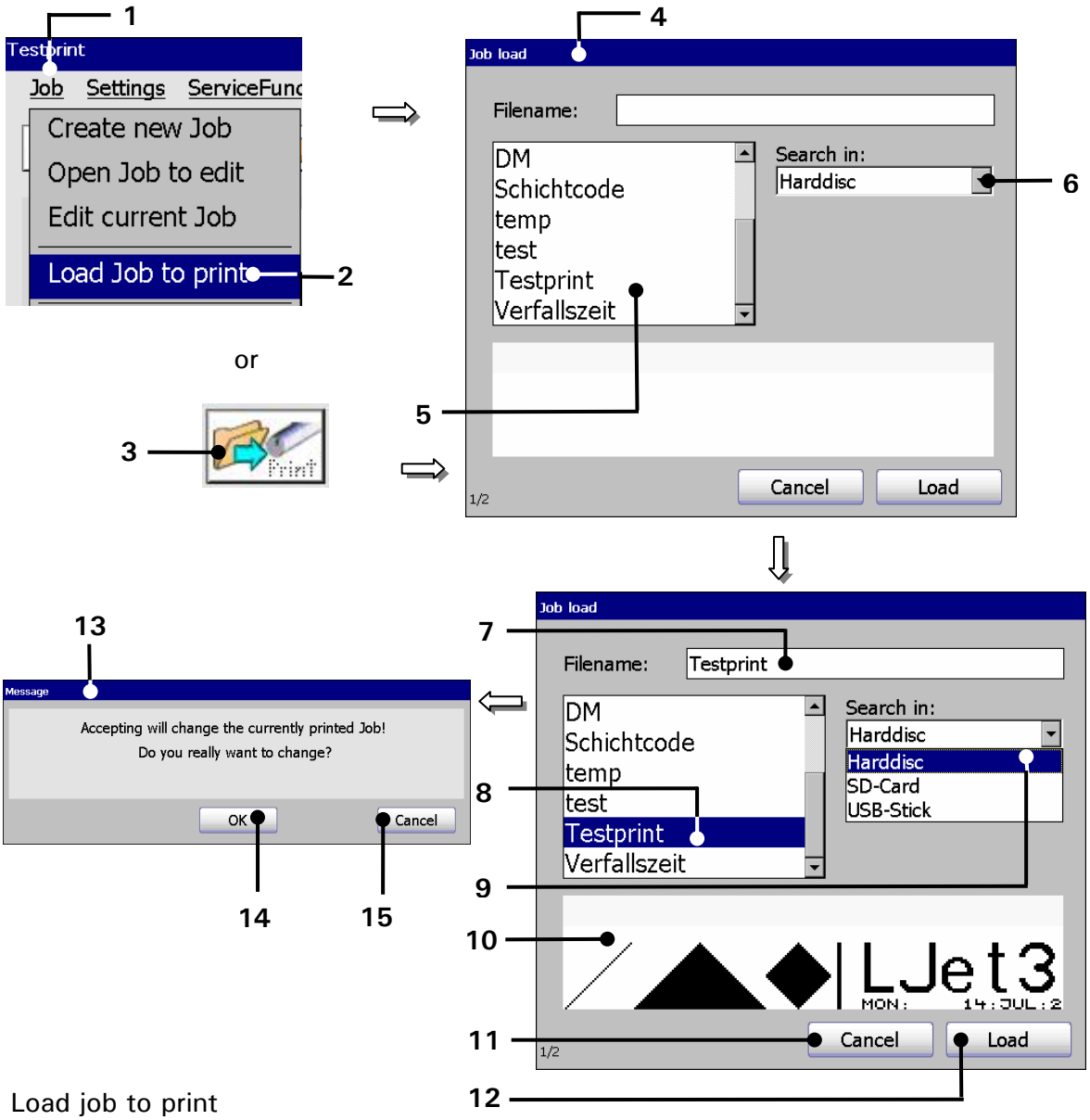
- Press the button <**Job**> (1) and the option <**Edit current Job**> (2) or press the accordant direct button [icon] (3).
- The menu <**Jobeditor**> (4) opens to change the printing data. The name of the opened job is displayed in the title bar of the editor.
- Carry out the requested changes and save it. You will find further information regarding the memory process in the **group *Jobeditor*** in the **chapter *Save job/Save job as***.

You will find further information regarding the operation of the job editor in the **group *Jobeditor***.

7.2.4 Load Job to print

With the option <**Load Job to print**> you can load (open) a saved job directly for printing. For selection of a job the window "Load job" opens.

Figure 35



Load job to print

1 – Button <Job>
2 – Option <Load Job to print>
3 – Direct button (Icon)
4 – Window <Job load>
5 – Selection field <Job list>
6 – Pop-up window <Search in>
7 – Display <Filename>
8 – Selected job
9 – Selected data carrier
10 – Display <Job preview>
11 – Button <Cancel>
12 – Button <Load>
13 – Message <Change print job>
14 – Button <OK>
15 – Button <Cancel>

Proceeding:

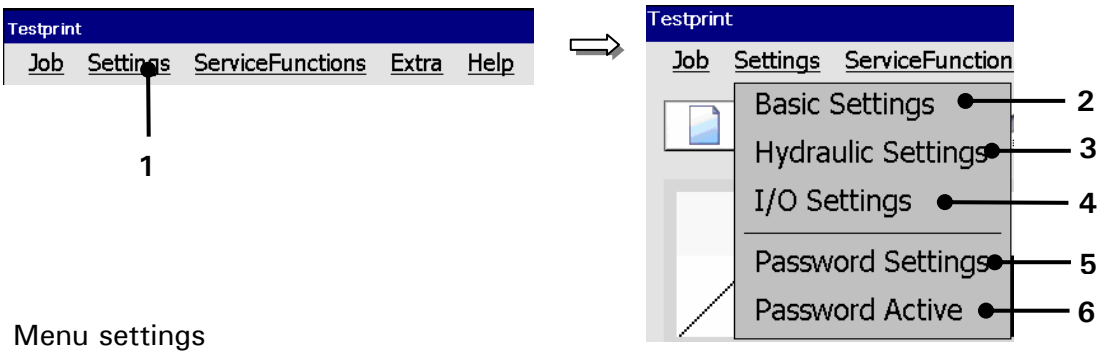
- Press the button <**Job**> (1) and the option <**Load Job to print**> (2) or the accordant direct button [Icon] (3).
- The window <**Job load**> (4) is faded in.
- Select the requested job in the selection field <**Job list**> (5). With the Pop-up window <**Search in** > (6) you can select different memory locations.
- The name of the selected job is now shown on the display <**Filename**> (7). Additionally a preview of the printing job is faded in on the display <**Job preview** > (10).
- Press the button <**Load**> (12) to take over the selected job or press the button <**Cancel**> (11) to cancel the process.
- A **safety query** (13), if the printing job should be really changed is faded in.
- Confirm the change by pressing the button <**OK**> (14) or cancel the process with the button <**Cancel**> (15).

7.3 Settings

With the button <**Settings**> in the main menu bar the submenu „Settings“ is displayed. The following options are available:

- Basic settings
- Hydraulic settings
- I/O settings
- Password settings
- Password active

Figure 36



Menu settings

1 – Button <Settings>
2 – Option <Basic Settings>
3 – Option <Hydraulic Settings>
4 – Option <I/O Settings>
5 – Option <Password Settings>
6 – Option <Password active>

7.3.1 Basic settings

With the option <**Basic Settings**> (2) the menu „Basic settings“ (3) opens.

This menu serves as setting of

- Language/Unit (Measurement)
- Interval function
- Factory Settings
- Date/Time
- Encoder interface
- IP-address

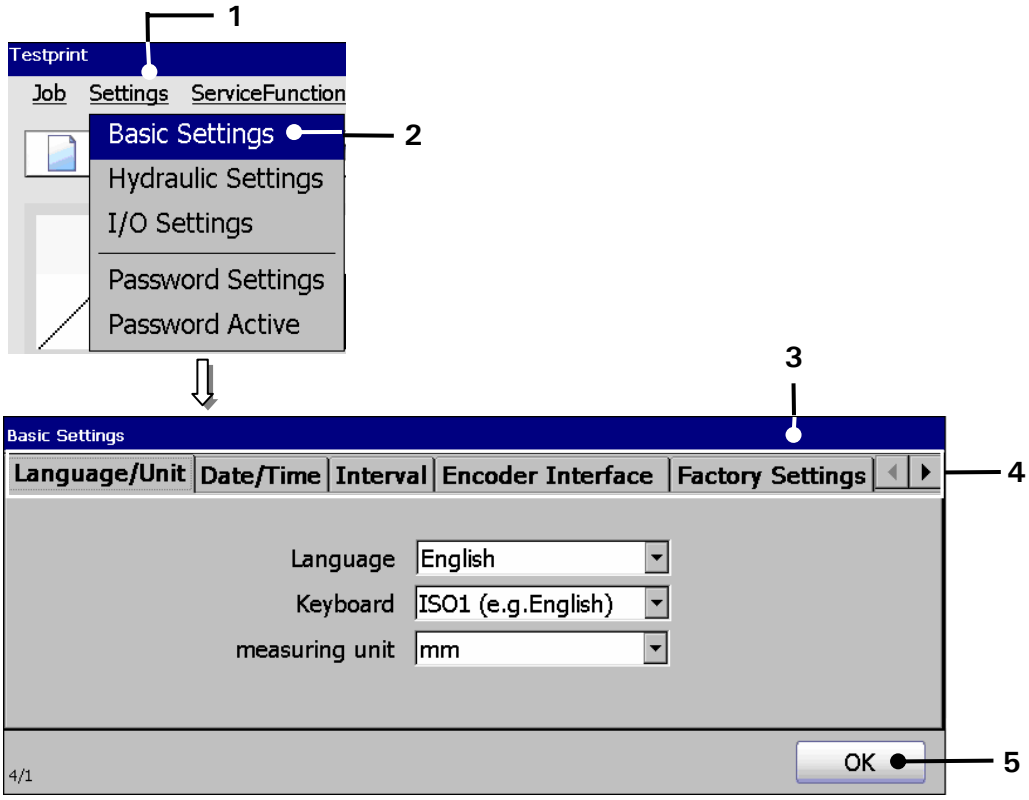
and to reset the device to the factory settings.

The selection of a functional area happens by clicking on the accordant register card (4).

Note: *The proceeding corresponds to the Windows™-standard procedure.*

The button <**OK**> (5) closes the menu.

Figure 37



Menu basic settings

1 – Button <Settings>
2 – Option <Basic Settings>
3 – Menu <Basic Settings>
4 – Register cards
5 – Button <OK>

7.3.1.1 Language and units

The JET3 allows the selection of the operation language, the ISO-fonts which are assigned to the keyboard as well as the used measuring unit. The parameters which are set currently are displayed in the pop-up windows.

1. Menu language:

The available menu languages are listed in the pop-up window. The available languages depend on the ordered version of the printer.

Note: *The function is also helpful to simplify the communication (e.g. in case of service) with the dealer or the LEIBINGER service-hotline because English language can be generally selected irrespectively of the installed language package.*

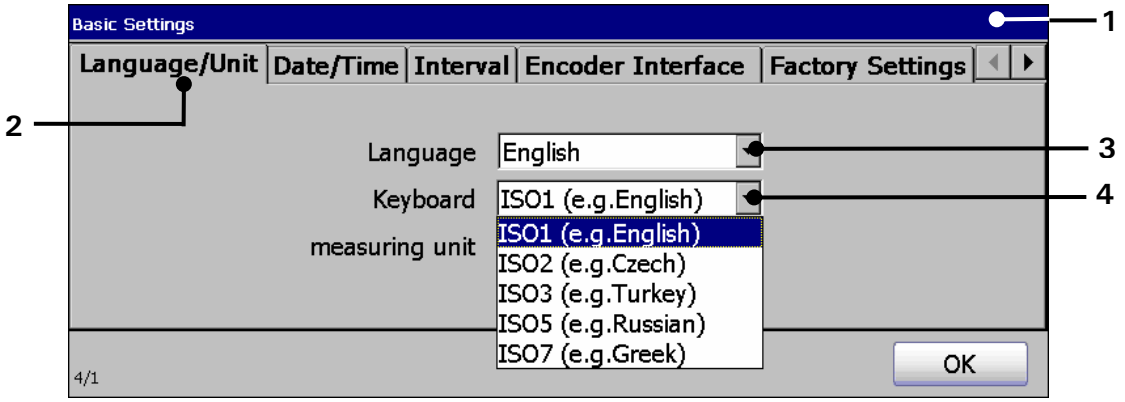
With the selected language the accordant ISO-font is assigned automatically to the keyboard.

2. Keyboard:

In this Pop-up window you can change preset ISO-fonts with the language selection.

Annotation: *The allocation of another ISO-font is reasonable e.g. if you have to create also characters of another language group additionally to the standard characters of the set language. These characters are then available in the advanced font of the keyboard.*

Figure 38



Set language and keyboard

1 – Menu <Basic settings>
2 – Register card <Language/Unit>
3 – Pop-up window <Language>
4 – Pop-up window <Keyboard>

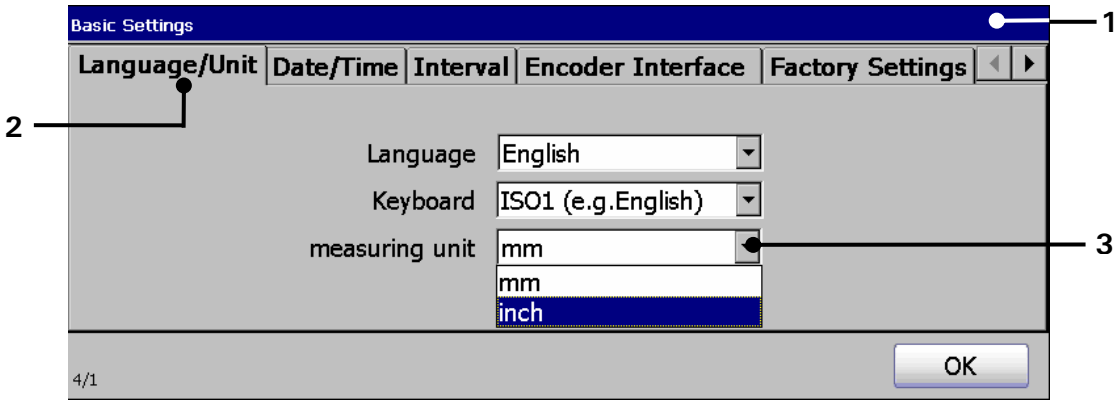
Proceeding:

- Press on the register card **<Language/Unit>** (2) to select the functional area.
- Press on the arrow button of the accordant pop-up window. The pop-up window opens for selection.
- Now select the requested language or the requested keyboard font.

3. Measuring unit:

The two different measuring units „mm“ and „inch“ are available.

Figure 39



Set measuring unit

1 – Menu <Basic Settings>
2 – Register card <Language/Unit>
3 – Pop-up window <Measuring unit>

Proceeding:

- Press on the register card **<Language/Unit>** (2) to select the functional area.
- Press on the arrow button of the pop-up window **<Measuring unit>** (3). The pop-up window opens for selection.
- Now select the requested measuring unit.

7.3.1.2 Date and time

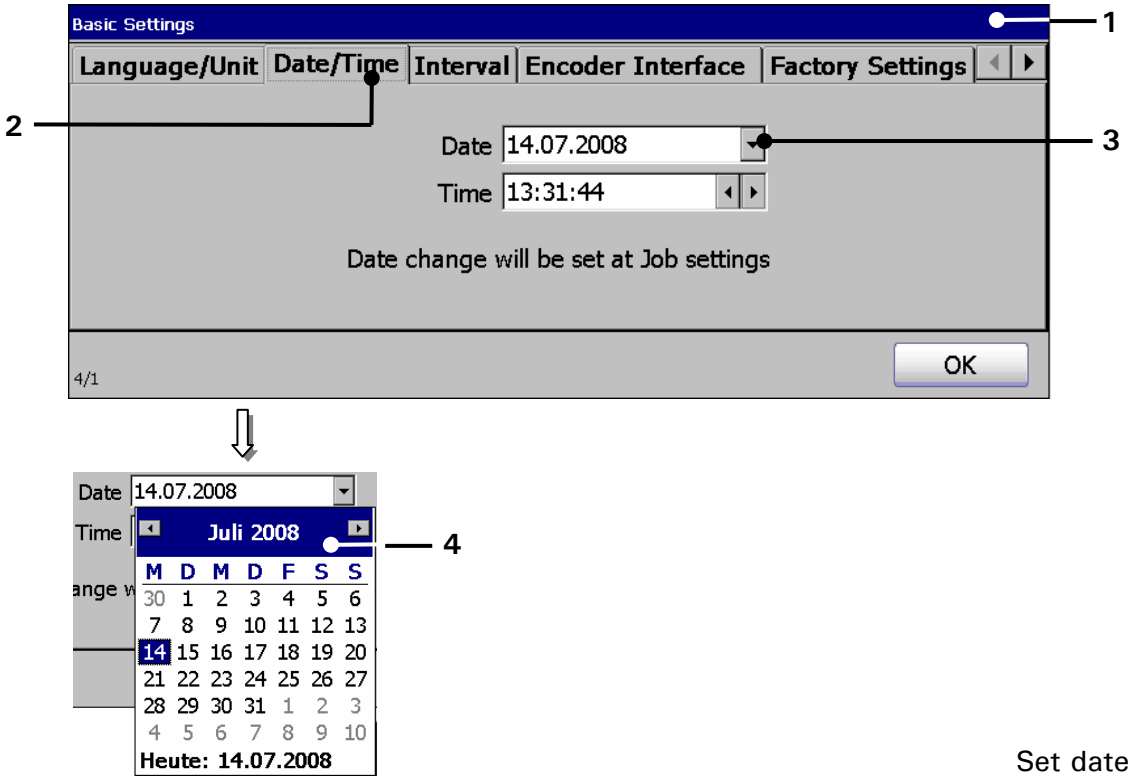
Under the register card <**Date/Time**> you can set the current time and date.

1. Date:

Proceeding:

- Press on the register card <**Date/Time**> (2) to select the functional area.
- Press on the arrow button of the pop-up window <**Date**> (3). A calendar (4) opens.
- Select the requested date. The calendar will be automatically closed and the selected date is taken over.

Figure 40

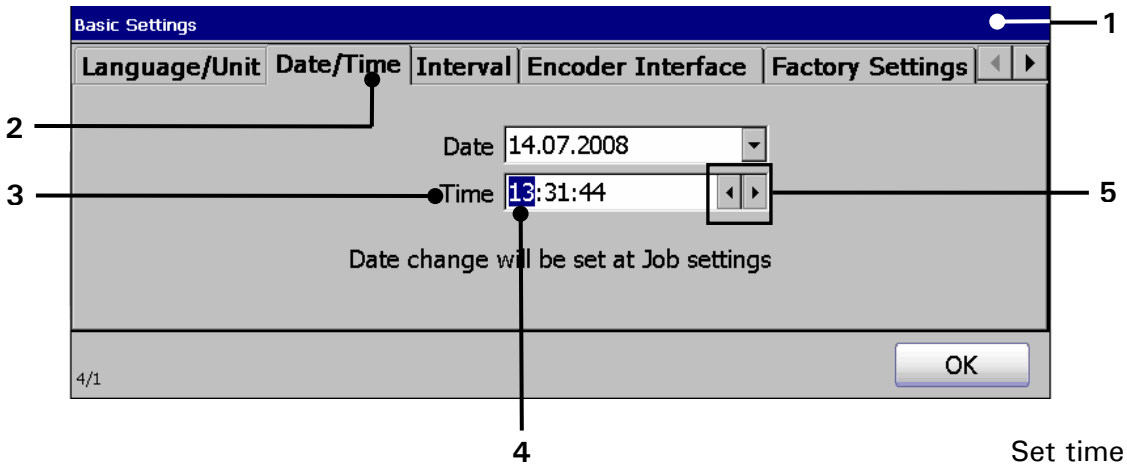


Set date

1 – Menu <Basic Settings>
2 – Register card <Date/Time>
3 – Pop-up window <Date>
4 – Calendar

2. Time:

Figure 41



Set time

1 – Menu <Basic Settings>
2 – Register card <Date/Time>
3 – Setting field <Time>
4 – Example hour block selected
5 – Arrow buttons

Proceeding:

- Press on the register card **<Date/Time>** (2) to select the functional area.
- Now mark in the setting field **<Time>** (3) the hour-, minute- or second block to change the values.
- With the two **<Arrow buttons>** (5) you can increase or reduce the values of the blocks wich are each marked.

7.3.1.3 Interval operation (Set interval time)

The mode <**Interval operation**> enables the input of start- and end times when the LEIBINGER JET3 turns on or off automatically (e.g. 10.20 pm, the device turns on / 10.40 pm, the device turns off). to circulate the ink.

This function prevents that the ink dries up or sediments as well as the jamming of the nozzle if the printer is turned off for a longer time.

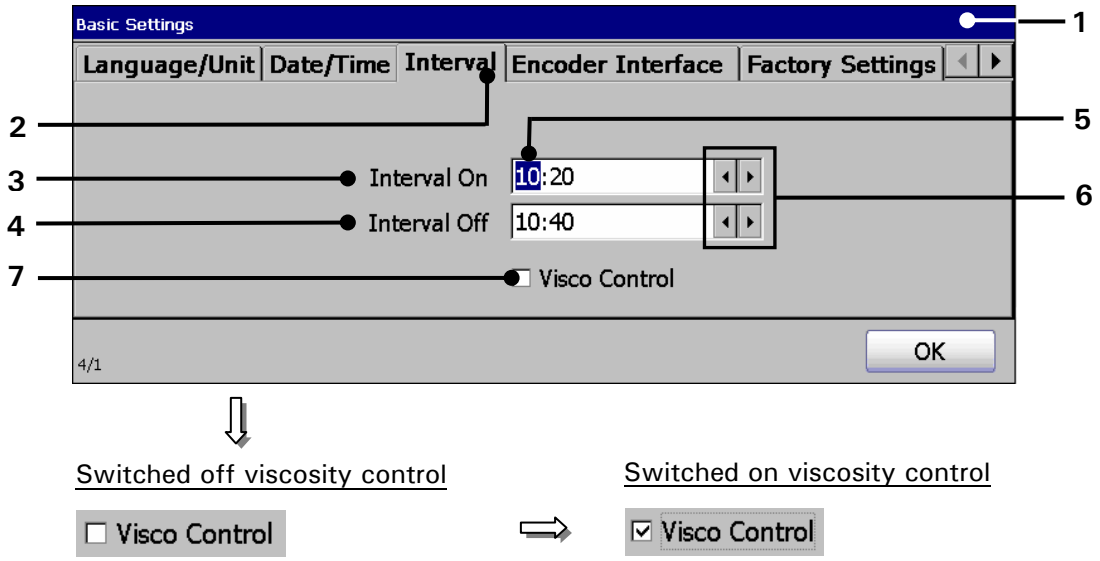
As standard the interval operation is carried out without viscosity control. In case of need the viscosity control can be also activated for the interval operation.

Attention!

The viscosity control should be only activated for special operating conditions of the JET3 or after consultation with the LEIBINGER-service department.

You should set an interval time of at least 20 minutes.

Figure 42



Interval operation (Set interval time)

1 – Menu <Basic Settings>
2 – Register card <Interval>
3 – Setting field <Interval On>
4 – Setting field <Interval Off>
5 – Example hour block selected
6 – Arrow buttons
7 – Control box <Visco control>

Proceeding:

- Press on the register card <**Interval**> (2) to select the functional area.
- Now mark in the setting field <**Interval On**> (3) the hour- or minute block to change the values.
- With the the two <**Arrow buttons**> (6) you can increase or reduce the blocks wich are each marked.
- Now carry out the settings in the field <**Interval (Off**> (4) accordingly.
- Now activate if necessary the viscosity control by clicking on the control box (7). An activated control is displayed by a √ in the control box.

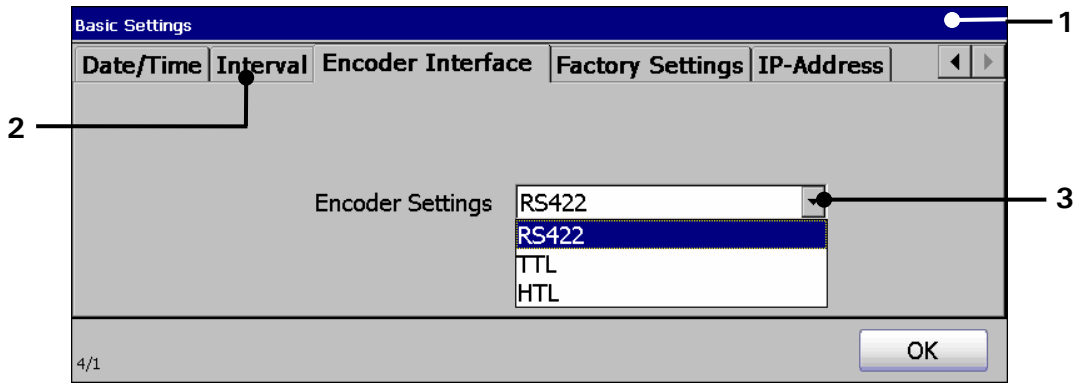
7.3.1.4 Encoder interface

Under the register card <**Encoder Interface**> you can define the incremental encoder.

Proceeding:

- Press on the register card <**Encoder Interface**> (2) to select the functional area.
- Press on the arrow button of the pop-up window <**Encoder settings**> (3). The pop-up window opens for selection.
- Now select the required interface.

Figure 43



Select encoder interface

1 –Menu <Basic Settings>
2 –Register card <Encoder Interface>
3 – Pop-up window <Encoder settings>

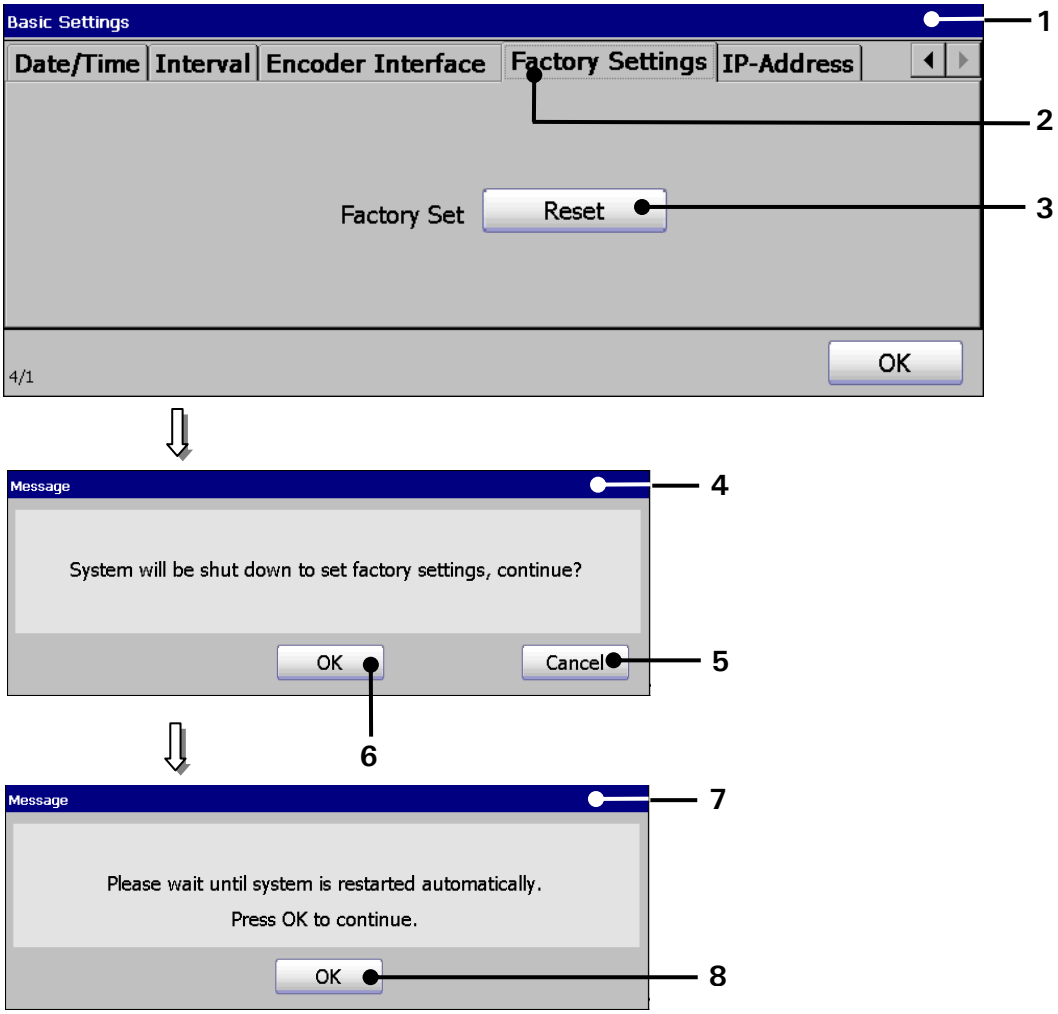
Pos.	Interface	Describtion
1.	RS422	5V / 4 Signals (A, $\bar{A}$, B, $\bar{B}$)
2.	TTL	5V TTL / 2 Signals (A, B)
3.	HTL	24V / 2 Signals (A, B)

7.3.1.5 Factory Settings

Under the register card <**Factory settings**> you can reset the printer adjustments to the standard settings.

The consequences of resetting to the factory settings should be considered!

Figure 44



Reset device to factory settings

1 – Menu <Basic Settings>
2 –Register card <Factory Settings>
3 –Button <Reset>
4 – Safety query <Continue>
5 – Button <Cancel>
6 – Button <OK>
7 – Message <Restart>
8 – Button <OK>

Proceeding:

- Press on the register card <**Factory Settings**> (2) to select the functional area.
- Press the button <**Reset**> (3).
- A **Safety query** (4) if you would like to continue with the process is faded in. Press the button <**Cancel**> (5) to abort the process or press the button <**OK**> (6) to reset the device.
- The message <**Restart**> (7) is faded in.
- Press the button <**OK**> (8). The device is shut down automatically and will be rebooted afterwards. After this process the JET3 is reset to the standard settings.

7.3.2 Password settings and user authorizations

The LEIBINGER JET3 offers different access levels which are protected by passwords from faulty operation or non-authorized access. Five levels of access authorization are available. For each level any functions can be enabled or blocked to apply access rights for e.g. operator or supervisor (free definable).

7.3.2.1 Menu password settings

With the option <**Password Settings**> (2) the menu „Password settings“ (3) opens.

This menu provides

- Selection of user levels (Level of access right)
- Definition of access rights.
- Definition of passwords

In the several functional areas you can enable or lock the functions in the current access levels. An enabled function is displayed by a √ in the accordant control box.

The selection of a functional area happens by clicking on the accordant register card (4).

Note: *The proceeding corresponds to the Windows™-standard procedure.*

With the pop-up window <**Level**> (5) you can select the user levels for which you would like to carry out the settings.

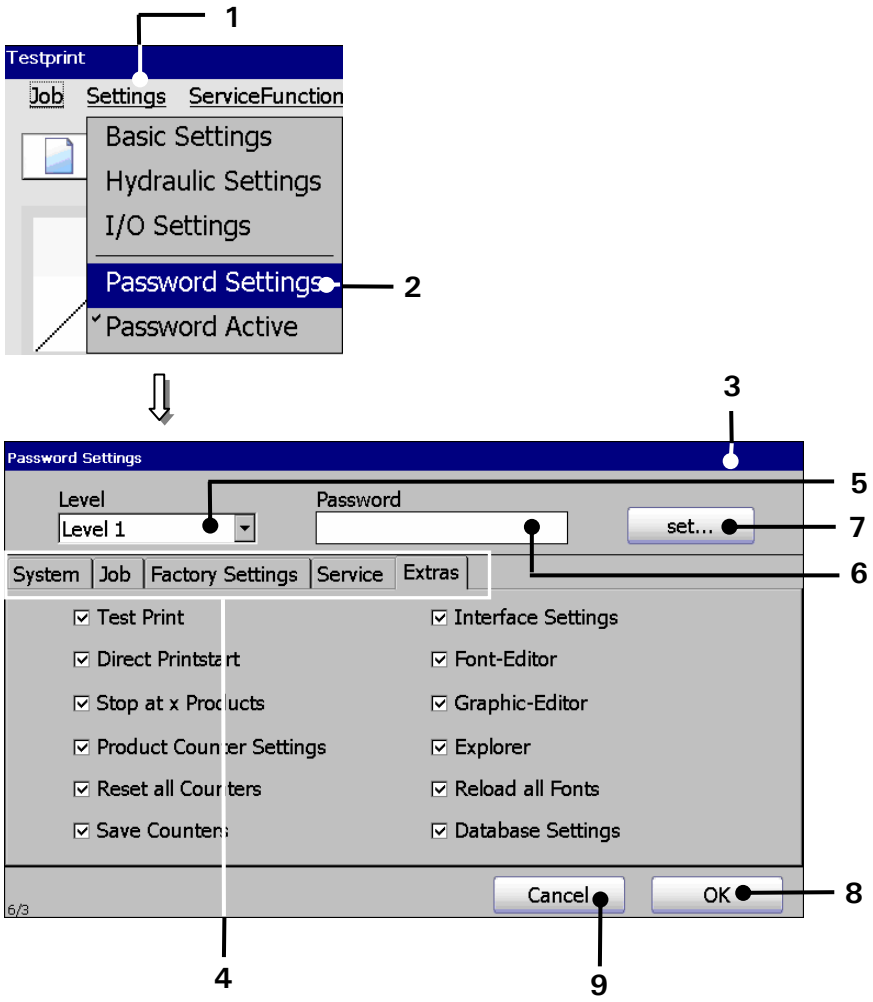
In the input field <**Password**> (6) you can enter the password for the current user level or you can display an already defined password.

With the button <**set...**> (7) the password which has been entered for the current access level will be taken over.

With the button <**OK**> (8) the menu closes and the settings will be saved.

The button <**Cancel**> (9) closes the menu without taking over the carried out changes.

Figure 45



Menu password settings

1 – Button <Settings>
2 – Option <Password Settings>
3 – Menu <Password Settings>
4 – Register cards
5 – Pop-up window <Level>
6 – Input field <Password>
7 – Button <set...>
8 – Button <OK>
9 – Button <Cancel>

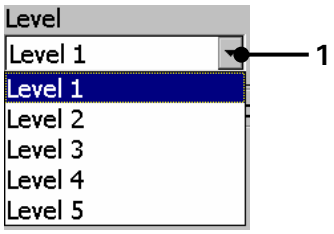
Proceeding:

- Press the button **<Settings>** (1) and the option **<Password Settings>** (2).
- The menu **<Password Settings>** (3) is faded in.

7.3.2.1.1 Selection of user level (Level of access authorization)

With the pop-up window <**Level**> (1) you can select the user level for which the user rights should be activated as well as how the password should be defined.

Figure 46



Selection of user level (Level of access authorization)

1 – Pop-up window <Level>

7.3.2.1.2 Definition of password

In the input field <**Password**> (1) you can enter the password for the current user level or you can display an already defined password.

Proceeding:

Example: The password „Leibinger" should be defined.

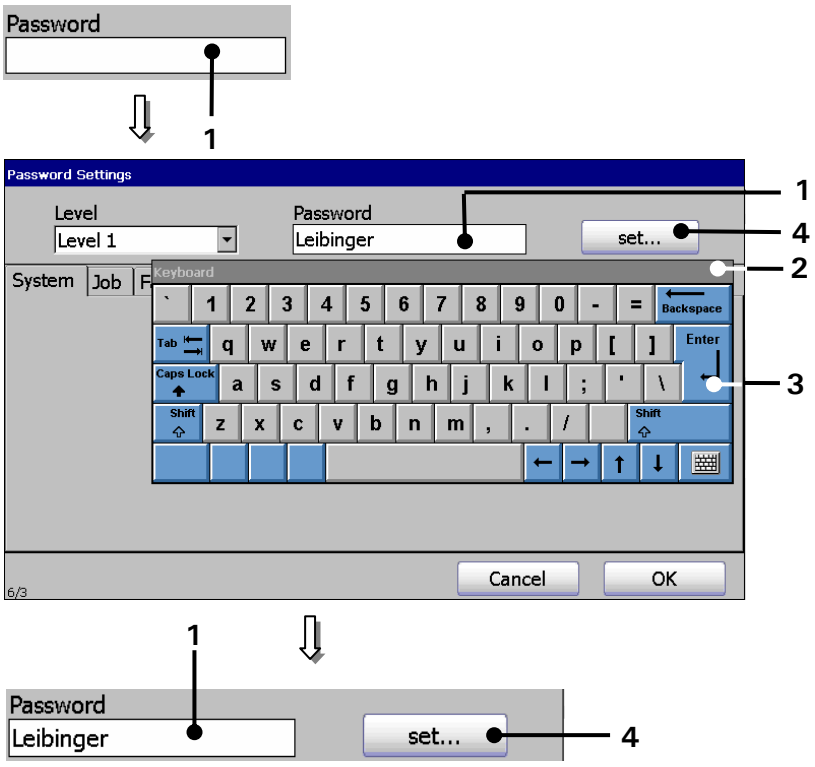
- Click in the input field <**Password**> (1). A keyboard field (2) opens for input.

You will find further information regarding the operation with keyboard fields in the **Chapter *Keyboard field***!

- Enter the password „Leibinger". The input is displayed in the input field <**Password**> (1).
- Press the button <**Enter**> (3) of the keyboard field to finish the input.
- Now press the button <**set...**> (4) to take over the entered password.

Attention! A final taking over does only happen if the menu is closed with the button <**OK**>!

Figure 47



Define password

1 – Input field <Password>
2 – Keyboard field
3 – Button <Enter>
4 – Button <set...>

7.3.2.1.3 Definition of user rights

In the several functional areas of the menu you can enable or lock the functions of the current access levels. An enabled function is displayed by a √ in the control box.

The selection of a functional area happens by clicking on the accordant register card.

Note: *The proceeding corresponds to the Window™-standard procedure.*

7.3.2.2 Lost password

If the password of the highest defined access right (Supervisor) has been lost special measures are required. In this case please contact the dealer address which is listed in the **chapter *Editor*.**

7.3.3 Password protection (Password query)

If the password protection LEIBINGER JET3 is activated a password enquiry is carried out for every start of the device.

Further more the function <**Login**> in the menu „Extras“ is activated. With this function an user can login during the operation to e.g. carry out functions which are still not enabled and can logout and can therefore prevent changes of the settings by unauthorized staff.

Note: *If no password has been entered for an activated password query during starting the device, only the following basic functions are available for the user.*

- *Open and close nozzle*
- *Print start and print stop*
- *Login*
- *Touch-Calibration*

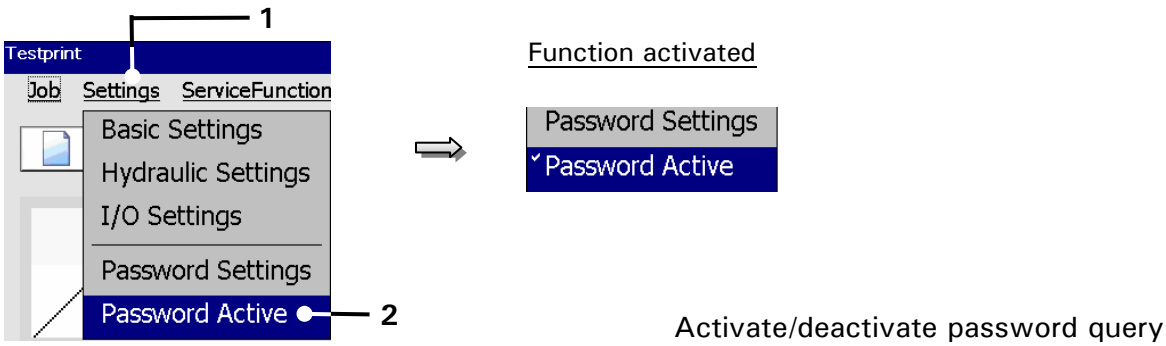
After logout of the user these basic functions are still only available.

If the function is activated it is displayed by a √ on the control box of the function.

The function is activated or deactivated as following:

- Press the button <**Settings**> (1) and the option <**Password Activate**> (2).
- The function is activated or deactivated depending on the existing status.

Figure 48



Activate/deactivate password query

1 – Button <Settings> 2 – Option <Password protection activated >

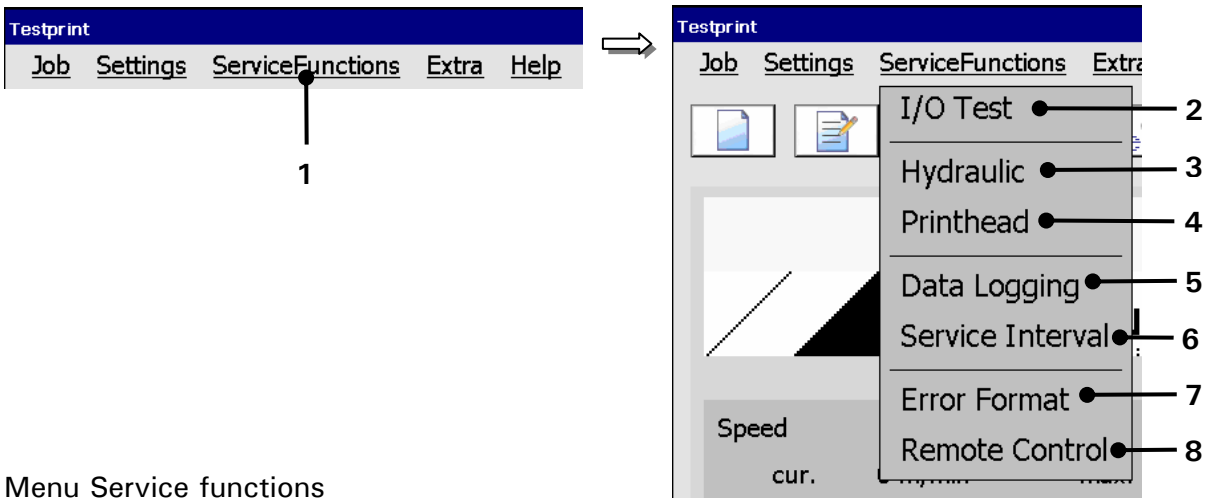
You will find further information regarding login/logout and switching on the device in the **chapters *Login*** and ***Switching on with password protection!***

7.4 Service functions

With the button **<ServiceFunctions>** in the main menu bar the submenu „Service functions“ is displayed. The following options are available:

- I/O-Test
- Hydraulic
- Printhead
- Data Logging
- Service Interval
- Error Format
- Remote Control

Figure 49



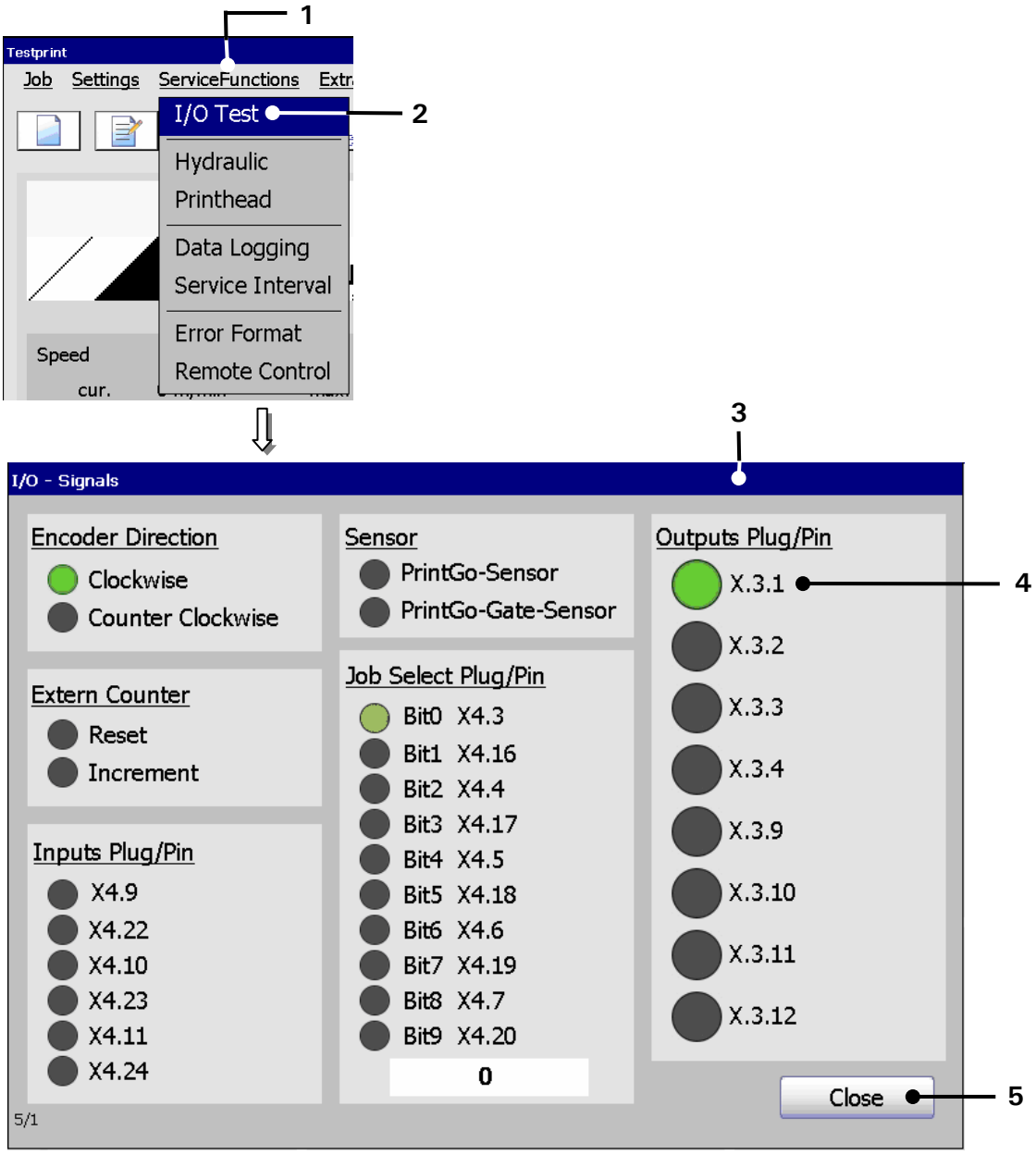
Menu Service functions

1 – Button <ServiceFunctions>
2 – Option <I/O Test>
3 – Option <Hydraulic>
4 – Option <Printhead>
5 – Option <Data Looging (Protocol file)>
6 – Option <Service Interval>
7 – Option <Error Format>
8 – Option <Remote Control>

7.4.1 I/O Test (Signaltest)

With the option <**I/O Test**> (2) the menu „I/O-Signals (3)“ is displayed. The menu shows the states of the inputs and outputs of the device.

Figure 50



I/O-Signal test

1 – Button <ServiceFunctions>
2 – Option <I/O-Test>
3 – Menu <I/O-Signals>
4 – Status display <I/O active/inactive>
5 – Button <Close>

The button <**Close**> (5) ends the menu.

The menu allows to carry out a temporary test of the inputs and outputs of the LEIBINGER JET3 during the troubleshooting without any additional tools.

If signals are fed to the inputs the signal status are displayed in the menu. The functions which are assigned to the inputs are not carried out for feeding the signals!

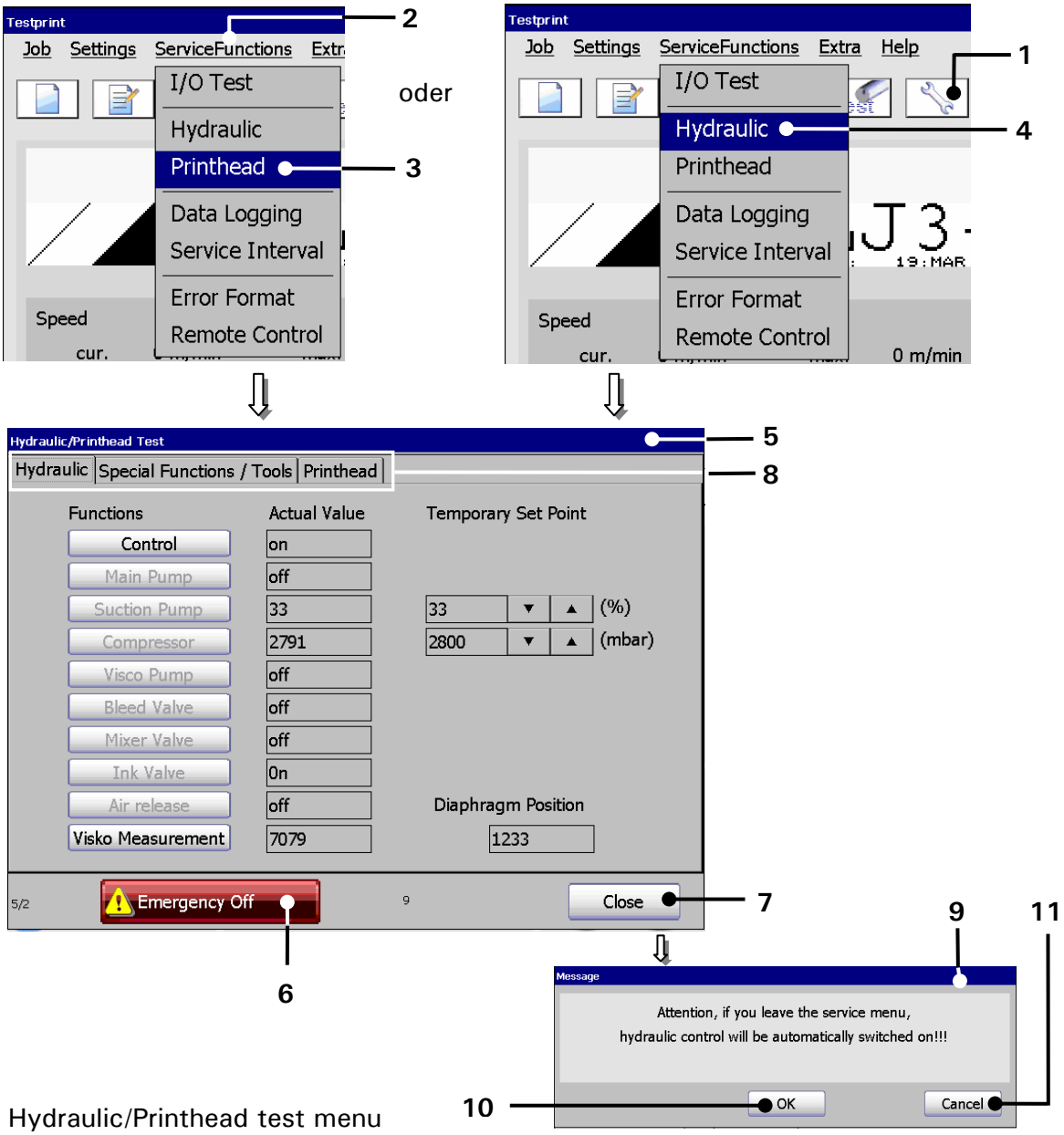
Active in-/outputs are displayed by a green status display.

For leaving the menu all carried out settings will be rejected, that means if outputs have been defined just for testing (activated) they will be deactivated again.

7.4.2 Hydraulic-/Printhead – and special functions

This work must only be carried out by trained personnel or by Leibinger service technicians!

Figure 51



Hydraulic/Printhead test menu

1 – Direct button (Icon) <Service>
2 – Button <ServiceFunctions>
3 – Option <Printhead>
4 – Option <Hydraulic>
5 – Menu <Hydraulic/Printhead Test>
6 – Button <Emergency Off>
7 – Button <Close>
8 – Register cards
9 – Message <Close menu>
10 – Button <OK>
11 – Button <Cnacel>

By pressing the direct button [icon] **<Service>** (1) or with the options **<Printhead>** (3) or **<Hydraulic>** (4) you can open the menu „Hydraulic/Printhead Test“ (5).

This menu provides the verification of hydraulic components, activation or deactivation and setting of print head functions as well as the processing of special functions. All changes have only a temporary effect, that means as long as the menu is open.

The selection of a functional area happens by clicking on the accordant register card (8).

Note: *The proceeding corresponds to the Windows™-standard procedure.*

By pressing the button **<Emergency off>** (6) the JET3 is turned off immediately, without carrying out further actions (e.g. closing the nozzle).

The button **<Close>** (5) closes the menu.

By closing the menu all changes are reset to the normal/fully automatic operating condition!

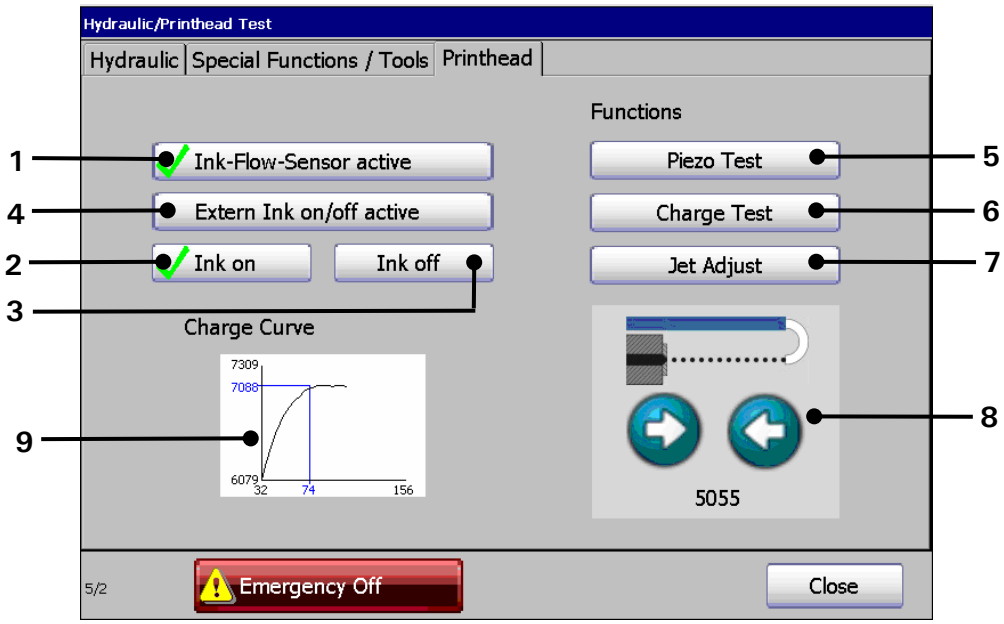
If the menu closes an accordant message (9) is faded in which can confirm or cancel the quitting.

7.4.3 Printhead functions

Under the register card <**Print head**> the following functions are available:

- Ink-Flow-Sensor active
- Ink on/Ink off
- Charge Test
- Extern Ink on/off active
- Piezo Test
- Jet Adjust

Figure 52



Register card printhead

1 – Button <Ink-Flow-sensor active>
2 – Button <Ink on>
3 – Button <Ink off>
4 – Button <Extern Ink on/off active>
5 – Button <Piezo Test>
6 – Button <Charge Test>
7 – Button <Jet Adjust>
8 – Operating field<Nozzle seal>
9 – Display <Charging voltage curve>

7.4.3.1 Jet monitoring (Ink-Flow-Sensor active)

The ink jet monitoring provides highest operating reliability due to the additional monitoring of the ink backflow. The full automatic monitoring turns off the ink jet as soon as the ink backflow is interrupted. The nozzle seal will be closed automatically and head impurities are therefore prevented.

By pressing the button <**Ink-Flow-Sensor active**> (1) the jet monitoring is turned on or off.

An activated jet monitoring is designated by a ✓ on the button.

7.4.3.2 Ink on/off

With the two buttons <**Ink on** > (2) and <**Ink off** > (3) the ink delivery to the nozzle is turned on or off.

The status of the ink delivery is designated by a ✓ on the accordant button.

This function can be generated also „remote-controlled“ by an electronical contact *(see also the informations in the following chapter).*

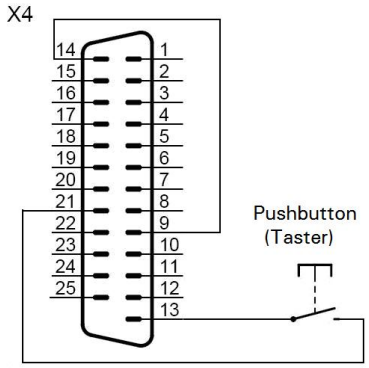
7.4.3.3 Extern Ink on/off

During cleaning works at the print head it can be helpful (e.g. in case of a long umbilical) that the ink delivery can be turned on/off externally. The JET3 requires impulses for the control. This can be reached with a bridge between pin 9 and 14 and a switch contact (pushbotton) at the pins 21 and 13 of the I/O interface **X4**.

Example:

First impulse = switches off the ink delivery
Second impulse = switches on again the ink delivery

Diagram/Plug assignment:



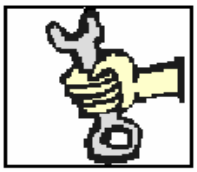
The signal which is pending at the interface is only analyzed by the JET3 if the function <**Extern Ink on/off active**> (4) is turned on.

If the function is activated, it is shown by a ✓ on the display.

7.4.3.4 Piezo test and charge test

You will find further informations in the separate document **Service manual**!

7.4.3.5 Jet adjustment



Dangers Voltage exists in the print head!

The jet adjustment can only be carried out by authorized staff or Leibinger service technicians !

Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!

Risk of injury!

Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

Risk of injury!

Upon contact the contents causes skin irritation. Protective equipment is necessary!

This function provides a support for a required correction of the jet position.

Proceeding:

Required tools and facilities:

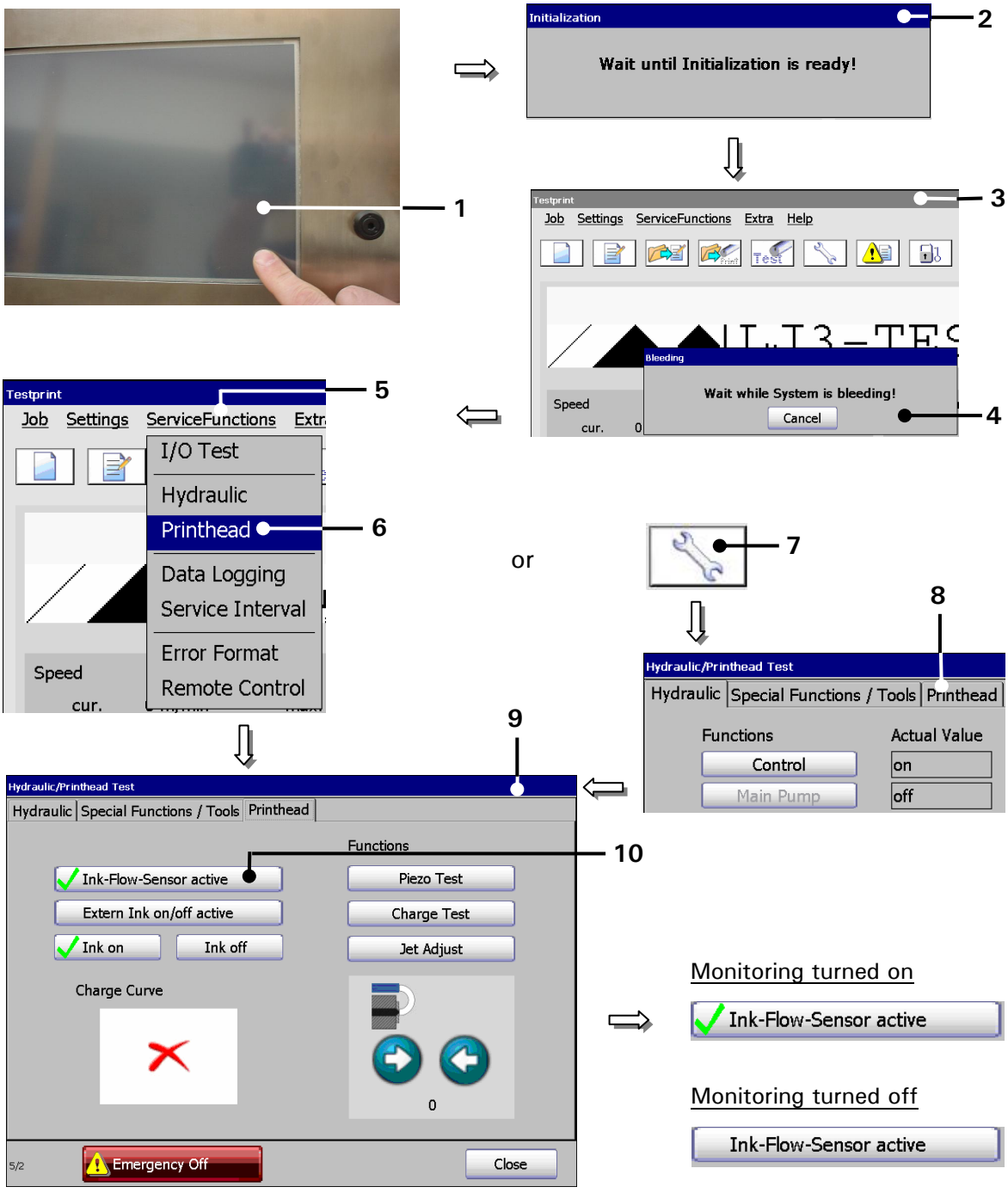
- Magnifier (Sixfold lens)
- Allen key 1,5 mm

Attention! Do not use a ball head-Allen key because it can cause damages at the screw heads!

- Turn on the JET3 by touching the dark **touch-display** (1) at any position *(Duration of touching approx. 2 sec.)*.
- The **main menu** (2) with the **message <Initialization>** (3) is displayed.
- After initialization the device starts automatically with the bleeding of the system. During the process the **message <Bleeding>** (4) is displayed.
- Wait until the bleeding process is finished.

Note: *Do not cancel the bleeding cycle ahead of time!*

Figure 53



Jet adjustment (setp 1)

1 – TFT-Touch-Display
2 – Message <Initialization>
3 – Main menu
4 – Message <Bleeding>
5 – Button <ServiceFunctions>
6 – Option <Printhead>
7 – Direct button (Icon) <Service>
8 – Register card <Printhead>
9 – Functional area <Printhead>
10 – Button <Ink-Flow-Sensor active>

- Press the button <**ServiceFunctions**> (1) and the option <**Printhead**> (2) or press the Icon <**Service**> (7) and the register card <**Printhead**> (8).
- The functional area <**Printhead**> (9) in the menu „Hydraulic/ Print head Test“ is now displayed.
- Now turn off the jet monitoring with the button <**Ink-Flow-Sensor active**> (10).

An activated jet monitoring is marked by a ..... the button

- Remove the print head cover (11).
- Press the button <**Jet Adjust**> (12). The gutter motor of the print head is now moving automatically to the required setting position (approx. 4200).

Note: *Smaller deviations from the given setting position are in the tolerance range of the system!*

- The ink jet has to be now adjusted with the two setting screws 13) according to the following picture (jet adjustment (step2)) to the gutter tube (14).

By turning the upper setting screw (13.1) clockwise the ink jet moves to the direction of the gutter tube top edge. Counter-clockwise the jet moves to the direction of the gutter tube bottom edge.

Note: *Line of sight from the nozzle to the gutter tube.*

By turning the lateral setting screw (13.2) clockwise the ink jet moves to the direction of the left gutter tube angle. Counter-clockwise the jet moves to the direction of the right gutter tube angle.

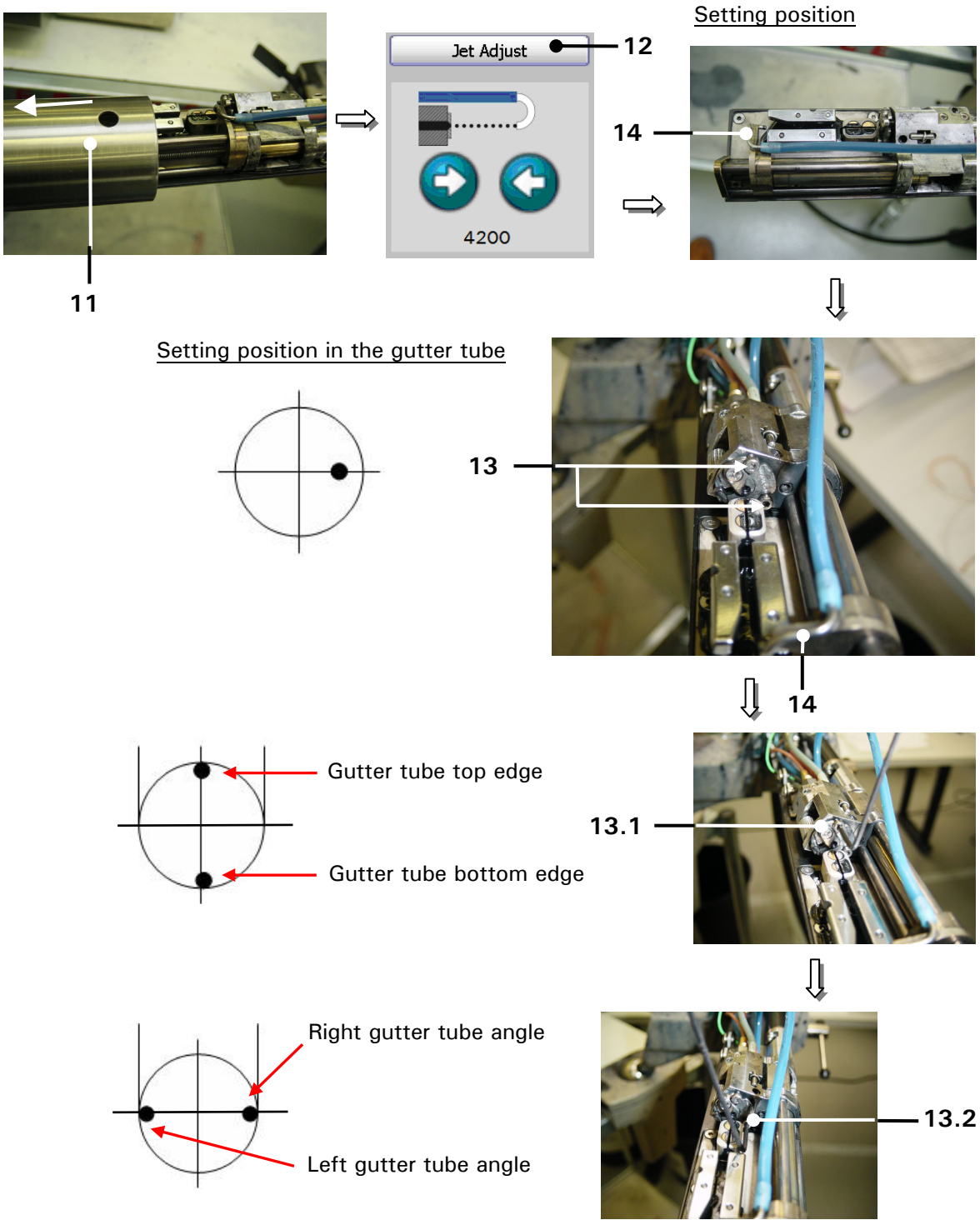
Note: *Line of sight from the nozzle to the gutter tube.*

- After carried out adjustment of the jet position in the gutter tube the complete jet generation unit has to be adjusted in the charging tunnel (15) and in the deflection plates in this way that the ink jet is parallel and flush with the left angle of the charging tunnel.
- ***Note:*** *Line of sight from the nozzle to the gutter tube.*

Attention! The ink jet should be absolutely parallel to the deflection plates.

For the optical evaluation of the jet position it is important that the angle of view is exactly adjusted vertically from above via the charging tunnel and ink jet to exclude parallax errors as far as possible.

Figure 54



Jet adjustment (Step 2)

11 – Head cover
12 – Button <Jet Adjust>
13 – Setting screw (2x)
13.1 – Upper setting screw
13.2 – Lateral setting screw
14 – Gutter tube

- Press the button <**Jet Adjust**> (12). The gutter motor of the print head is now moving automatically to the required setting position (approx. 4200).

Note: *Smaller deviations from the given setting position are in the tolerance range of the system!*

- The ink jet has to be now adjusted with the two setting screws 13) according to the following picture (jet adjustment (step2)) to the gutter tube (14).

By turning the upper setting screw (13.1) clockwise the ink jet moves to the direction of the gutter tube top edge. Counter-clockwise the jet moves to the direction of the gutter tube bottom edge.

Note: *Line of sight from the nozzle to the gutter tube.*

By turning the lateral setting screw (13.2) clockwise the ink jet moves to the direction of the left gutter tube angle. Counter-clockwise the jet moves to the direction of the right gutter tube angle.

Note: *Line of sight from the nozzle to the gutter tube.*

- After carried out adjustment of the jet position in the gutter tube the complete jet generation unit has to be adjusted in the charging tunnel (15) and in the deflection plates in this way that the ink jet is parallel and flush with the left angle of the charging tunnel.

Note: *Line of sight from the nozzle to the gutter tube.*

Attention! The ink jet should be absolutely parallel to the deflection plates.

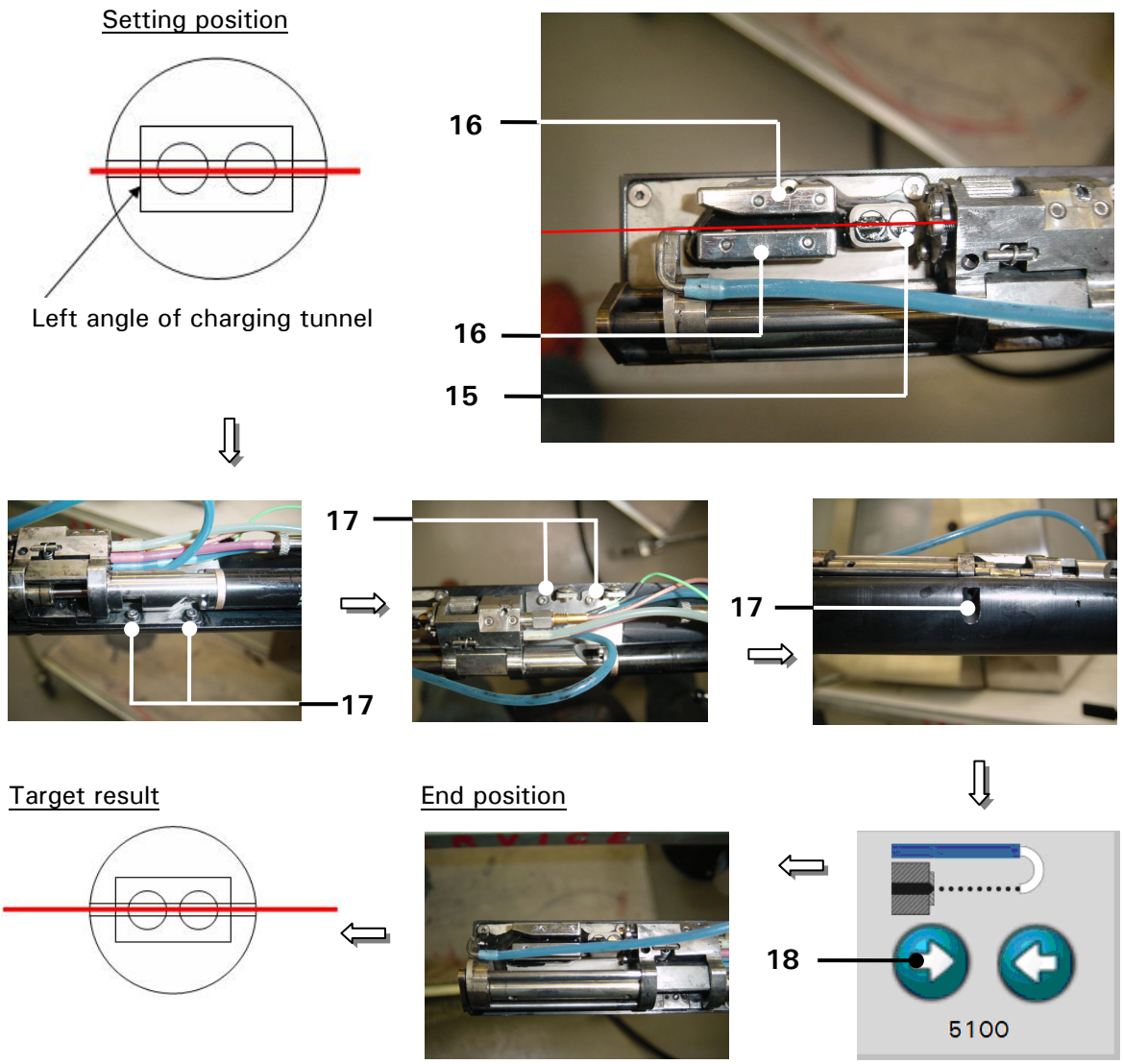
For the optical evaluation of the jet position it is important that the angle of view is exactly adjusted vertically from above via the charging tunnel and ink jet to exclude parallax errors as far as possible.

Setting sequence:

1. Open the 5 locking screws on the fixing plate (17) as far as the unit can be moved by hand.
2. Move the unit carefully until the ink jet corresponds with the shown setting position.
3. Fix the settings by tighten the locking screws (17).
4. Check the setting positions after fixing again and if necessary correct the position again.

- Now the nozzle seal has to be opened completely to souse the ink jet completely into the charging tunnel (15). For this press on the arrow button <**Open nozzle**> (18) and keep it pressed until the gutter motor has reached it's end position.

Figure 55



Jet adjustment (Step 3)

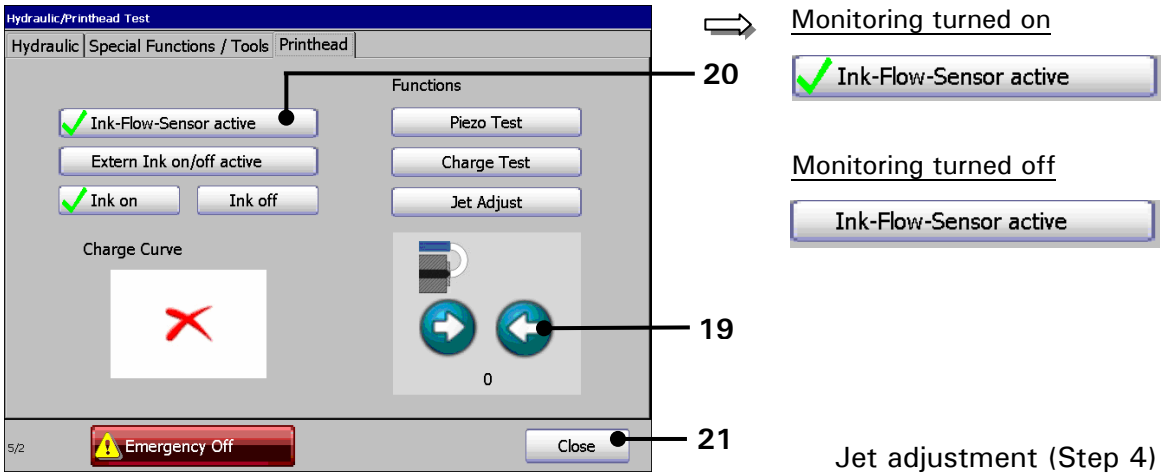
15 – Charging tunnel
16 – Deflection plates
17 – Holding screw of the fixing plate (5x)
18 – Arrow button <Open nozzle>

- In this position check the setting position again. The ink jet should be now in the centre of the charging tunnel and parallel to the deflection plates. If necessary the position has to be corrected again by moving the fixing plate.
- If you have reached the correct setting you have to close the nozzle seal. For this press on the arrow button <**Close nozzle**> (19) and keep it pressed until the nozzle seal is completely closed.
- Finally activate the ink jet monitoring with the button <**Ink-Flow-Sensor active**> (20).

An activated jet monitoring is marked by a ... ✓ the button.

- Close the menu with the button <**Close**> (21).

Figure 56



Jet adjustment (Step 4)

19 – Arrow button <Close nozzle>
20 – Button <Ink-Flow-Sensor active>
21 – Button <Close>

7.4.4 Special functions and tools

Under the register card **<Special Functions/Tools>** the following functions are available:

- Pressureless
- Constant Bleed
- Drain Routine
- Fill up Routine
- Mix only Ink
- Mix only Solvent
- Ignore error messages and warnings

7.4.4.1 Constant bleed

The function constant bleeding is only activated or functional under the following device conditions:

- **Ink suction is turned on**
- **Nozzle is closed**
- **Head cover has been detached**

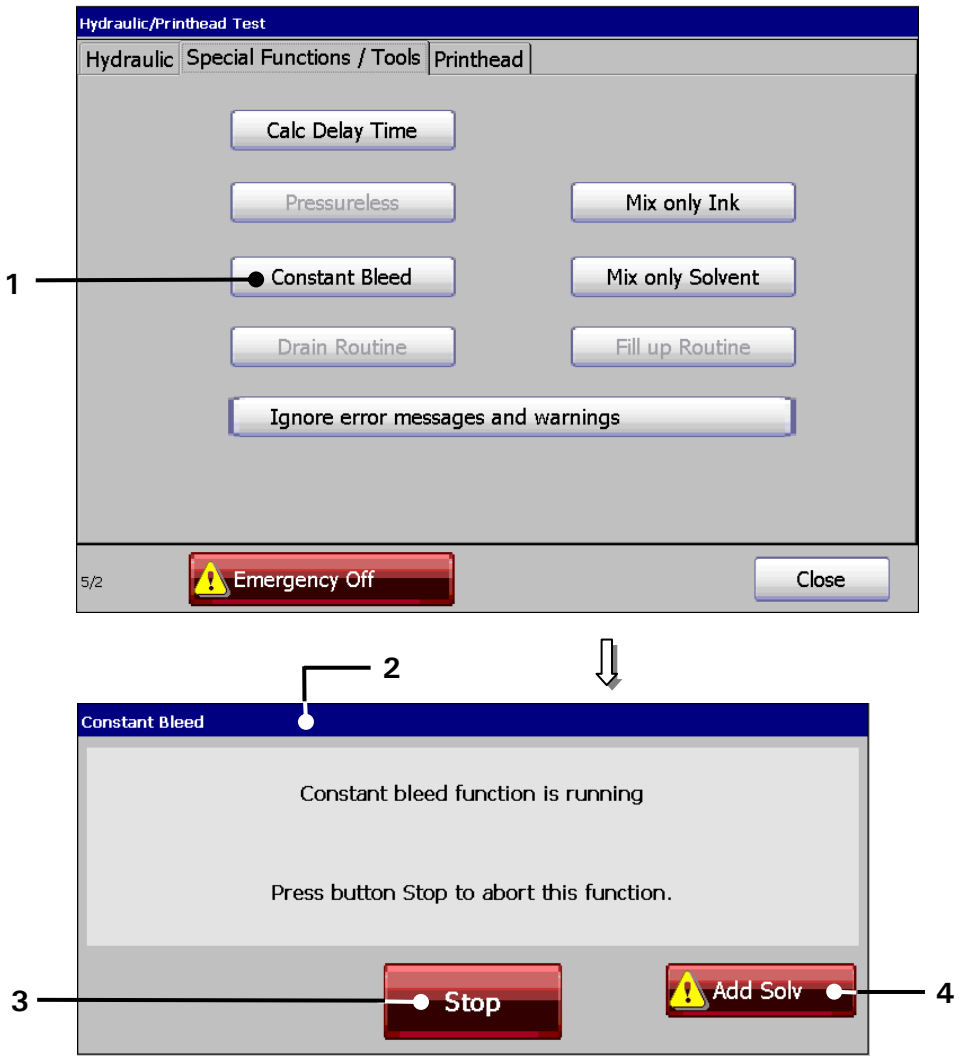
By pressing the button **<Constant Bleed>** (1) the constant bleeding is started. During the process the message **„Constant Bleed"** (2) is displayed. The bleeding can be canceled any time by pressing on the button **<Stop>** (3). During this process the visco pump is activated for 3 sec. every minute to ensure a purging of the pump.

With the button **<Add Solv>** (4) you can add only solvent. This function provides specially filling operations to bleed e.g. the solvent tube or to set the viscosity of the ink faster to a lower value.

Attention!

By adding the solvent the ink can be diluted too strong. Therefore this function should only be carried out by qualified personnel.

Figure 57



Constant bleed

1 – Button <Constant Bleed>
2 – Message <Constant Bleed>
3 – Button <Stop>
4 – Button <Add Solv.>

7.4.4.2 Mix only ink/sovent

With the two buttons <**Mix only Ink** > (1) and <**Mix only Solvent** > (2) only ink or solvent can be supplied to the hydraulic circuit.

These functions allow to set the viscosity of the ink fast to a lower or higher value.

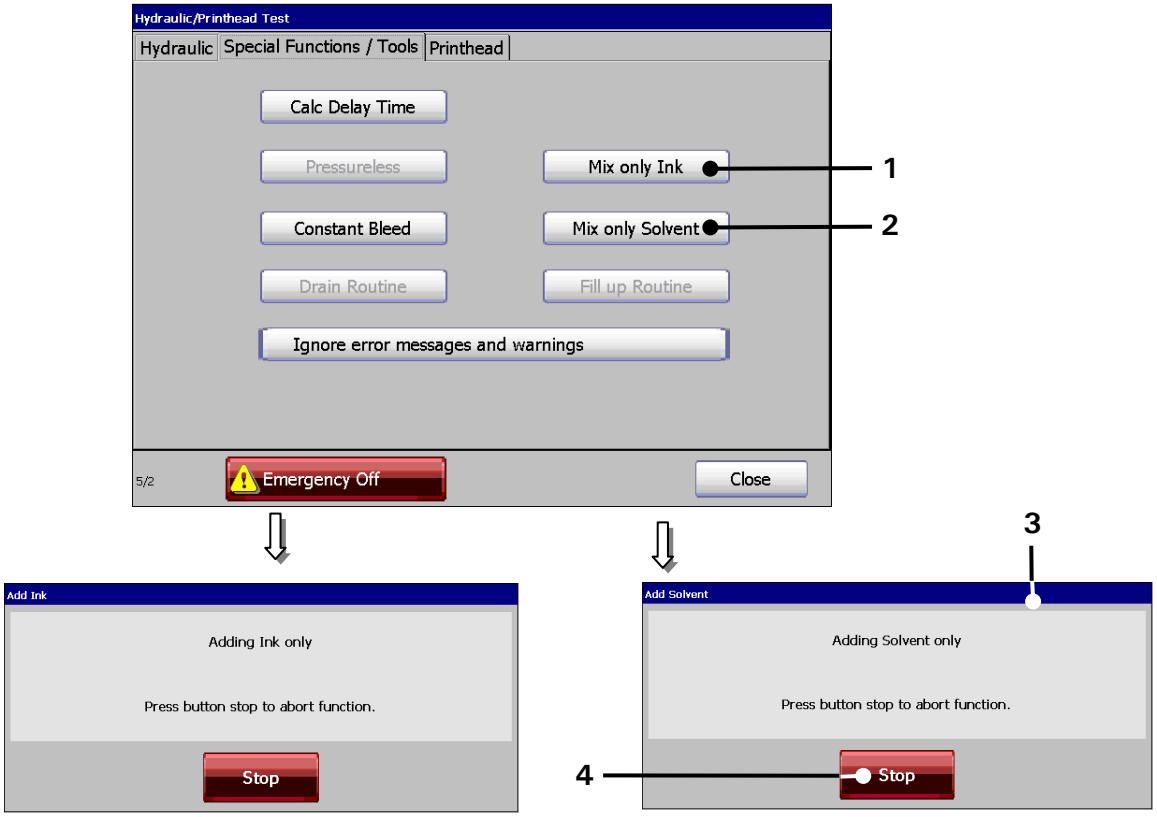
The execution of addition of the selected medium is displayed by an accordant message (3).

With the button <**Stop**> (4) the particular process will be finished.

Attention!

By the addition of solvent or ink the ink can be diluted or concetrated too much! Therefore this function should be only carried out by qualified personnel.

Figure 58



Ink-/Solvent delivery

1 – Button <Mix only Ink>
2 – Button <Mix only Solvent>
2 – Message <Delivery .....>
4 – Button <Stop>

7.4.4.3 Ignore all error messages and alarm messages

With this function the error- and alarm messages of the device e.g. for starting up, filling, or for service works can be canceled.

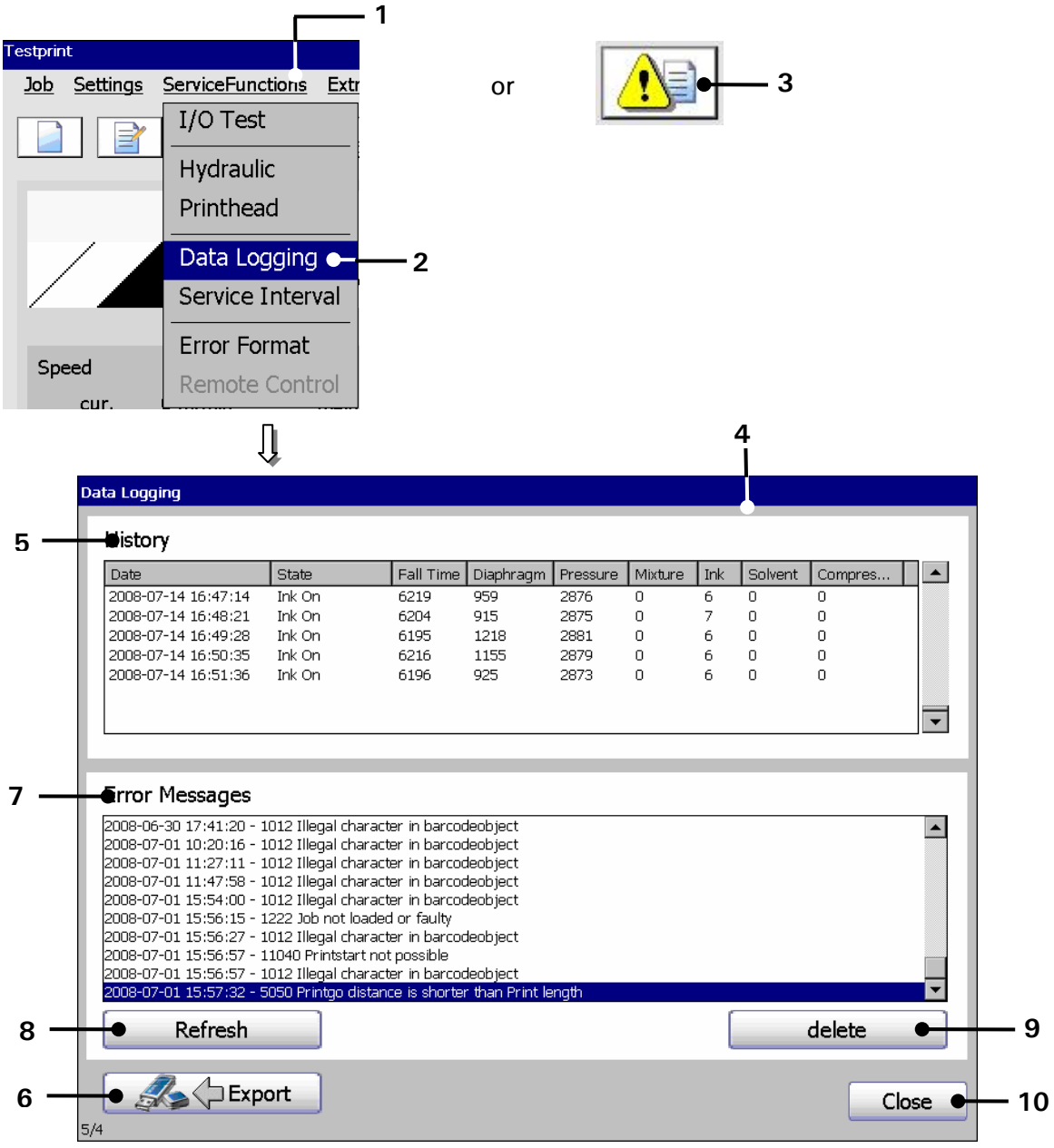
By pressing the button **<Ignore error messages- and warnings>** the function is turned on or off.

If the function is activated, it is marked by a  on the display.

7.4.5 Data logging (Log file)

In the log file all events and reports of the last 72 hours are saved in cycles of approx. every minute. With the obtained history, processes can be reproduced and causes can be identified.

Figure 59



Data logging window

1 – Button <ServiceFunctions>
2 – Option <Data Logging>
3 – Direct button (Icon)
4 – Window <Data Logging>
5 – Display <History>
6 – Button <Export>
7 – Display <Error Messages>
8 – Button <Refresh>
9 – Button <delete>
10 – Button <Close>

An additional function allows to select and export the current machine relevant data.

With the button <**Export**> (6) you can save the recorded machine relevant data on an external memory device (e.g. USB-stick).

The button <**Close**> (10) closes the window.

7.4.5.1 Select (call up) log file

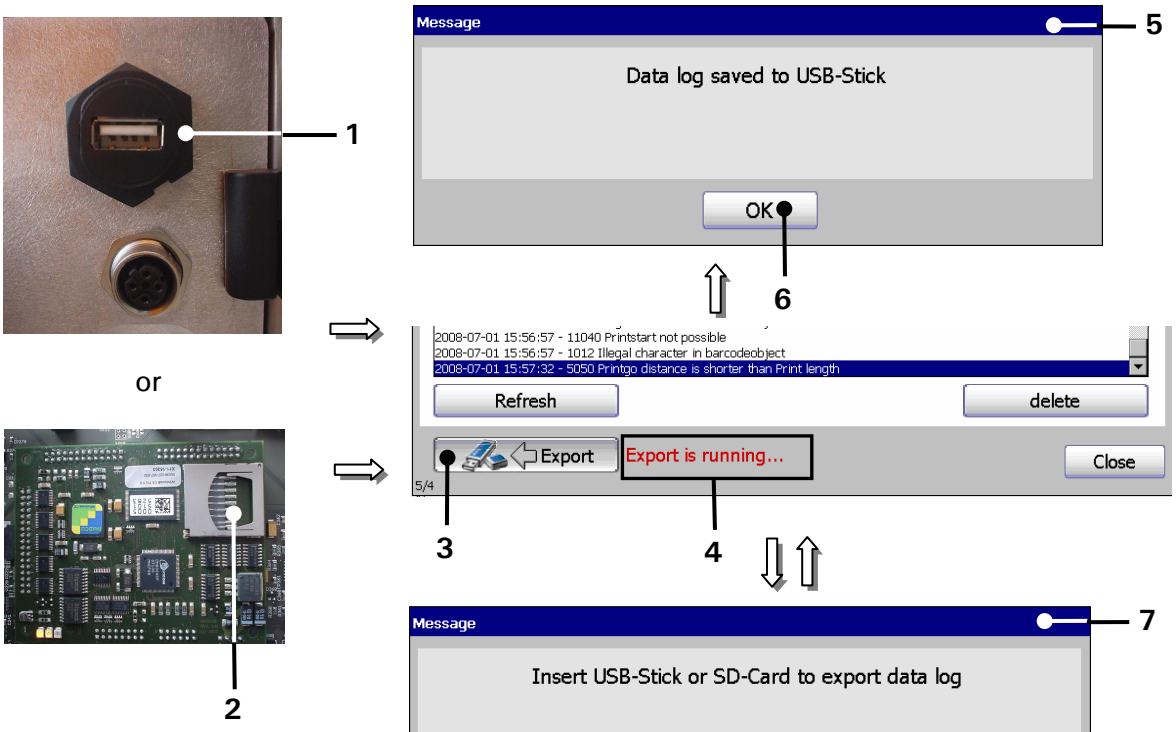
Proceeding:

- Press the button <**ServiceFunctions**> (1) and the option <**Data Logging**> (2) or the accordant direct button (Icon) (3).
- The window <**Data Logging**> (4) is faded in.

7.4.5.2 Save log file

The recorded machine relevant data of the last 72 hours of operation can be saved on an external memory device (USB-stick or SD-CARD).

Figure 60



Save log file

1 – USB-connection
2 – SD-Card Slot
3 – Button <Export>
4 – Message <Export is running...>
5 – Message <Log file saved>
6 – Button <OK>
7 – Message <Insert storage medium>
8 – Schaltfläche <OK>

Proceeding:

- Plug an USB-stick or a SD-card device in the USB-connection (1) on the back of the printer.

or

- Insert a SD-card in the slot (2) on the controller board in the electronic cabinet.
- Press the button <**Export**> (3).
- Now the data are saved on the connected medium and the **message <Export is running...>** (4) is displayed during the process.

- After finishing the storage the **message** (5), that the process has been carried out is faded in. The saving happens with the description „datalog_LJ3-*(“serial number of the printer”)*.txt“.
- Finally confirm the message with the button <**OK**> (6).

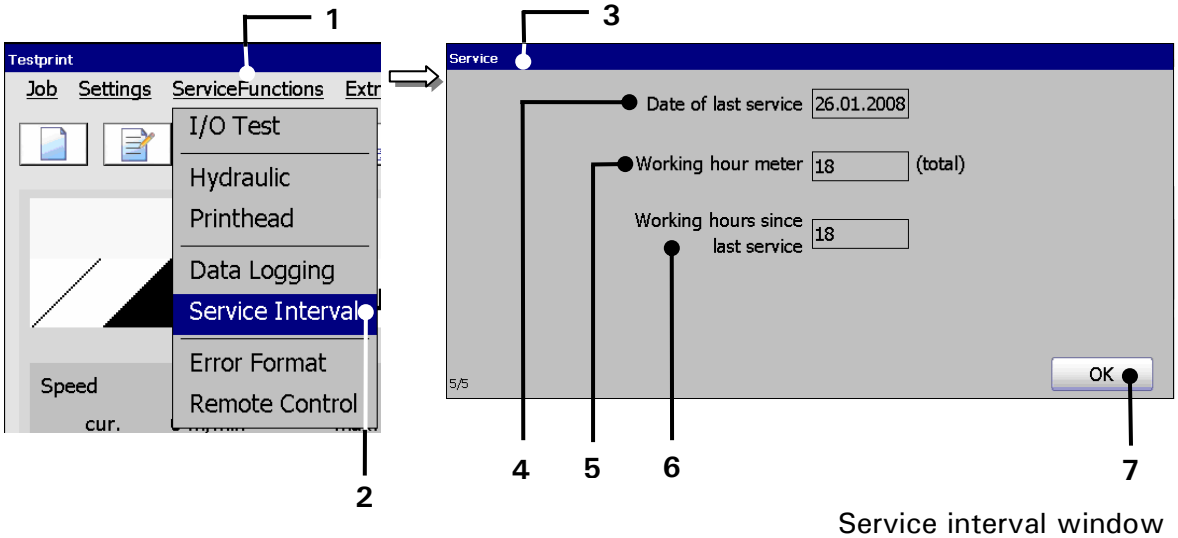
Note: *If no storage medium (memory device) is connected, the **message** (7) is faded in. Confirm the message with the button <**OK**> (8). Connect a memory device and repeat the complete process.*

7.4.6 Service interval

With the option <**Service Interval**> (2) you can open the display window “Service“ (3). The following parameters are displayed in this window:

- The date of the last inspection (4)
- The total amount of operation hours of device (5)
- Operation hours since the last inspection (6)

Figure 61



Service interval window

1 – Button <ServiceFunctions>
2 – Option <Service Interval>
3 – Display window <Service>
4 – Display <Date of inspection>
5 – Display <Operation hours since>
6 – Display <Total operation hours>
7 – Button <OK>

The button <**OK**> (7) closes the window.

7.5 Extra (Additional functions)

With the button <**Extra**> in the main menu bar the submenu „Extra“ is displayed. The following options are available:

- Test Print
- Login
- Explorer
- Database Settings
- Direct Printstart
- Interface Settings
- Reload all Fonts
- Save Counters
- Product Counter
- Editors
- Touch Calibration

7.5.1 Save counter states

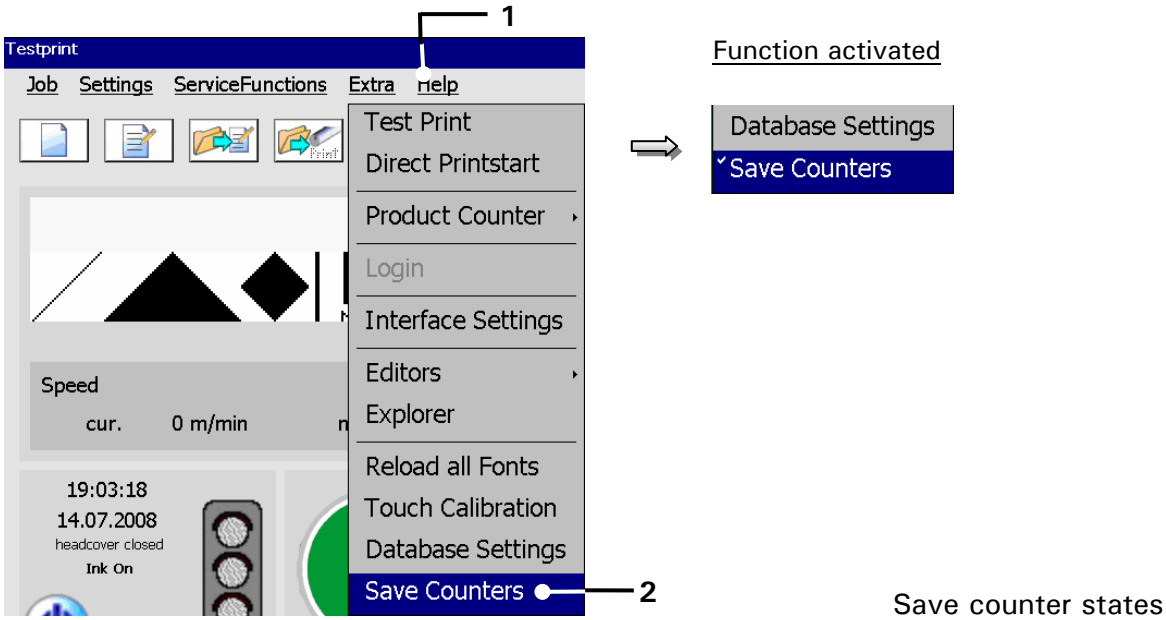
For leaving a job, the counter status of integrated job counters are normally not saved, that means for calling this job again, the counter states are 0 respectively set to the predefined start values.

If the print should be continued with already existing counter states for calling the job again, you have to activate the function <**Save Counters**>. If this function is activated it is displayed by a √ on the button of the function.

The function is activated or deactivated as following:

- Press the button <**Extra**> (1) and the option <**Save Counters**> (2).
- The function is activated or deactivated depending on the existing state.

Figure 62



Save counter states

1 – Button <Extra> 2 – Option <Save Counters>

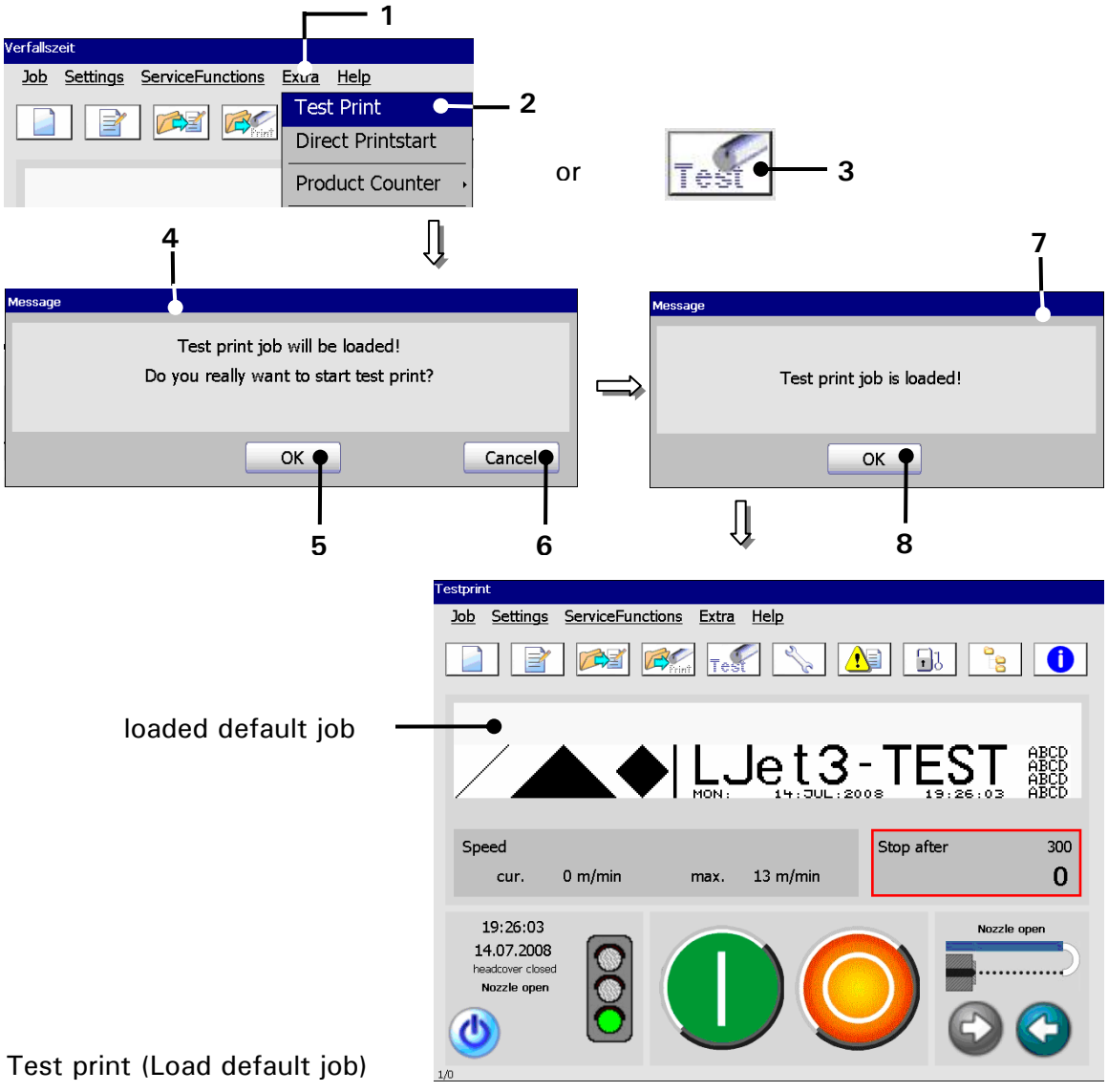
7.5.2 Test print

With the option <**Test Print**> a defined default job with set internal PrintGo-source is loaded.

This job can be used by the operator as basis to create a new job or to control the print function of the JET3.

The default job is loaded as following:

Figure 63



Test print (Load default job)

1 – Button <Extra>
2 – Option <Test Print>
3 – Direct button (Icon)
4 – Message <Safety query>
5 – Button <OK>
6 – Button <Cancel>
7 – Execution report
8 – Button <OK>

Attention! If the test print is activated when a print start release did already happen for the previous loaded job, the JET3 starts immediately with the print process because all signals are generated internally and no sensor or encoder are required.

Attention! Ink escapes immediately from the print head!

- Press the button <**Extra**> (1) and the option <**Test Print**> (2) or the accordant direct buttons (Icon) (3).
- A **safety query** (4), if the test print should be really started is faded in.
- Confirm the loading of the job by pressing the button <**OK**> (5) or cancel the process with the button <**Cancel**> (6).
- A **message** (7), that the test print-job is loaded is faded in.
- Confirm the message with the button <**OK**> (8). The job is now loaded and can be started for printing.

7.5.3 Product counter

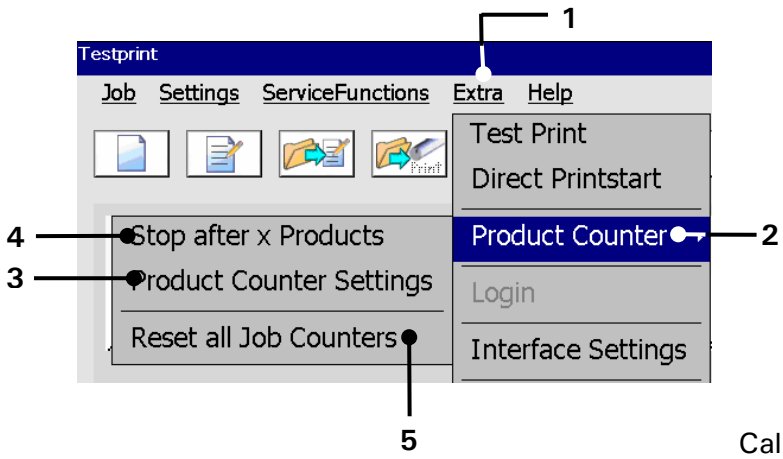
In the production counter menu you can carry out settings of the production counter and you can set-up a pre-defined print stop. Further more all existing job counters in the current loaded job can be reset.

The production counter menu opens with the button <**Extra**> (2) and afterwards selection of the menu <**Product Counter**> (3) in the faded-in submenu.

In the menu <**Product Counter**> the following options are available:

- Product Counter Settings
- Stop after x Products
- Reset all Job counters

Figure 64



Call up product counter menu

1 – Button <Extra>
2 – Menu <Product Counter>
3 – Option <Product Counter Settings>
4 – Option <Stop after x Products>
5 – Option <Reset all Job counters>

7.5.3.1 Product counter settings

Proceeding:

- Press the option <**Product Counter Settings**> (2).
- The window <**Product Counter Settings**> (3) is faded in.

1. . Reset counter

- Press the button <**Reset**> (4) to reset the counter or cancel the process with the button <**Cancel**> (9).

Note: *The resetting happens* ***without*** *a further safety query.*

- The value „0“ is now displayed in the status field <**Production Counter**> of the main menu.

2. Change counter value

- Change the value of the counter with the **arrow buttons** (5). The value of the counter is increased or reduced in single steps by pressing the accordant buttons.

or

- Click in the **Counter display field** (6). The **number block** (7) opens for input.

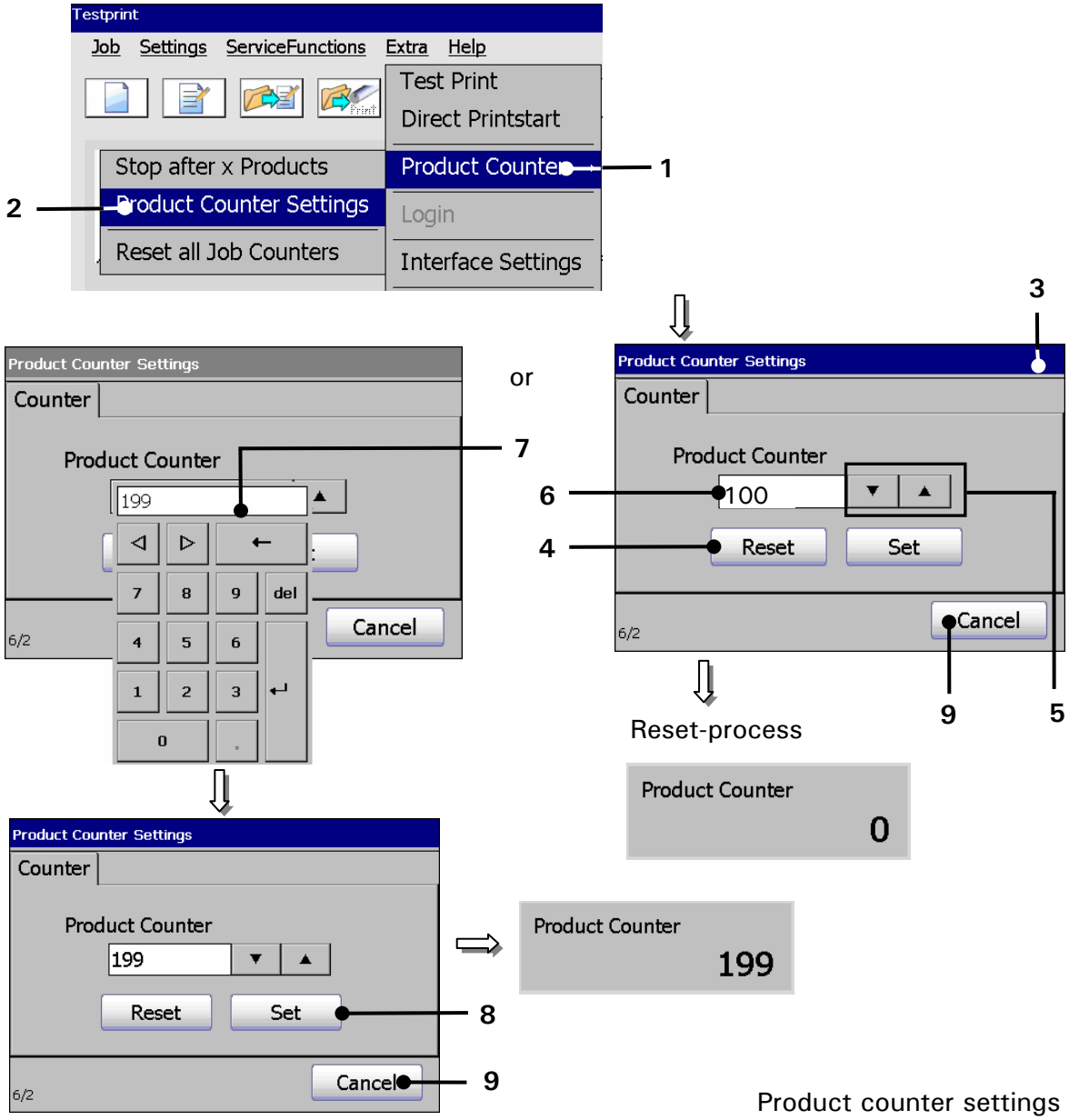
You will find further information regarding the working with number blocks in the **Chapter *Number block***!

- Confirm the value change by pressing the button <**Set**> (8) or cancel the process with the button <**Cancel**> (9).
- The set value is now displayed in the status field <**Production Counter**> of the main menu.

Attention! If job counters (object counters) whose settings <**Counter reset**> are applied with the attribute „production counter“ exist in the current job, they will be also reset.

You will find further information regarding the counter reset methods in the **chapter *Counter reset (methods)***!

Figure 65



Product counter settings

1 – Menu <Product Counter>
2 – Option <Product Counter Settings>
3 – Window <Product Counter Settings>
4 – Button <Reset>
5 – Arrow buttons
6 – Counter display field
7 – Number block
8 – Button <Set>
9 – Button <Cancel>

7.5.3.2 Stop after x products (Pre-defined print stop)

With the option <**Stop after x Products**> the amount of prints will be defined after the LEIBINGER JET3 should release an automatic print stop.

If a print stop has been pre-defined the value is displayed in the status field <**Production Counter**> of the main menu.

Attention! Before the re-start of the production, the production counter has to be necessarily reset to get a correct result.

Proceeding:

- Press the option <**Stop after x Products**> (2).
- The window <**Stop at x Products**> (3) is faded in.
- Change the value of the print stop counter with the **Arrow buttons** (4). The value of the counter will be increased or reduced in single steps by pressing the accordant buttons.

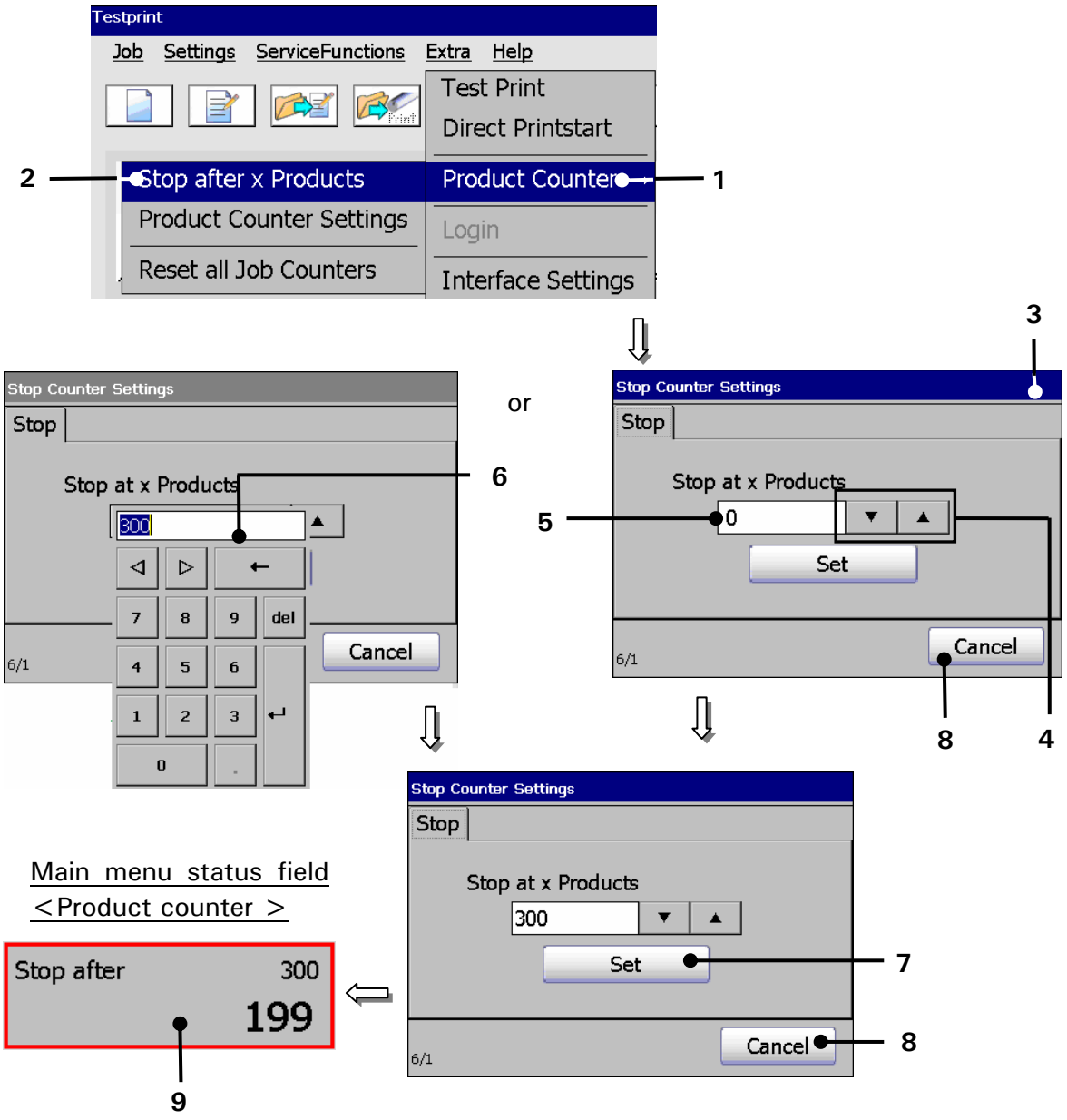
or

- Click in the **Counter display field** (5). The **Number block** (6) opens for input.

You will find further information regarding the working with number blocks in the **chapter *Number block***!

- Confirm the changed value by pressing on the button <**Set**> (7) or cancel the process with the button <**Cancel**> (8).
- The set print stop value is now displayed in the status field <**Product Counter**> (9) of the main menu. For better visualization that a pre-defined print stop has been defined, the field is displayed with a red frame.

Figure 66



Product counter (pre-defined print stop)

1 – Men <Product Counter>
2 – Option <Stop after x Products>
3 – Window <Stop at x Produts>
4 – Arrow buttons
5 – Counter display field
6 – Number block
7 – Button <Set>
8 – Button <Cancel>
9 – Status field <Product Counterler>

7.5.3.3 Reset all job counters

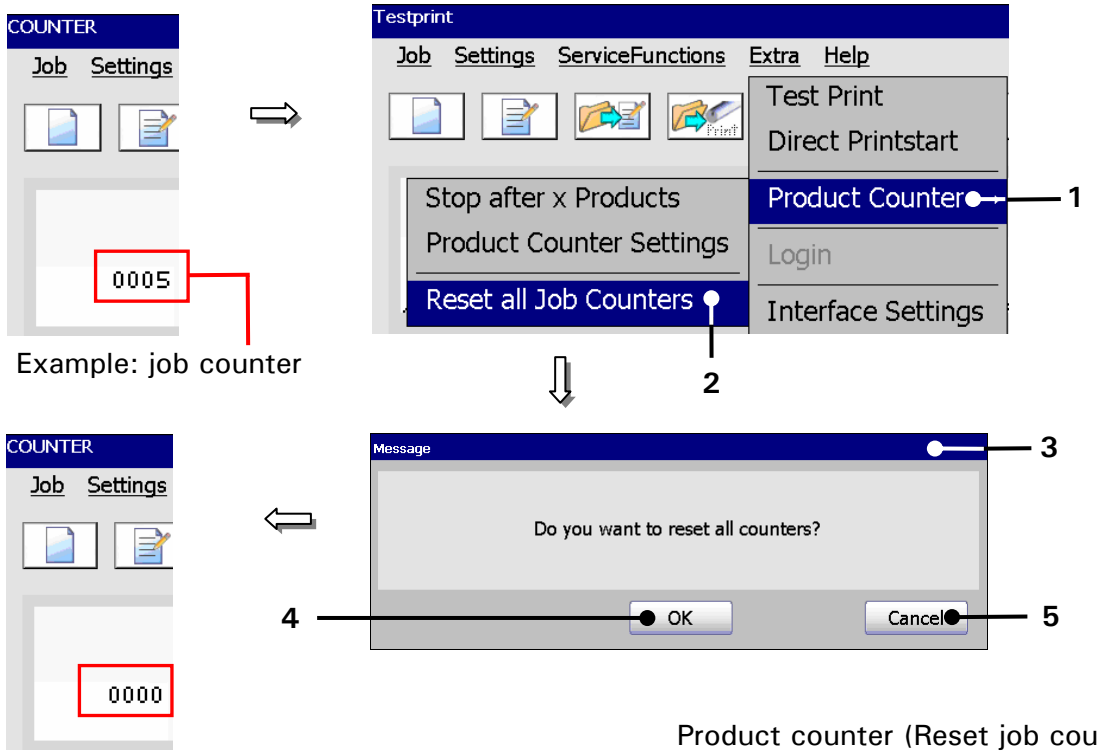
With this function, all existing job counters in the current loaded job can be reset.

Proceeding:

- Press the option <**Reset all Job Counters**> (2).
- A **safety query** (3), if all job counters have been reset is faded in.
- Confirm the reset by pressing the button <**OK**> (4) or cancel the process with the button <**Cancel**> (5).
- All job counters are reset.

Figure 67

Main menu:



Product counter (Reset job counter)

1 – Menu <Product Counter>
2 – Option <Reset all Job Counters>
3 – Message <Safety query>
4 – Button <OK>
5 – Button <Cancel>

Attention! The reset of the job counter is irrevocably!

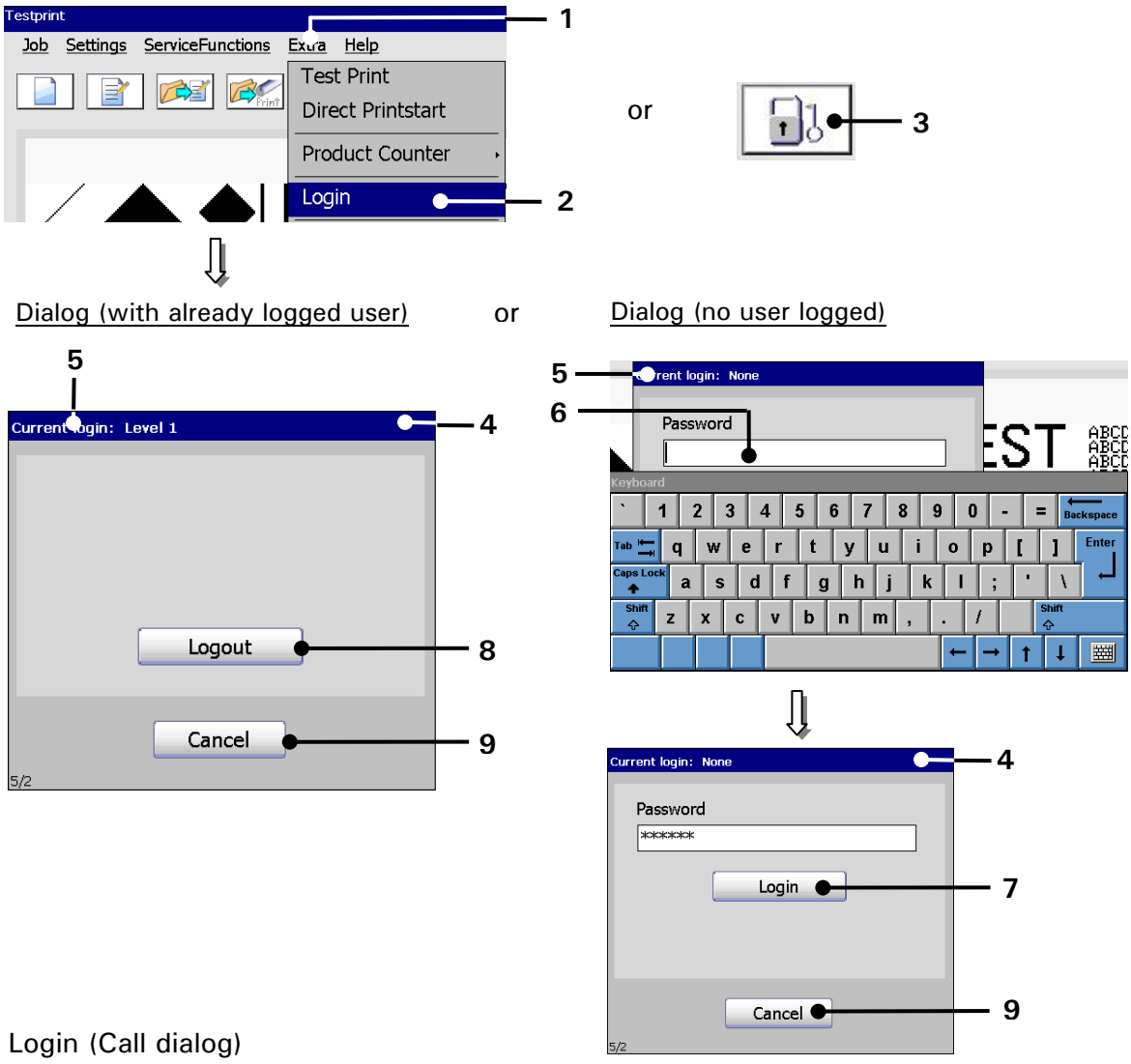
7.5.4 Login

With the option <**Login**> an user can login during the operation to e.g. carry out functions which are still not enabled for the original logged in user.

Further more the logged in user can logout also during the operation and can therefore prevent a change of the settings by unauthorized staff.

7.5.4.1 Layout and call login-/logout dialog

Figure 68



Login (Call dialog)

1 – Button <Extra>
2 – Option <Login>
3 – Direct button (Icon)
4 – Dialog field <Current login>
5 – Title bar with user display
6 – Input field <Password>
7 – Button <Login>
8 – Button <Logout>
9 – Button <Cancel>

Call login-/logout dialog:

- Press the button <**Extra**> (1) and the option <**Login**> (2) or the accordant direct button (Icon) (3).
- The dialog field <**Current login**> (4) is called.

Layout:

The current registered level of the access right (user level) is displayed in the **title bar** (5).

The password for the login of the user is entered in the input field (6) <**Password**>.

With the button <**Login**> (7) the login is carried out after entering the password.

With the button <**Logout**> (8) the current user is logged out.

With the button <**Cancel**> (9) the dialog field is closed without carrying out an user change or logout.

7.5.4.2 Login user or carry out user change

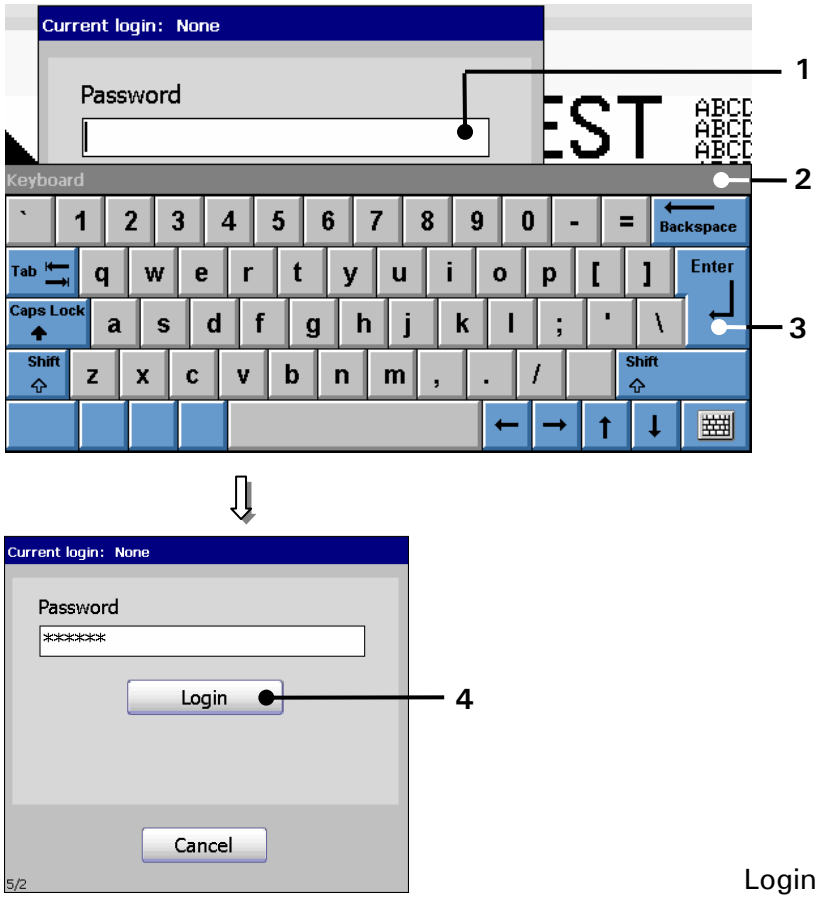
- Enter the password of your access right with keyboard field (2). The input is displayed with placeholders (wildcards) in the input field <**Password**> (1).

You will find further information regarding the operation with keyboard fields in the **chapter *Keyboard fields***!

To carry out an user change the current user must be logged out at first!

- Press the button <**Enter**> (3) of the keyboard field to finish the input.
- Now press the button <**Login**> (4) to carry out the login process. The dialog field is closed and the new user is logged in.

Figure 69



Login (Login user/change user)

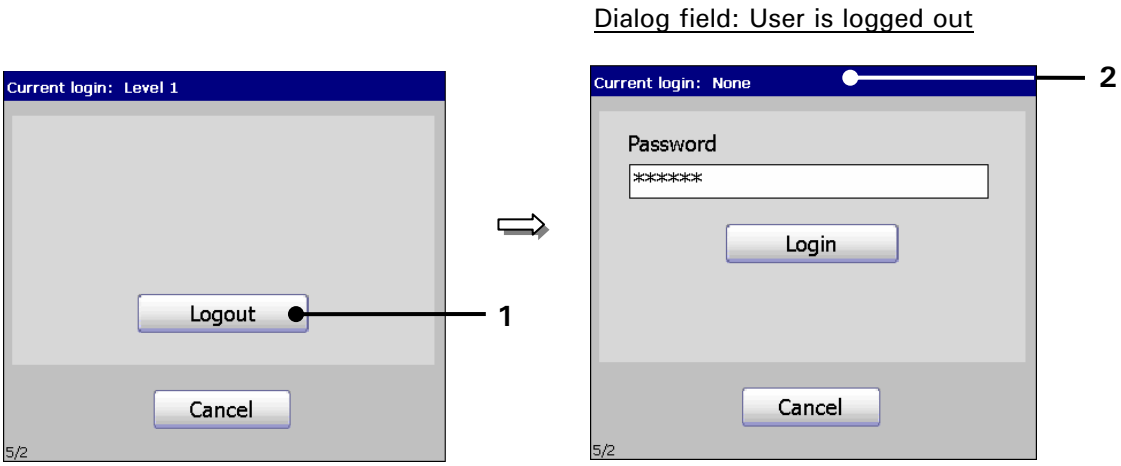
1 – Input field <Password>
2 – Keyboard field
3 – Button <Enter>
4 – Button <Login>

7.5.4.3 Logout user

- Press the button <**Logout**> (1). The dialog field is closed and the user is logged out.

Note: *For next calling of the dialog field „Unknown“ is displayed in the title bar (2) as status of the user level.*

Figure 70



Login (Logout user)

1 – Button <Logout> 2 – Title bar with user display (logged out)

An input of the password is not required to logout!

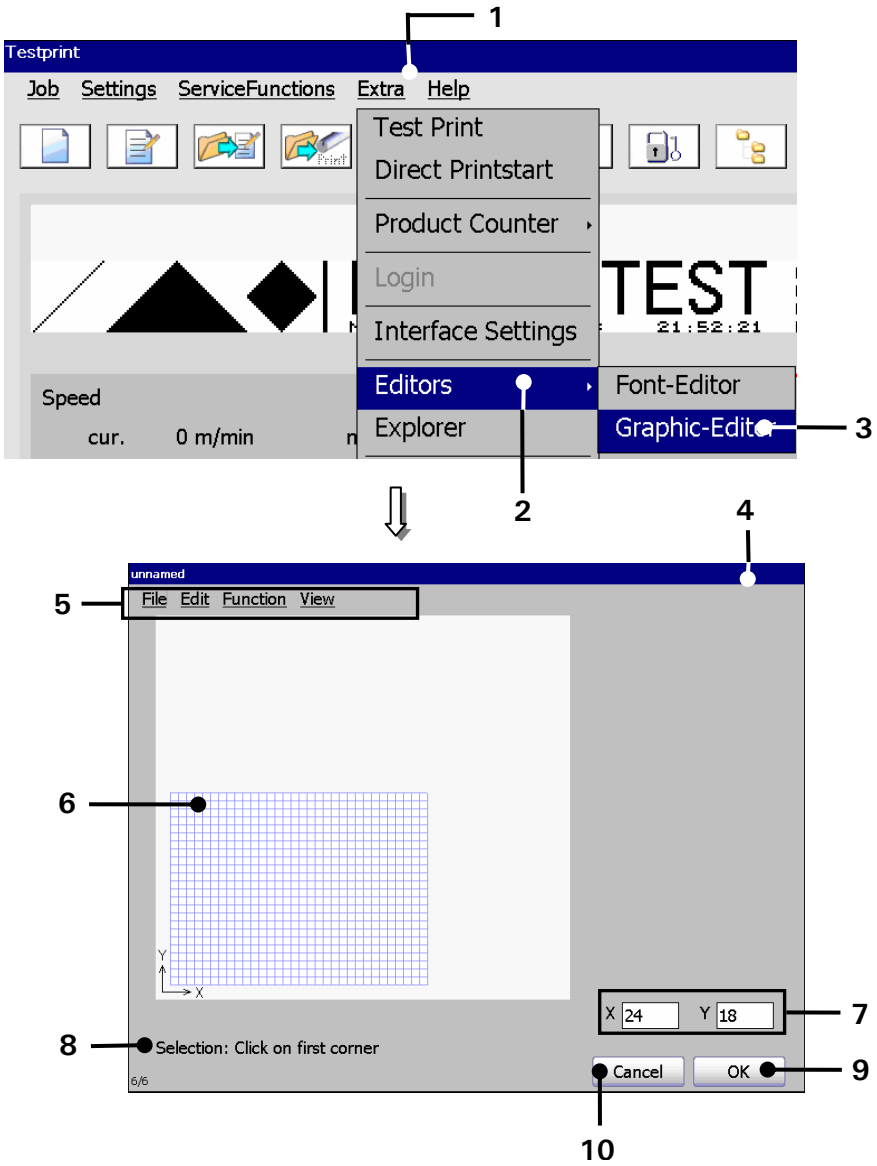
After logout of the user the following basic functions are only available:

- Open and close nozzle
- Print start and print stop
- Login
- Touch-calibration

7.5.5 Graphic editor

In the graphic editor you can create and change complex logos, pattern or writings easily. For the usage of a mouse you will get a comparable ease of use for the PC-surroundings. Typical functions as Copy&Paste, Zoom in/out as well as tools for the drawing of circles, lines and rectangles make the creation and changes of graphics easier.

Figure 71



Graphic editor (Structure and select)

1 – Button <Extra>
2 – Option <Editor>
3 – Option <Graphic-Editor>
4 – Menu <Graphic-Editor>
5 – Menu bar
6 – Input field <Graphic>
7 – Display <Coordinates>
8 – Display <Activities to carry out>
9 – Button <OK>
10 – Button <Cancel>

The graphic editor menu can be opened with the option <**Editor**> (2) and selection afterwards of the option <**Graphic-Editor**> (3) in the faded in submenu.

With the buttons in the menu bar (5) you can select the accordant submenus of the graphic editor. The following submenus are available:

- File
- Edit
- Function
- View

With the input field <**Graphic**> (6) you can create a graphic.

In the display <**Coordinates**> (7) the current or the last cursor position is displayed.

In the display <**Activities to carry out**> (8) the input (activity) which is expected next from the operator is displayed.

The button <**OK**> (9) closes the menu. If the inputs have been not saved yet, a safety query is faded in.

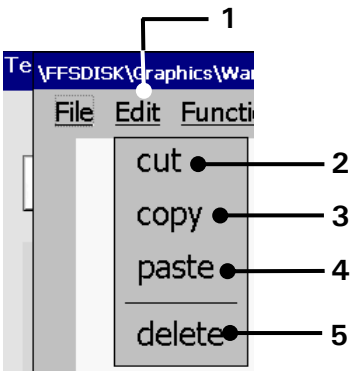
With the button <**Cancel**> (10) the graphic editor will be closed without a further safety query and without memory.

7.5.5.1 Edit tools

With the button <**Edit**> you can select the edit tools.

Note: *The function of the tools corresponds to the Windows™-functions.*

Figure 72



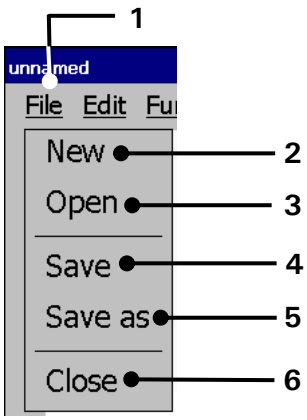
Graphic editor (Edit tools)

1 – Button <Edit>
2 – Edit tool <cut>
3 – Edit tool <copy>
4 – Edit tool <paste>
5 – Edit tool <delete>

7.5.5.2 Organization tools

With the button <**Data file**> you can select the organization tools of the editor.

Figure 73



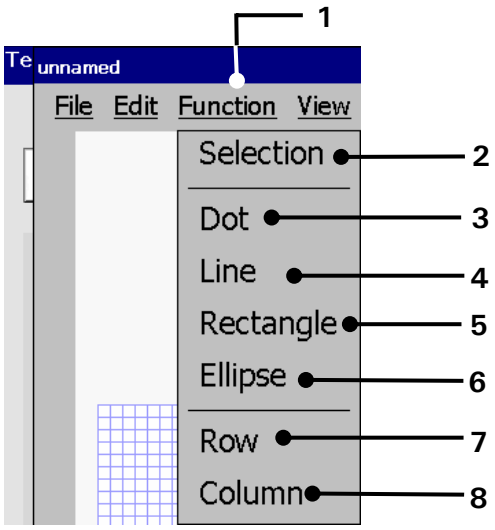
Graphic editor (Organization tools)

1 – Button <File>
2 – Organization tool <New>
3 – Organization tool <Open>
4 – Organization tool <Save>
5 – Organization tool <Save as>
6 – Organization tool <Close>

Pos.	Org.-tool	Function
2.	New	Provides the creation of a new graphic. An empty input field is created.
3.	Open	Provides opening of an existing graphic.
4.	Save	Saves the current loaded graphic under the existing name.
5.	Save as	Saves the current loaded or new created graphic under a new name.
6.	Close	Closes the graphic editor. If carried out inputs or graphic changes have been not saved yet, an accordant safety query is faded in.

7.5.5.3 Drawing tools

Fugure 74



1 – Button <Function>
2 – Drawing tool <Selection>
3 – Drawing tool <Dot>
4 – Drawing tool <Line>
5 – Drawing tool <Rectangle>
6 – Drawing tool <Ellipse>
7 – Drawing tool <Row>
8 – Drawing tool <Column>

Graphic editor (Drawing tools)

With the button <**Function**> you can select the tools to create graphic elements and you can select (mark) the graphic segments.

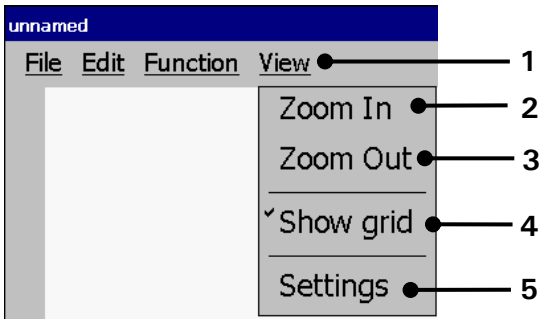
Note: *The function of the tools refers to the Windows™-drawing tools. Irrespectively of the set raster size, points are always created with a raster size 1x1 and lines- and circle elements are created with a raster width 1.*

Pos.	Drawing tool	Function
2.	Selection	Provides the marking of a created graphic segment for editing.
3.	Dot	Provides the creation of a point.
4.	Line	Provides the creation of a line in the requested length.
5.	Rectangle	Provides the creation of a rectangle or quad in the requested size.
6.	Ellipse	Provides the creation of a circle or an ellipse in the requested size.
7.	Row	Generates a (horizontal) line with the total length of the selected row.
8.	Column (Gap)	Generates a (vertical) line with the total length of the selected gap.

7.5.5.4 Display tools

With the button <**View**> you can select the display tools of the editor.

Figure 75



Graphic editor (Display tools)

1 – Button <View>
2 – Display tool <Zoom In>
3 – Display tool <Zoom Out>
4 – Display tool <Show grid>
5 – Display tool <Settings>

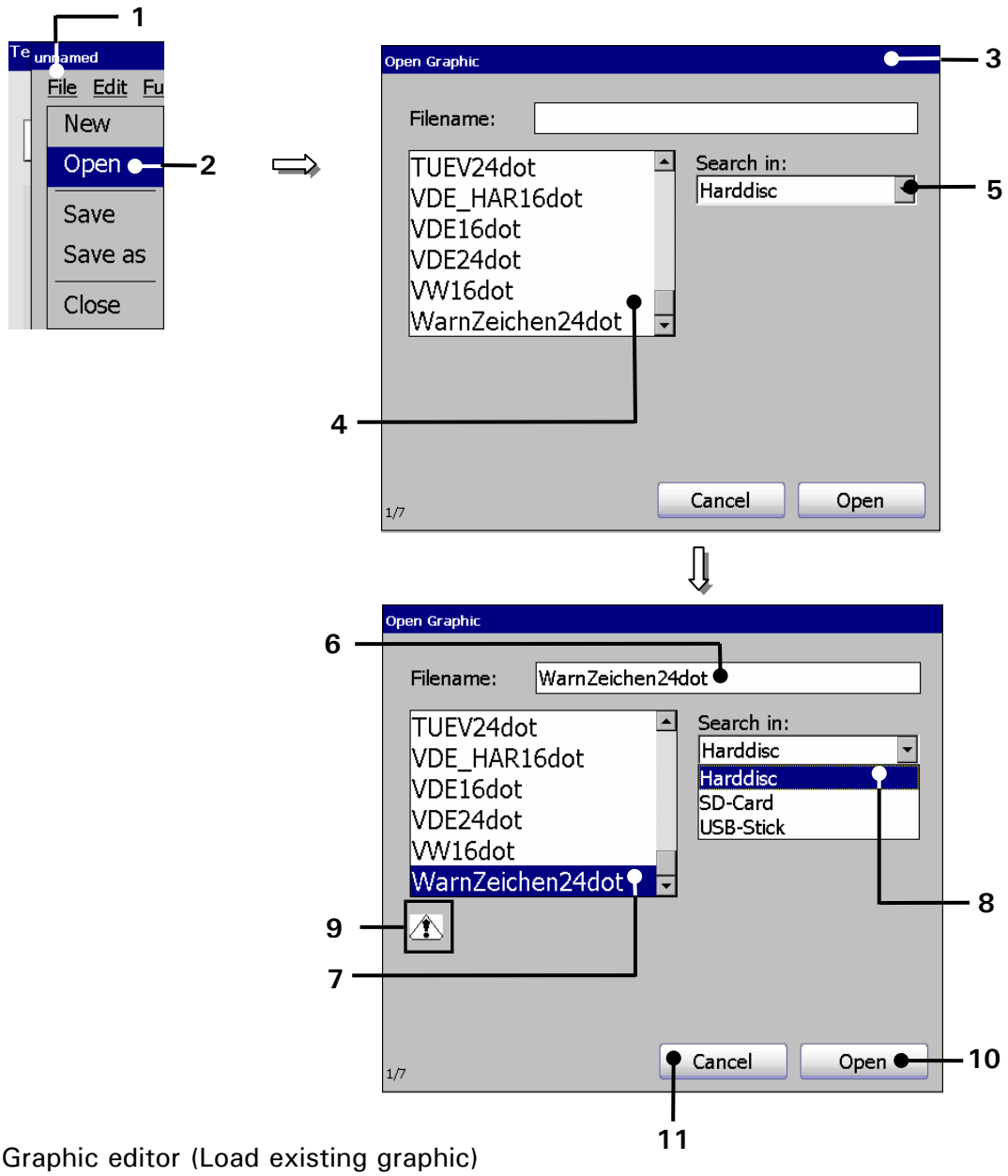
Pos.	Display tool	Function
2.	Zoom In	Enlarges the display in the input field <**Graphic**>.
3.	Zoom Out	Reduces the display in the input field <**Graphic**>.
4.	Show grid	Turns on or off the grid display. If the grid is turned on, it is displayed with a checkmark on the button.
5.	Settings	Enables the settings of the edit size (width and height of the drawing area) as well the settings of the grid size.

You will find further information regarding the function of the several display tools also in the **chapter *Carry out settings of the graphic editor***!

7.5.5.5 Load existing graphic

With the option <**Open**> you can open an existing graphic for processing. For selection of a graphic the window „Load graphic “ opens.

Figure 76



Graphic editor (Load existing graphic)

1 – Button <File>
2 – Option <Open>
3 – Window <Load Graphic>
4 – Selection field <Graphic list>
5 – Pop-up window <Search in>
6 – Display <Filename>
7 – Selected graphic
8 – Selected data carrier
9 – Preview of the selected graphic
10 – Button <Open>
11 – Button <Cancel>

Proceeding:

- Press the button <**File**> (1) and the option <**Open**> (2).
- The window <**Load Graphic**> (3) is faded in.
- Select the requested graphic in the selection field <**Graphic list**> (4). With the Pop-up window <**Search in**> (5) you can select the different memory locations.
- The name of the selected graphic is now shown on the display <**Filename**> (6) and a preview of the graphic is displayed.
- Press the button <**Open**> (10) to load the selected graphic for processing or press the button <**Cancel**> (11) to cancel the process.

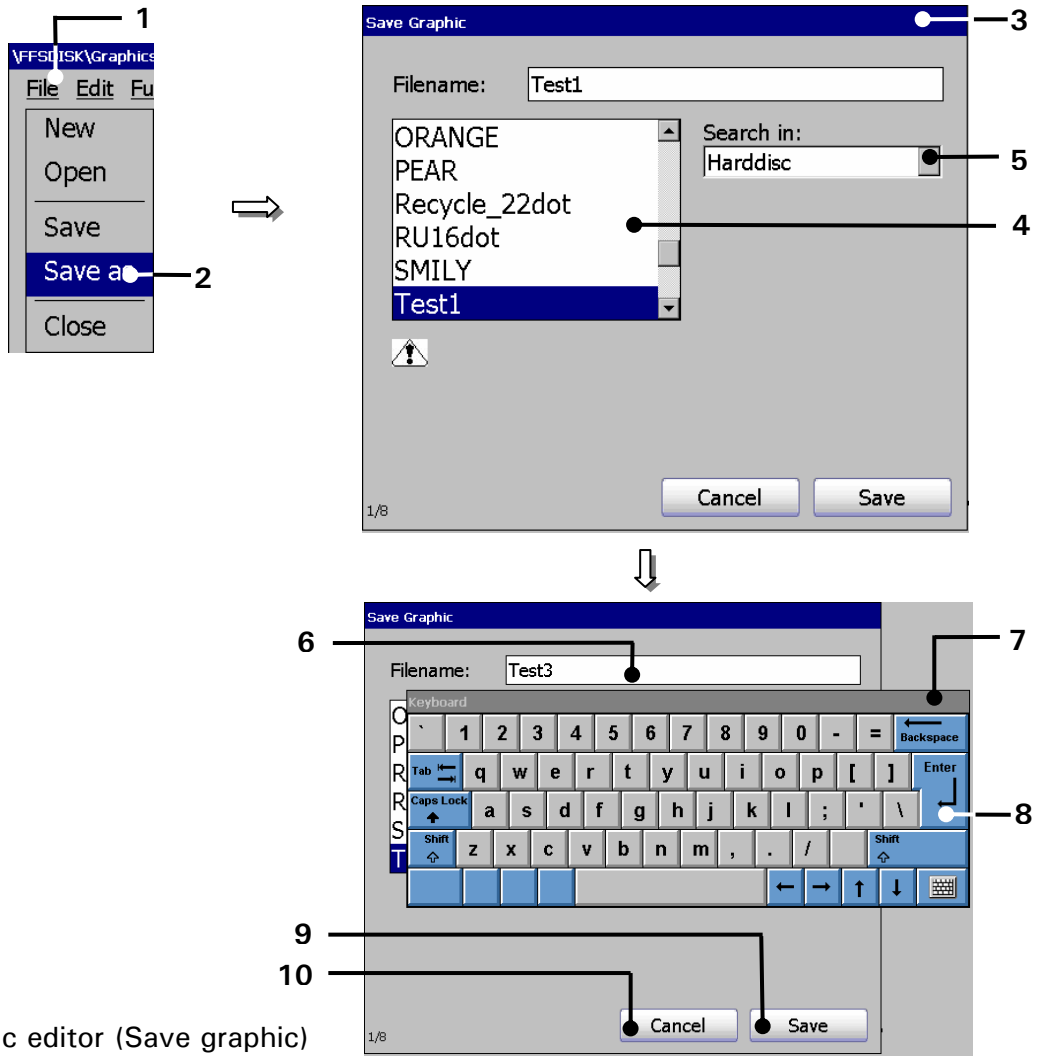
7.5.5.6 Save graphic/Save graphic as

With the option <**Save**> an open graphic is saved under the current name. The existing data will be overwritten.

With the option <**Save as**> you can save the current opened or new created graphic under a new name.

Attention! If the graphic is saved with the option <Save> or under an existing filename, no safety query is generated. The existing data will be overwritten.

Figure 77



Graphic editor (Save graphic)

1 – Button <File>
2 – Option <Save as>
3 – Window <Save graphic>
4 – Selection field <Graphic list>
5 – Pop-up window <Search in>
6 – Display <Filename>
7 – Keyboard field
8 – Button <Enter>
9 – Button <Save>
10 – Button <Cancel>

Proceeding:

- Press the button <**File**> (1) and the option <**Save as**> (2).
- The window <**Save Graphic**> (3) is faded in.
- The names of the already existing graphics are displayed in the selection field <**Graphic list**> (4). With the Pop-up window <**Search in**> (5) you can select the different memory locations.
- Click in the display <**Filename**> (6). A keyboard field (7) opens for input.

You will find further information regarding the working with keyboard fields in the **chapter *Keyboard fields***!

- Enter the requested name.
- Press the button <**Enter**> (8) of the keyboard field. The entered name will be taken over to the display <**Filename**> (6).
- Press the button <**Save**> (9) to finish the memory process or press the button <**Cancel**> (10) to cancel the process.

7.5.5.7 Carry out editor settings

With the display tools you can change the settings of the editor. The following functions are available:

- Enlarge and reduce display size (Zoom in/out)
- Show grid
- Settings

With the option <**Settings**> you can set the editor size (width and height of the drawing area) as well as the grid size.

Proceeding:

- Press the button <**View**> (1) and the option <**Settings**> (2).
- The window <**Editor Settings**> (3) is faded in.
- With the **Arrow buttons** (4) you can increase or reduce the values of the editor size and the grid size by one step.

alternatively

- Click in the appropriate display field (5) of the value which you would like to change. A number block opens for input Now enter the requested value.

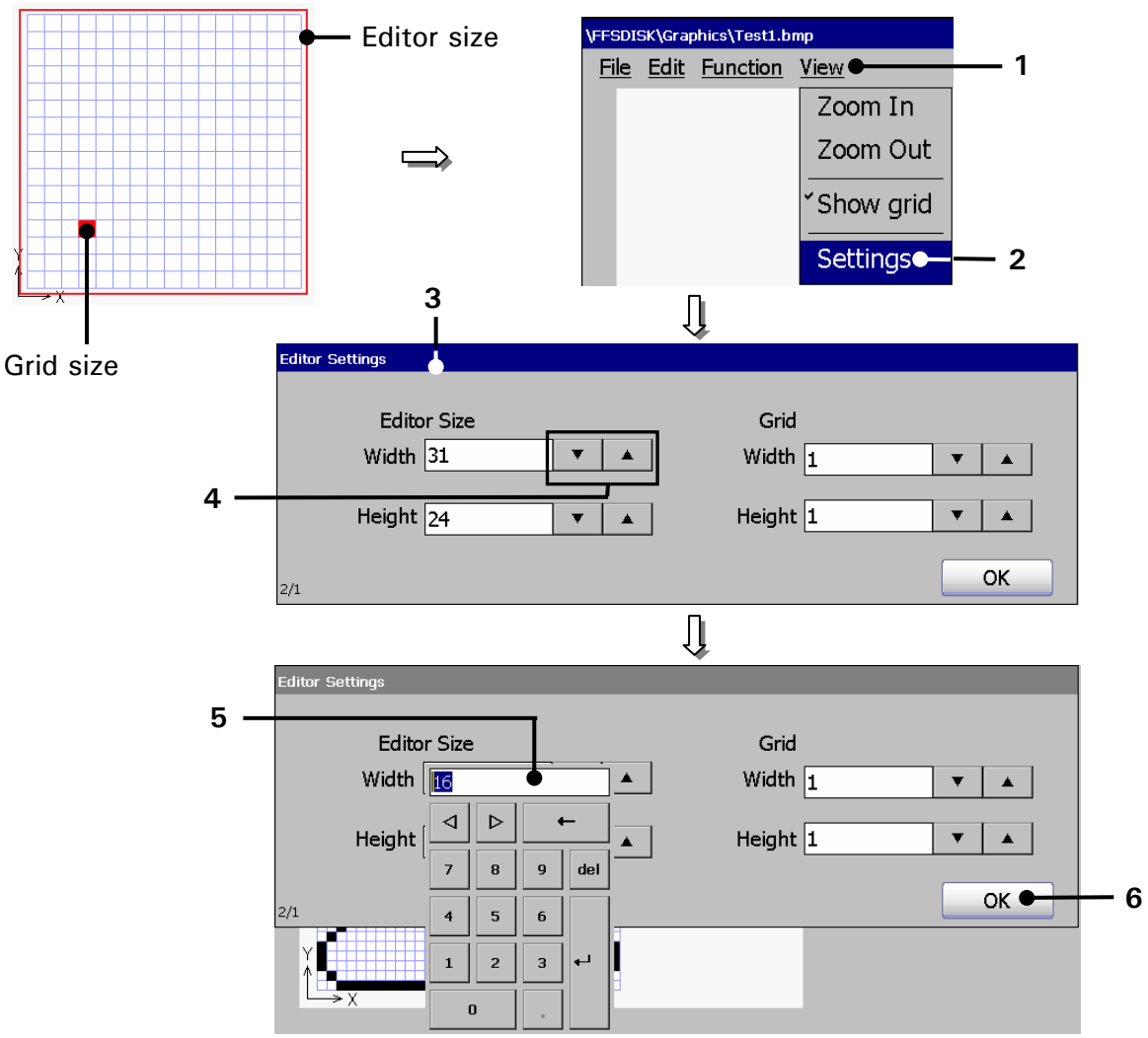
You will find further information regarding the working with number blocks in the **chapter *Number block***!

- The button <**OK**> (6) closes the window.

Note: *Irrespectively of the set grid size points are always created in the grid size 1x1 and line- and circle elements in the grid size 1..*

You will find further information regarding the further display tools in the **chapter *Display tools***!

Figure 78



Graphic editor (Carry out settings)

1 – Button <View>
2 – Option <Settings>
3 – window <Editor Settings>
4 – Arrow buttons
5 – Display field
6 – Button <OK>

7.5.5.8 Create and process graphic elements

1. Creation of a graphic element:

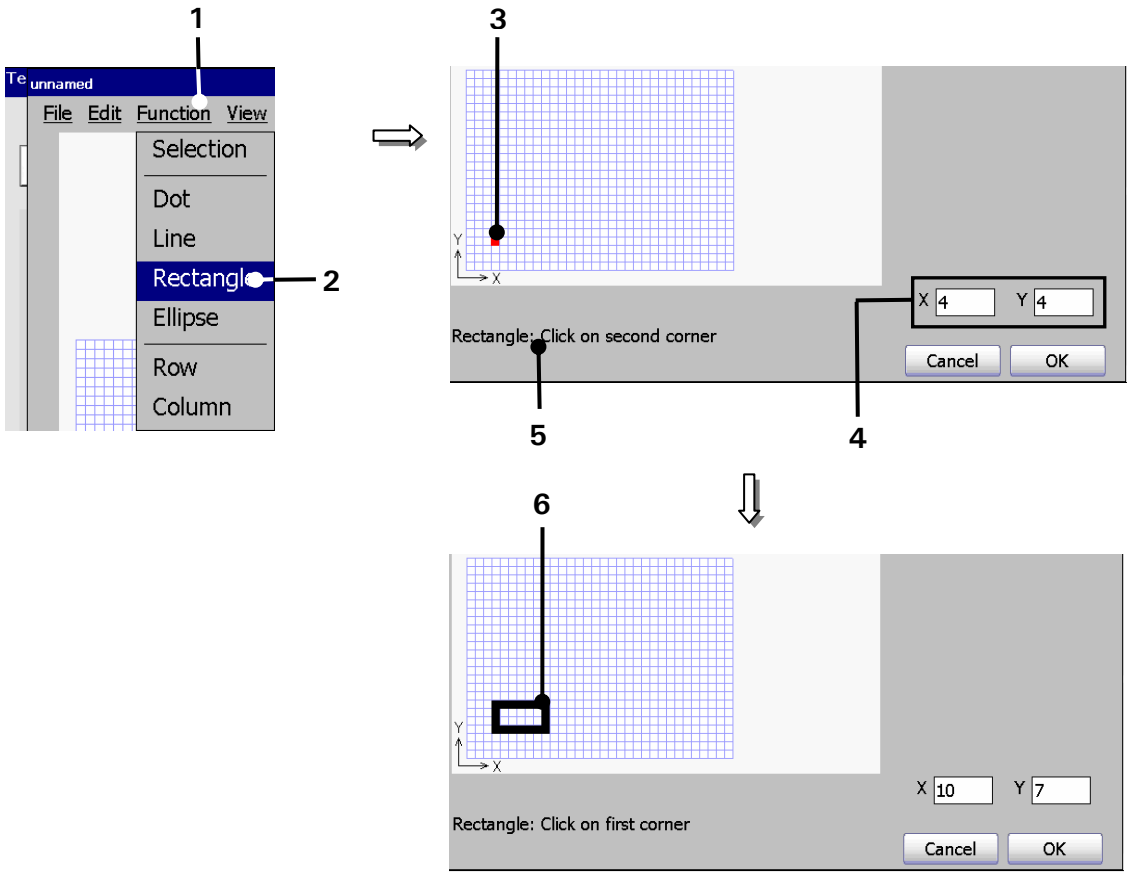
(Example.:A rectangle should be created)

Proceeding:

- Press the button **<Function>** (1) and afterwards on the drawing tool **<Rectangle>** (2).

- Click in the grid of the input field on the requested start point (3).
- The requested start point is placed and is marked red. At the same time on the display <**Coordinates**> (4) the coordinates of the start points are shown and on the display <**Activities to carry out**> (5) you can see the next required or possible activity.
- Now click in the grid on the requested position of the end point (6). The rectangle is now created.

Figure 79



Graphic editor (Create graphic)

1 – Button <Function>
2 – Drawing tool <Rectangle>
3 – Start point
4 – Display <Coordinates>
5 – Display <Activities to carry out>
6 – End point (Rectangle)

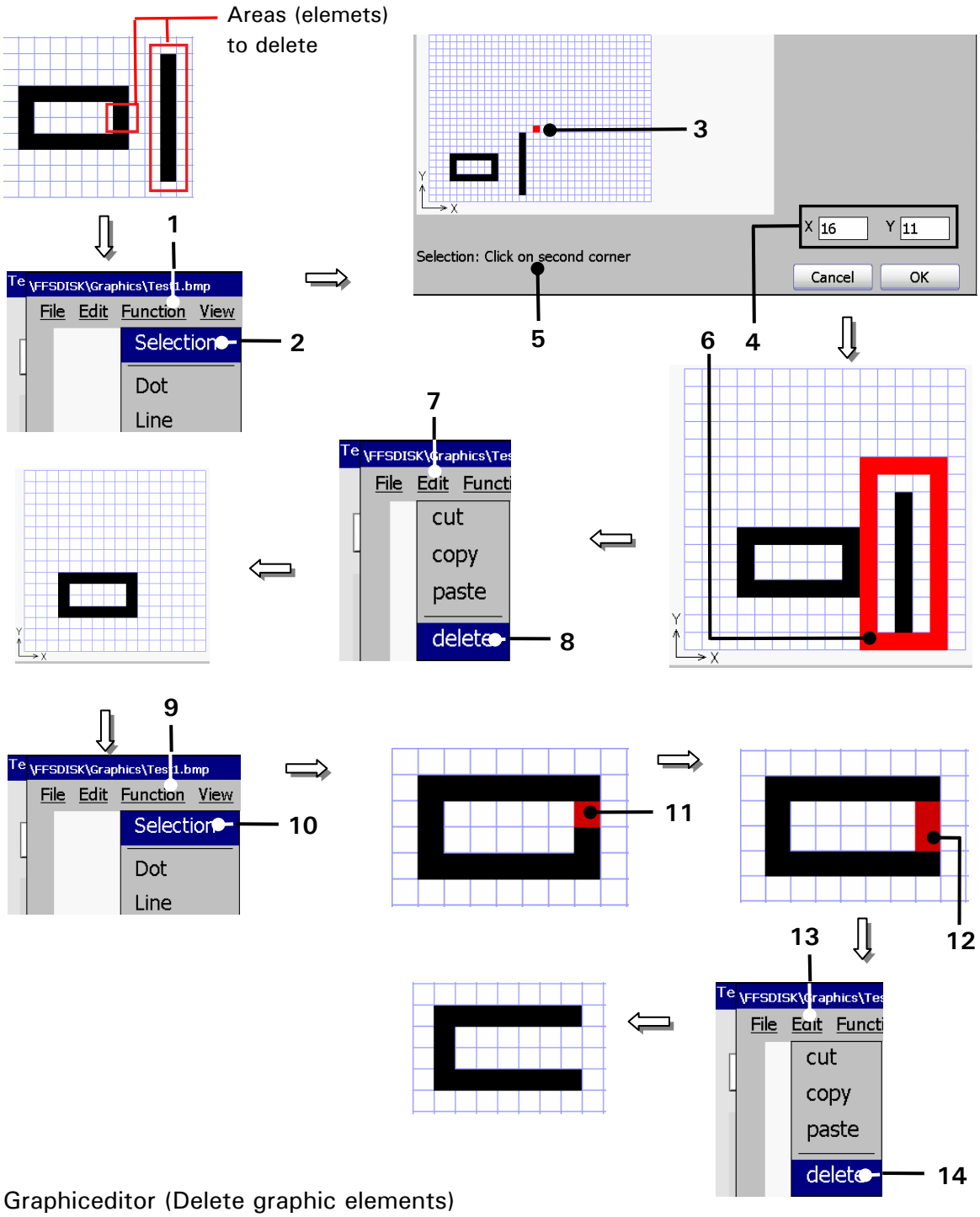
2. Deletion of a graphic element or graphic segment:

(Example: A rectangle should be interrupted and a line should be deleted)

Proceeding:

- Press the button <**Function**> (1) and afterwards on the drawing tool <**Selection**> (2).

Figure 80



Graphiceditor (Delete graphic elements)

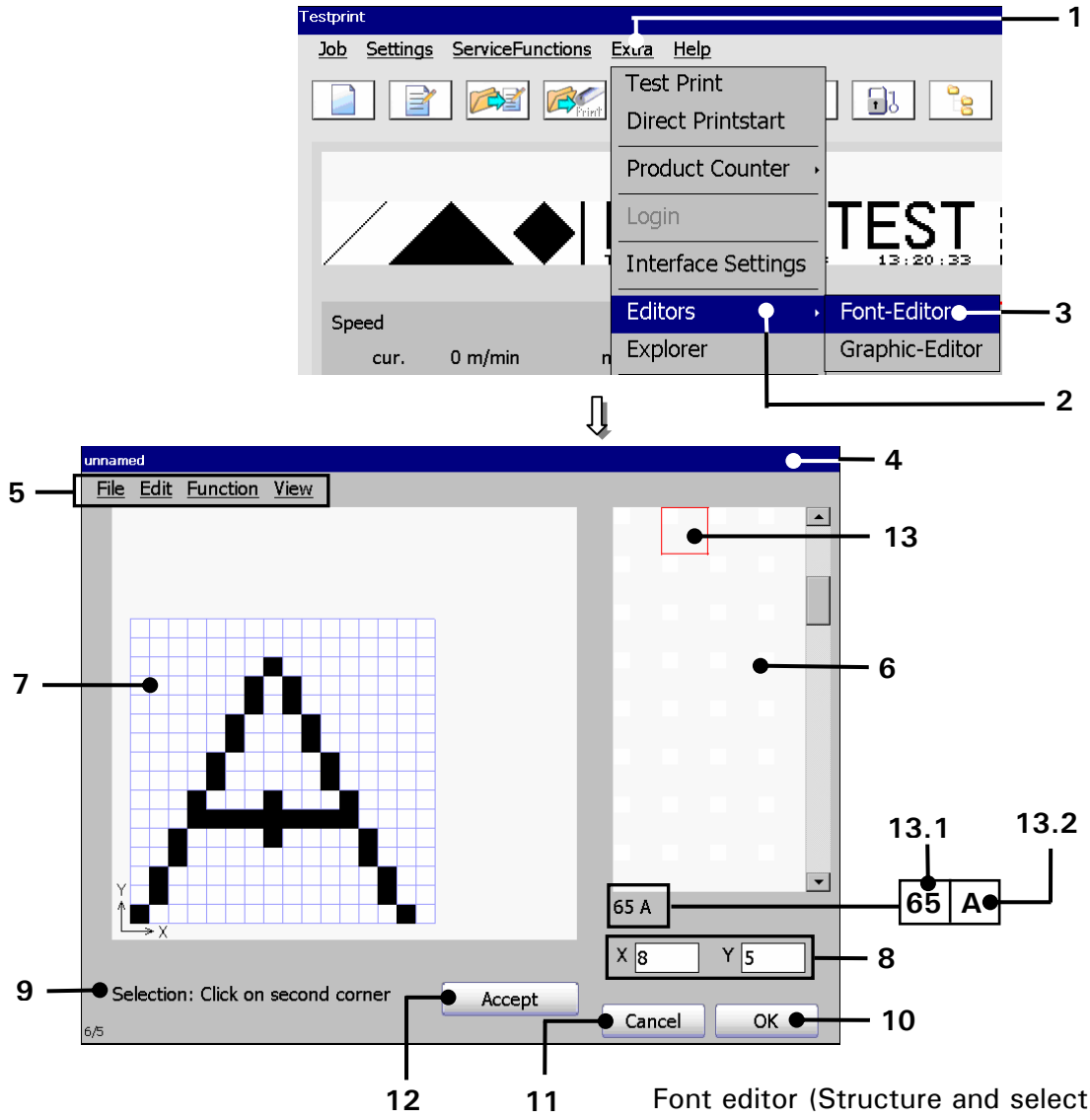
1 – Button <Function>
2 – Drawing tool <Selection>
3 – Start point (catch frame)
4 – Display <Coordinates>
5 – Display <Activities to carry out>
6 – End point (catch frame)
7 – Button <Edit>
8 – Edit tool <delete>
9 – Button <Function>
10 – Drawing tool <Selection>
11 – Start point (catch frame)
12 – End point (catch frame)
13 – Button <Edit>
14 – Edit tool <delete>

- Click in the grid of the input field on an empty point close to the line which should be deleted. The start point (3) of the catch frame is displayed red. At the same time in the display <**Coordinates**> (4) the coordinates of the object frame start point are shown and in the display <**Activity to carry out**> (5) the next required or possible activity.
- Now click in the grid on an empty point on the other side of the line which should be deleted to define an end point (6) for the catch frame. The catch frame is now created.
- Now press the button <**Edit**> (7) and afterwards the edit tool <**Delete**> (8).
- The line will be deleted.
- Press again the button <**Function**> (9) and afterwards the drawing tool <**Selection** > (10) to work on the rectangle.
- Click on the grid field (11) where the interruption of the rectangle should happen. The start point of the catch frame is displayed red.
- Now click on the grid field (12) where the interruption should be finished. The catch frame is generated.
- Press the button <**Edit**> (13) and afterwards the edit tool <**Delete**> (14).
- The marked area will be deleted.

7.5.6 Font editor

The font editor enables the individual change of existing fonts or the creation of special characters and free definable fonts or characters which can be immediately integrated in the printing text. Functions as Copy&Paste, Zoom in/out as well as tools for drawing of circles, lines and quads make the operation easier.

Figure 81



Font editor (Structure and select)

1 – Button <Extra>
2 – Option <Editor>
3 – Option <Font-Editor>
4 – Menu <Font editor>
5 – Menu bar
6 – Selection window
7 – Input field <Font elements>
8 – Display <Coordinates>
9 – Display <Activities to carry out>
10 – Button <OK>
11 – Button <Cancel>
12 – Button <Accept>
13 – Selected memory place
13.1 – ASCII-Code of the memory capacity
13.2 – assigned keyboard characters

The font editor menu can be opened with the option <**Editor**> (2) and selection of the option <**Font-Editor**> (3) in the faded in submenu.

- With the buttons in the menu bar (5) you can select the accordant submenus of the graphic editor. The following submenus are available:

  - File
  - Edit
  - Function
  - View

- In the selection window (6) you can select existing font elements for processing.

- The input field <**Font elements**> (7) provides the creation of new font elements.

- The current or last cursor position is shown on the display <**Coordinates**> (8).

- The input (activity) which is expected next by the operator is shown on the <**Activities to carry out**> (9).

- The button <**OK**> (10) closes the menu. If the inputs have been not saved yet, a safety query is faded in.

- With the button <**Cancel**> (11) the font editor will be closed without a further safety query and without saving.

- With the button <**Accept**> (12) you can include the current created character in the font. This character will be placed on the selected memory place (13) whose ASCII-code (13.1) and keyboard characters (13.2) are displayed below the selection window (6).

  After changing or creation of a font (characters) first you have to carry out the function <**Reload all fonts**> *(Menu: Extra ▶ Reload all fonts)* that the carried out changes can be taken over updated.

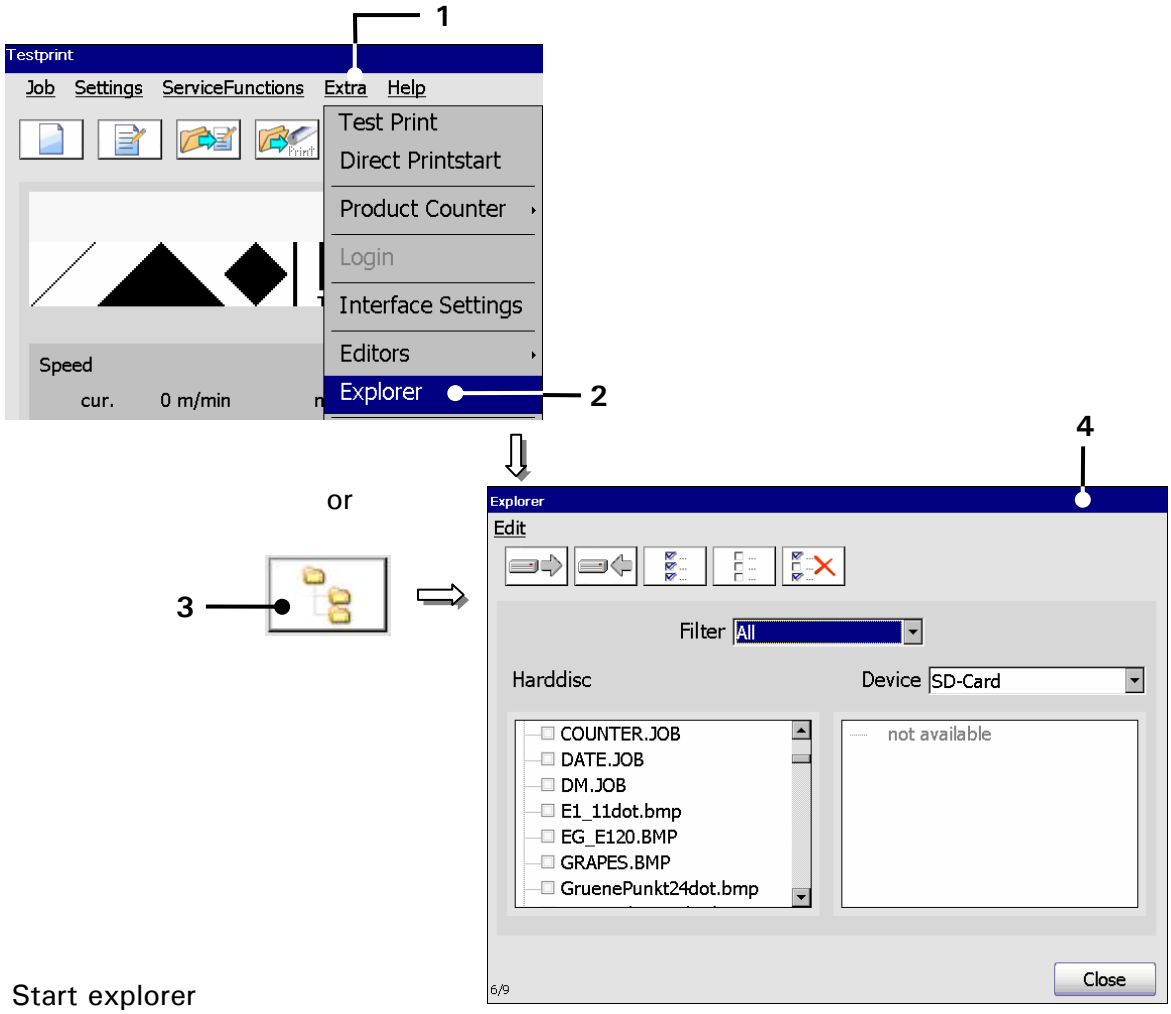
7.5.7 Explorer

The explorer administrates the data of the LEIBINGER JET3. As the explorer of the PCs, the explorer in the JET3 allows the deletion of data as well as the free saving and loading of data on different media (e.g. USB-stick, SD-card) or of the internal memory. Selection window and filter functions allow a clear and easy to operate data management.

7.5.7.1 Start explorer

- Press the button <**Extra**> (1) and the option <**Explorer**> (2) or the accordant direct button (Icon) (3).
- The menu <**Explorer**> (4) opens.

Figure 82

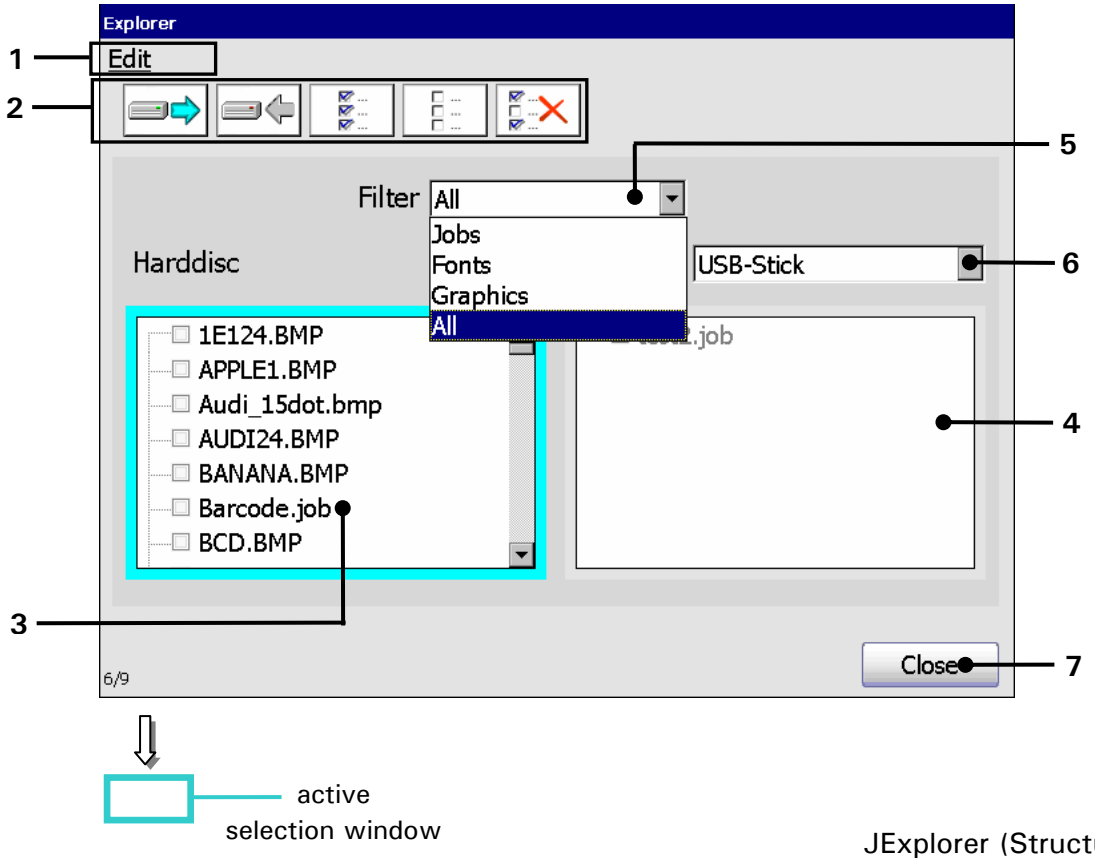


Start explorer

1 – Button <Extra>
2 – Option <Explorer>
3 – Direct button (Icon)
4 – Menu <Explorer>

7.5.7.2 Structure

Figure 83



JExplorer (Structure)

1 – Button <Edit>
2 – Direct buttons <Tools>
3 – Selection window <Harddisc>
4 – Selection window <Ext. memory>
5 – Pop-up window <Filter>
6 – Pop-up window <memory device>
7 – Button <Close>

- **Button <Edit> (1) and direct buttons [icons] (2):** With the button or with the icons you can select the tools of the explorer.

- **Selection window <Harddisc> (3):** In the selection window the data or the filtered data of the internal memory of the JET3 are displayed.

- **Selection window <External memory> (4):** In the selection window the data or the filtered data of the external data carrier which have been selected in the Pop-up window **<memory device >** are displayed.

  Annotation: *A selection window is activated by clicking on the display area of the window. The active window is marked by a turquoise border.*

- **Filter (5):** With the Pop-up window you can select the several data fields which should be displayed or processed. If a filter has been used, only the accordant data is shown in the two selection windows.

  The following filters are available:

  - All
  - Jobs
  - Fonts
  - Graphics

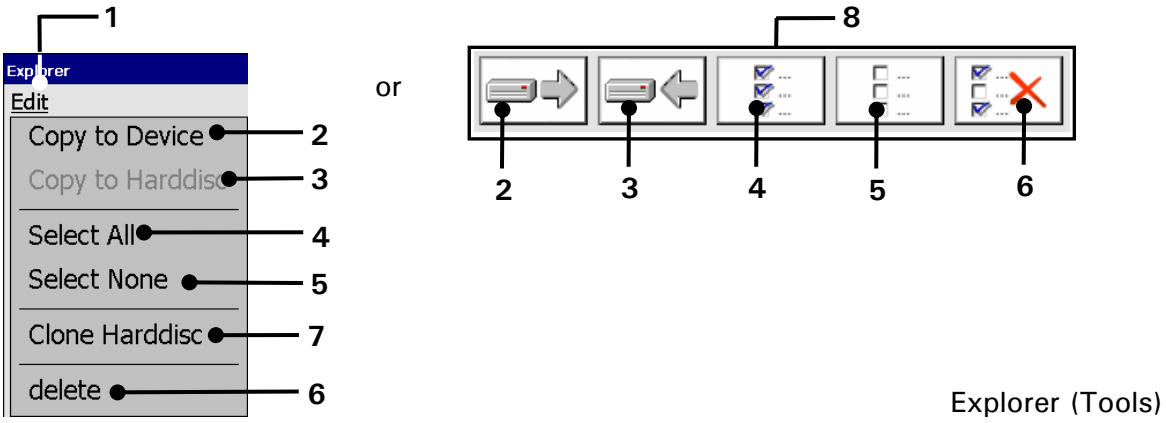
- **Memory device (6):** With the Pop-up window you can select the external data carrier.

- The button <**Close**> (7) closes the explorer.

7.5.7.3 Explorer tools

With the button <**Edit**> you can select the explorer tools. Further more most of the tools can be selected directly with the available icons (direct buttons).

Figure 84



Explorer (Tools)

1 – Button <Edit>
2 – Tool <Copy to Device>
3 – Tool <Copy to Harddisc>
4 – Tool <Select all>
5 – Tool <Select None>
6 – Tool <delete>
7 – Tool <Clone Harddisc>
8 – Direct buttons (Icons)

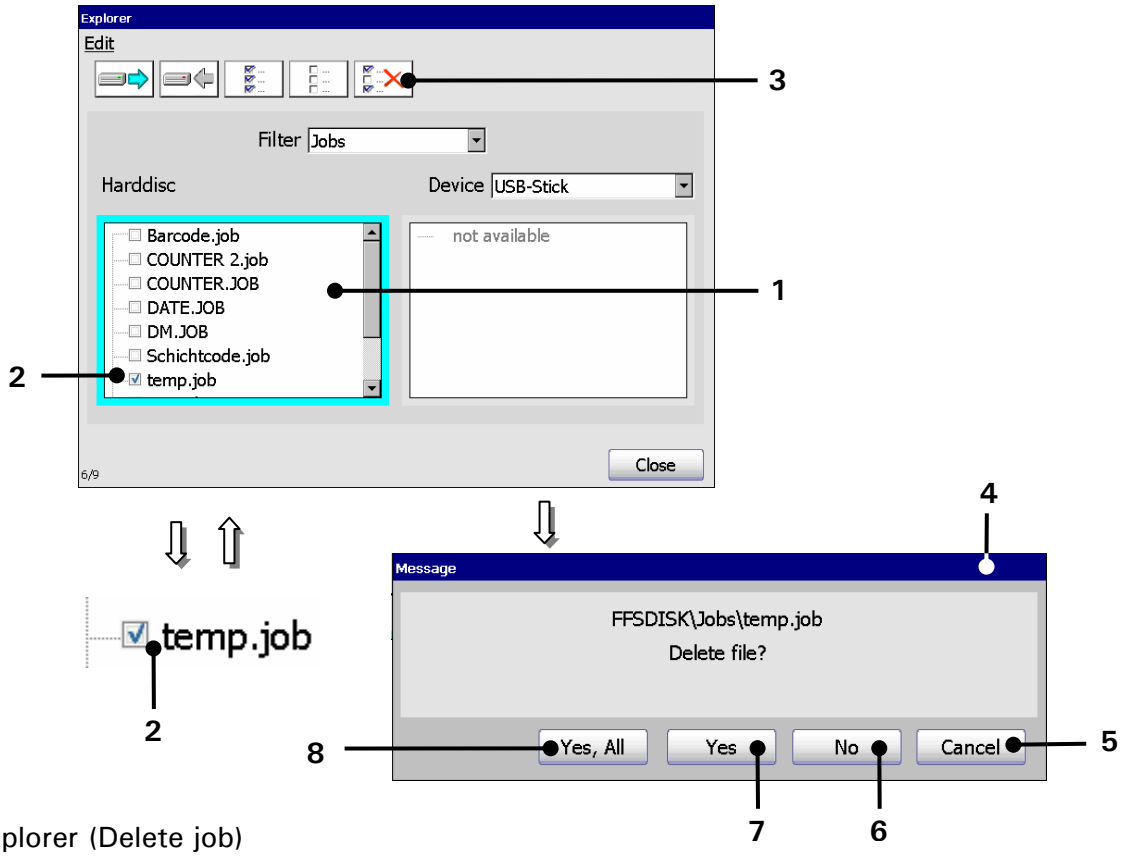
Pos.	Icon	Tool	Function
2.		Copy to (external) device	Copy marked data to an external memory device.
3.		Copy to Harddisc (internal memory)	Copy marked data from an external memory device to the internal memory of the JET3.
4.		Select All	Selects all data in the active selection window. ***Annotation:*** *The selection of several data happens by clicking on the accordant control box or the designation.*
5.		Select None (Cancel selection)	Cancels the selection of all data of the active selection window. ***Annotation:*** *The selection of several data is cancelled by clicking on the accordant control box or the designation.*
6.		Delete	Deletes all marked data in the active selection window.
7.		Clone Harddisc	Dublicates all data of the LJ3 to an external data carrier.

7.5.7.4 Delete jobs

A job can only be deleted in the explorer!

(Example: The job „temp“ should be deleted in the internal memory.)

Figure 85



Explorer (Delete job)

1 – Selection window <Harddisc>
2 – Marked job
3 – Tool <delete>
4 – Message <Delete file>
5 – Button <Cancel>
6 – Button <No>
7 – Button <Yes>
8 – Button <Yes, All>

Proceeding:

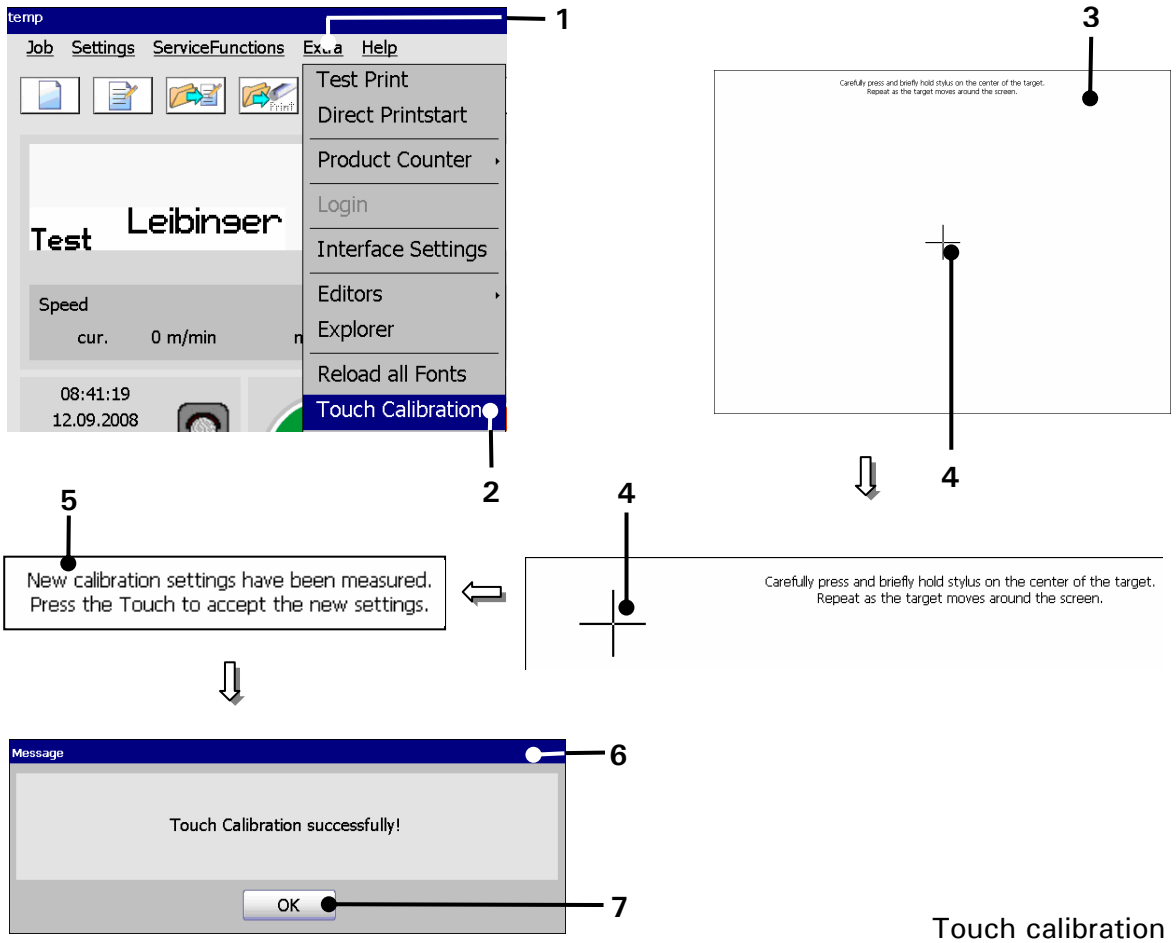
- Click on the display area of the selection window **<Harddisc>** (1) to activate it. The border of the window is now displayed turquoise.
- Select the job with the designation“temp.job“ (2) by clicking on the control box or the designation. The selection is displayed with a √ in the control box.

- Press the icon of the tool <**delete**> (3).
- The message <**Delete file**> (4) is faded in.
- Press the button <**Yes**> (7) to delete the selected job or press the button <**No**> (7) or the button <**Cancel**> (5) to abort the process.

7.5.8 Touch-Calibration

The function provides a calibration of the TFT-Touch-Display. For delivery of the device the display has been already calibrated.

Figure 86



Touch calibration

1 – Button <Extra>
2 – Option <Touch Calibration>
3 – Calibration window
4 – Calibration point
5 – Message <Setting calculation>
6 – Message <Touch calibration successfully>
7 – Button <OK>

Attention! To avoid faulty operation you have to carry out the calibration carefully!

Proceeding:

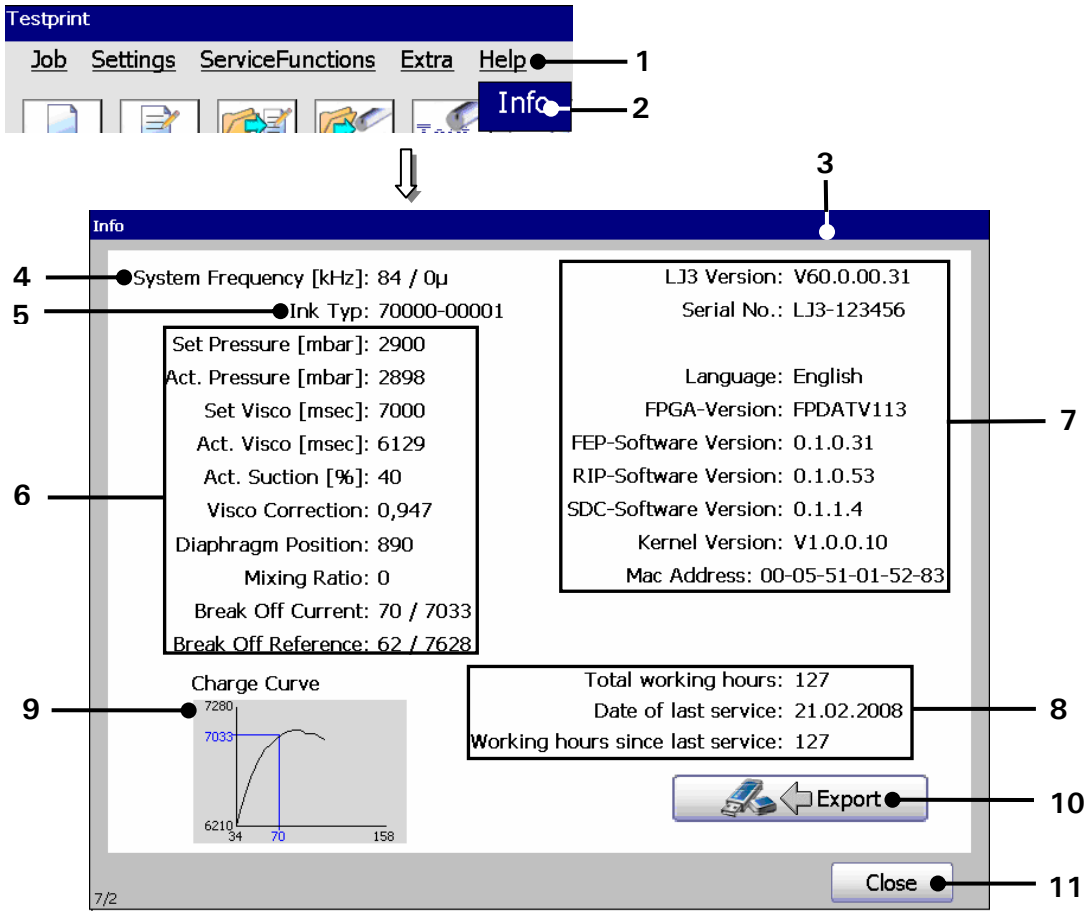
- Press the button <**Extra**> (1) and the option <**Touch Calibration**> (2).
- The calibration window (3) opens.
- Now press carefully on the middle of the calibration point 4). Repeat the process as long as the calibration point moves on the display.
- If the settings are calculated an accordring message 5) is displayed on the upper area of the calibration window. Now press any point on the Touch Display to accept the settings.
- The message <**Touch calibration successfully**> (6) is faded in.
- Finally press the button <**OK**> (7) to finish the process.

7.6 Help

With the button <**Help**> in the main menu bar you can display the submenu „Help“.

7.6.1 Information

Figure 87



System info window

1 – Button <Help>
2 – Option <Info>
3 – Display window <Info>
4 – Display<System frequency>
5 – Display<Filled ink>
6 – Display <Curr. hydr. param.>
7 – Display <Version/Software version>
8 – Display<Operation hours/inspection>
9 – Charging voltage curve
10 – Button <Export>
11 – Button <Close>

With the option <**Info**> (2) you can open the display window “Information“ (3). The following system information are displayed in the window:

- Oscillator frequency of the device (4)
- The ink which has been filled in the device (5)
- The nominal values and the current actual values of the hydraulic system (6)
- The JET3 version number, the serial number of the device and the software versions (7)
- The operation hour counter and information for inspection (8)
- The charging voltage curve (9) [if available]

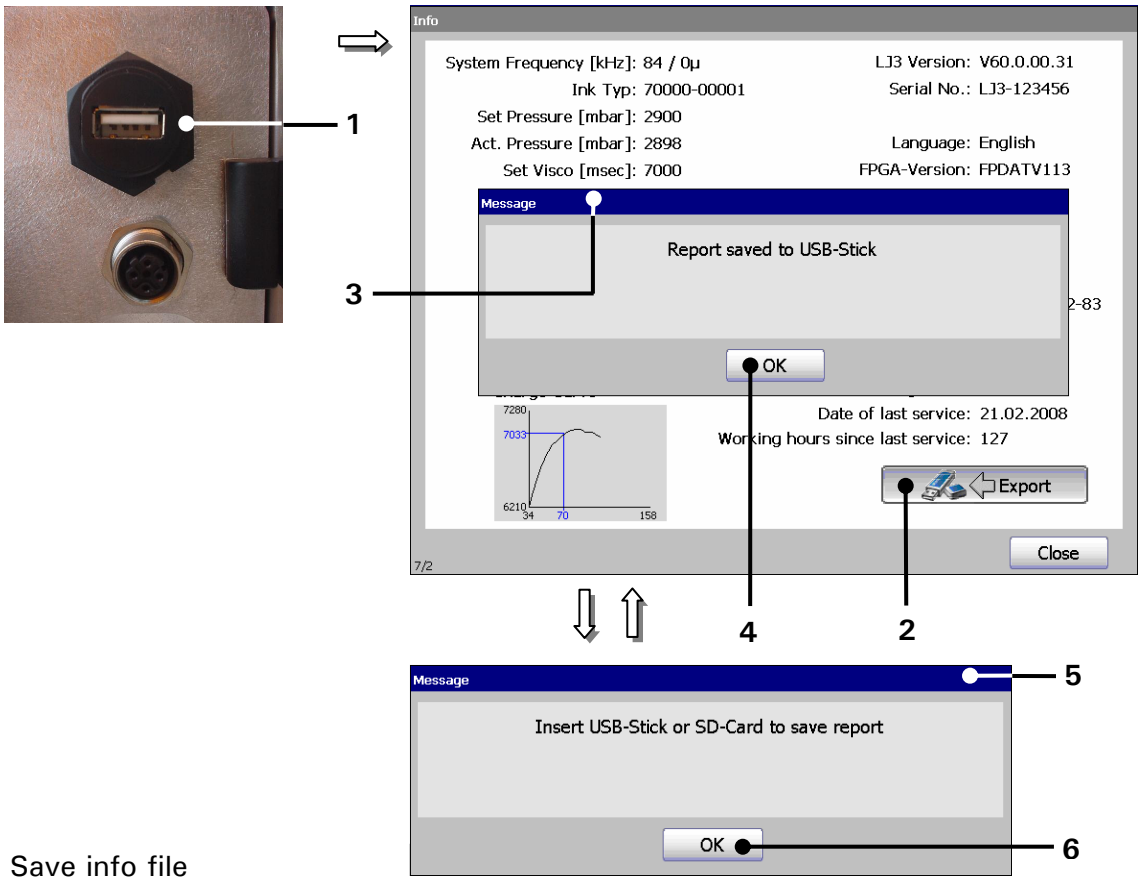
With the button <**Export**> (10) you can save the system information on an external memory device (e.g. USB-stick).

The button <**Close**> (11) closes the window.

7.6.1.1 Save info file

The displayed system information can be swaped out to an external memory device (USA-stick or SD-CARD).

Figure 88



Save info file

1 – USB-access (connection)
2 – Button <Export>
3 – Message <Info file (Report) saved>
4 – Button <OK>
5 – Message <Insert storage medium>
6 – Button <OK>

Proceeding:

- Plug an USB-Stick or a SD-card reader in the USB-access (1) on the back of the device.
- Press the button <**Export**> (2).
- The data is saved on the connected medium and the **Message** (3), that the process has been carried is faded in. The memory happens with the designation „info_LJ3-*(“serial number of the printer”)*.txt“.
- Finally confirm the message with the button <**OK**> (4).

Comment: *If no storage medium (memory device) is connected, the **Message** (5) is faded in. Confirm the message with the button <**OK**> (6). Connect a memory device and repeat the complete process.*

8. Job editor

The printing data is created and saved as a job in the job editor. A variety of Windows® similar tools make the operation easier. A job can consist of a lot different objects e.g. text blocks, graphics or barcodes whose contents and characters are changeable.

Functions as matrix, size, bold type, rotation etc. can be assigned to every single object irrespectively of each other. Current jobs can be edited or created new also during running production. All jobs are displayed in the WYSIWYG mode.

Note:

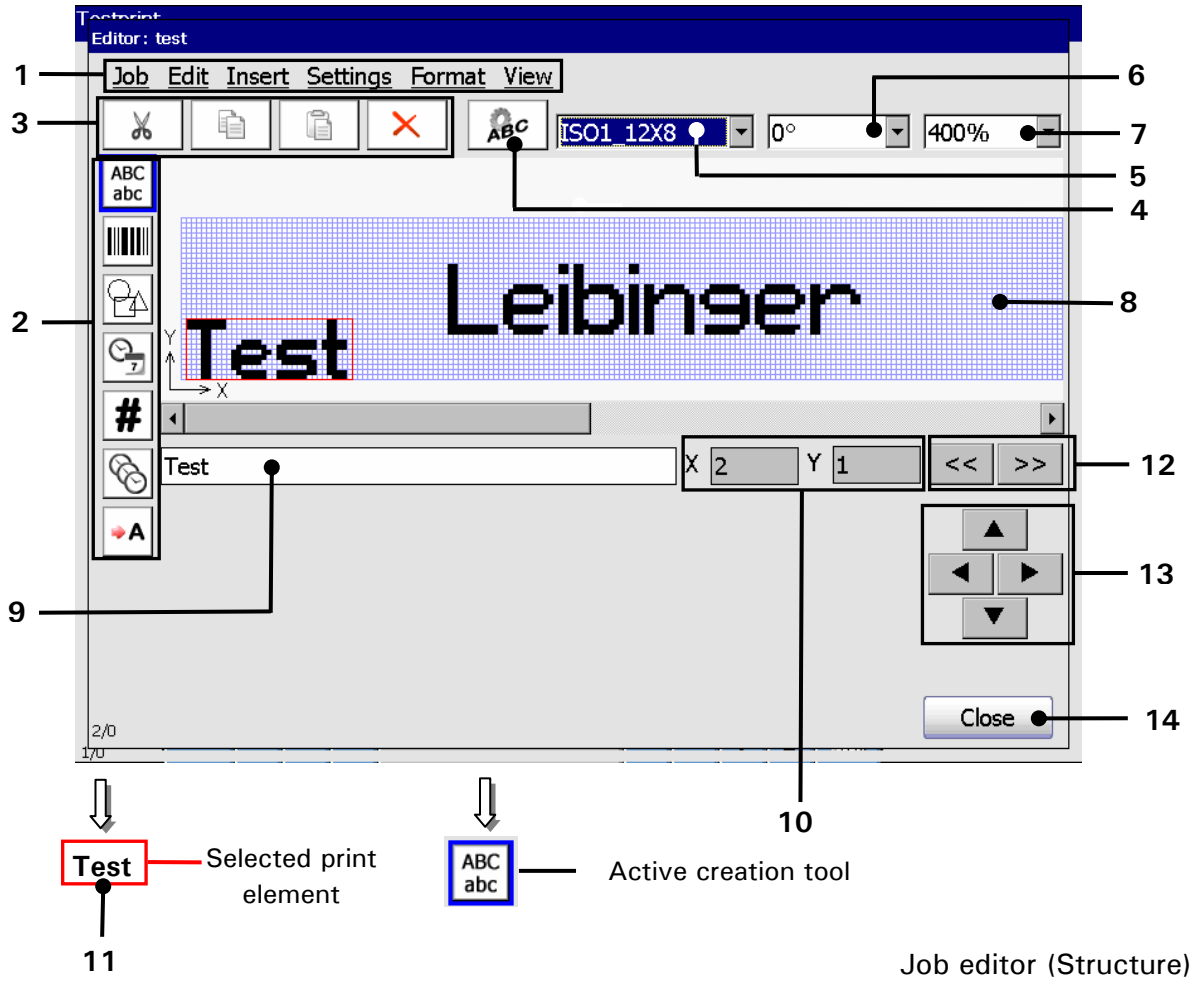
WYSIWYG = What you see is what you get (real display of print image)

8.1 Structure

- **Menu bar (1):** With the buttons in the menu bar you can select the accordant submenus of the editor. The following submenus are available:
  - Job
  - Insert
  - Format
  - Edit
  - Settings
  - View
- **Direct buttons (2 + 3):** With the direct buttons (Icons) you can select the creation- and editing tools directly.

  You will find further information regarding these tools in the following chapters.
- **Direct button <Object settings> (4):** With the direct button (Icon) you can assign several object settings (e.g. font, contrast, alignment etc.) to the selected printing element.
- **Font selection (5):** With the Pop-up window you can change a font for a new created element or for a selected element.
- **Orientation (6):** With the Pop-up window you can change the orientation (alignment) of an element.
- **Zoom (7):** With the Pop-up window you can change the zoom factor of the elements in the display area <**Print image**> (8) to make the process easier.
- **Display area <Print image> (8):** In the display area the created printing data is displayed in the WYSIWYG-mode.

Figure 89



Job editor (Structure)

1 – Menu bar
2 – Direct buttons <Creation tools>
3 – Direct buttons <Editierwerkzeuge>
4 – Direct button <Object settings>
5 – Pop-up window <Font selection>
6 – Pop-up window <Orientation>
7 – Pop-up window <Zoom>
8 – Display area <Print image>
9 – Input field <Text>
10 – Display <Coordinates>
11 – Object framen
12 – Skip buttons
13 – Directional buttons
14 – Button <Close>

- **Input field <Text> (9):** In the field the text of the selected text print element is displayed. By clicking in the field a keyboard field opens to change the input.

  If the creation tool **<Text>** is activated a keyboard field also opens and you can see the inputs directly in the input field (9).

- On the display **<Coordinates>** (10) the start position (bottom left corner) of the selected printing element is dispalyed.

  Note: *For the displayed position not the actual printing element but the position of the displayed object frame is decisive.*

- **Object frame (11):** A selected printing element is marked with a red object frame.

- **Skip buttons (12):** With the buttons you can skip from one printing element to the other.

- **Directional buttons (13):** With the four directional buttons you can shift a selected printing element easily and accurately (pixel accurate). With every pressing on the accordant directional button the element is shifted by one raster point to the particular direction.

- The button <**Close**> (14) closes the editor menu. If the inputs have been not saved, an accordant safety query is faded in.

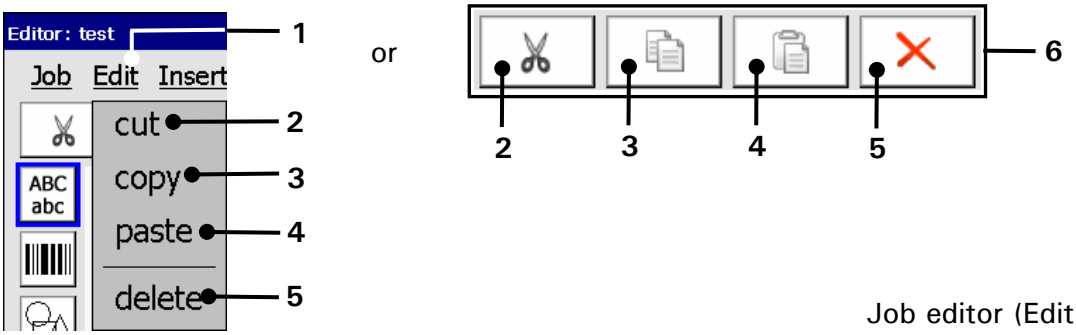
8.2 Job editor tools

8.2.1 Edit tools

With the button <**Edit**> you can select the editor tools. Further more you can also select the several tools with the available Icons (direct buttons).

Note: *The function of the tools corresponds to the Windows™-functions.*

Figure 90



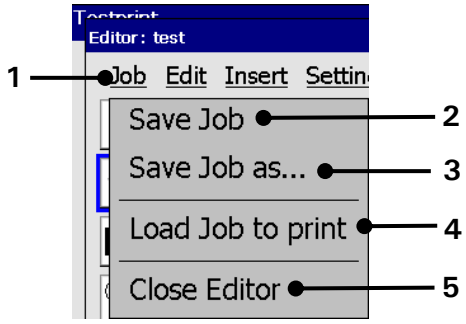
Job editor (Edit tools)

1 – Button <Edit>
2 – Edit tool <cut>
3 – Edit tool <copy>
4 – Edit tool <paste>
5 – Edit tool <delete>
6 – Direct buttons (Icons)

8.2.2 Organization tools

With the button <**Job**> you can select the organization tools of the job editor.

Figure 91



Job editor (Organization tools)

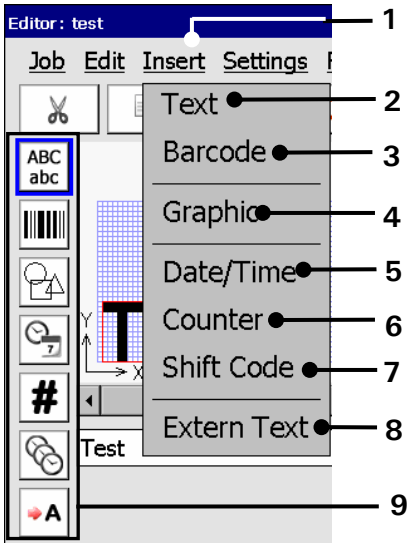
1 – Button <Job>
2 – Organization tool <Save Job>
3 – Organization tool <Save Job as>
4 – Organization tool <Load Job to print>
5 – Organization tool <Close Editor>

Pos.	Organization tool	Function
2.	Save Job	Saves the current loaded job under the existing name.
3.	Save Job as	Saves the current loaded job or a new created job under a new name.
4.	Load Job to print	Loads the selected job into the active memory in the printer. This job will be the next one, which will be printed
5.	Close Editor	Closes the job editor. If carried out inputs or changes have been not saved yet, an appropriate safety query is faded in.

8.2.3 Creation tools

With the button <**Insert**> you can select tools to create printing elements (texts, graphics, counters etc.). Further more you can also directly select the several tools with the available Icons (direct buttons).

Figure 92



1 – Button <Insert>
2 – Creation tools <Text>
3 – Creation tools <Barcode>
4 – Creation tools <Graphic>
5 – Creation tools <Date/Time>
6 – Creation tools <Counter>
7 - Creation tools <Shift Code>
8 – Creation tools <Extern Text>
9 – Direct buttons (Icons)

Job editor (Creation tools)

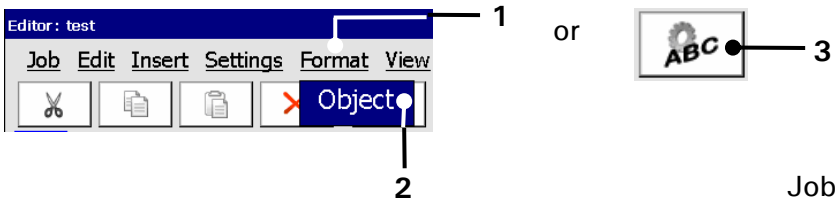
Pos.	Icon	Creation tool	Function
2.		Text	Provides the creation of text elements.
3.		Barcode	Provides the integration of barcodes and defines the certain parameters.
4.		Graphic	Provides the integration of an already existing graphic and defines the accordant parameters.
5.		Date/Time	Provides the integration of date- and time specification and defines the accordant parameters and requested replacements.
6.		Counter	Provides the integration of a counter as well as the definition of the accordant parameters and requested replacements.
7.		Shift Code	Provides the integration of a text element which is printed by predefined periods (shifts of time) as well the definition of the accordant parameters..
8.		Extern(al) Text	Provides the integration of an external text as well as the definition of the accordant parameters. By usage of this function an easy possibility is offered to integrate **variable data** in the printing text without any additional software- and programming works.

8.2.4 Formatting tool

With the button <**Format**> you can select the formatting tool <**Object**> (2). Further more you can also select the tool directly with the accordant Icon (3).

With the tool you can assign several object settings *(e.g. font, contrast, alignment, etc.)* to the selected printing elements. The faded in menu depends on the selected printing element *(e.g. text, graphic, barcode, etc.).*

Figure 93



Job editor (Formatting tool)

1 – Button <Format>
2 – Formatting tool <Object>
3 – Direct button (Icon)

You will find further information regarding the procedure of object settings in the a **chapter *Object settings***!

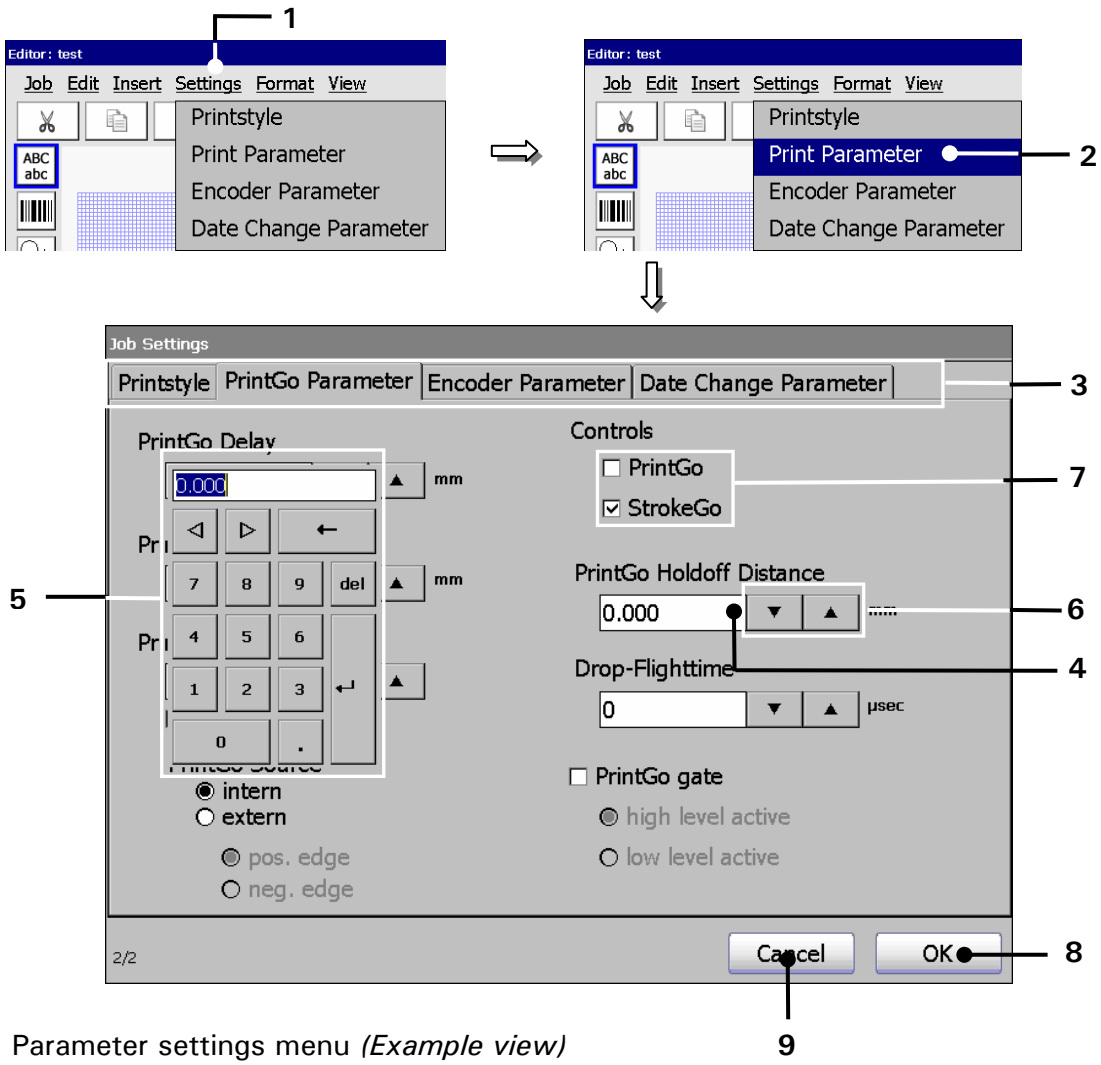
8.2.5 Parameter setting tools (Parameter settings menu)

With the button <**Settings**> the submenu „Settings“ is displayed. The following options are available:

- Printstyle
- Print parameter
- Encoder parameter
- Date changing parameter

In the submenus you can carry out job settings which are necessary for the print *(e.g. PrintGo-distance, encoder source, alignment, etc.)*.

Figure 94



Parameter settings menu *(Example view)*

1 – Button <Settings>
2 – Option <Print Parameter>
3 – Register cards
4 – Display field
5 – Number block
6 – Arrow buttons
7 – Control boxes
8 – Button <OK>
9 – Button <Cancel>

Call up menu and carry out settings

(Example.: The menu „Printing Parameter“ should be called)

Proceeding:

- Press the button <**Settings**> (1) and the option <**Print Parameter**> (2).
- The submenu <**Job Settings (Print Parameter)**> is faded in.
- With the register cards (3) you can change between the several parameters (functional areas).
- Several functions can be activated or deactivated by clicking on the accordant control box or on the designation.
- With the **arrow buttons** (6) you can increase or reduce the values of the several parameter settings by one step.

  alternatively

- By clicking in the accordant display field (4) of the value which should be changed. A number block (5) opens for input in which you can enter the requested value.

You will find further information regarding the working with number blocks in the **chapter *Number block***!

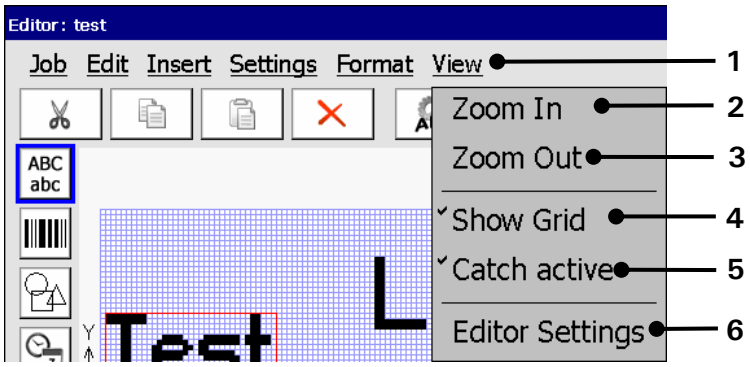
- The button <**OK**> (8) closes the menu and the carried out settings will be taken over.
- The button <**Cancel**> (9) closes the menu without taking over the changes.

You will find further information regarding the several parameter settings and its effects in the **chapter *Parameter settings***!

8.2.6 Display tools

With the button <**View**> you can select the display tools of the job editor.

Figure 95



Job editor (Display tools)

1 – Button <View>
2 – Display tool <Zoom In>
3 – Display tool <Zoom Out>
4 – Display tool <Show Grid>
5 – Display tool <Catch active>
6 – Display tool <Editor settings>

Pos.	Display tool	Function
2.	Zoom In	Zoom In enlarges the display in the display area <**Print image**>.
3.	Zoom Out	Zoom Out reduces the display in the display area <**Print image**>.
4.	Show Grid	Turns on or off the reticule display. If the reticule is turned on, it is displayed with a checkmark on the button.
5.	Catch active	Turns on or off the catch (snap) function. The catch function enables the easy and exact positionig of an element at the reticule. If the function is turned on it is displayed with a checkmark on the button.
6.	Editor Settings	Enables the setting of the editor size (width of the display field <Print image>) as well as the settings of the reticule size.

You will find further information regarding the functions of several display tools in the **chapter *Carry out settings of the job editor***!

8.3 Job(editor)management

In the job management the following submenus are available:

- Save Job
- Save Job as
- Close Editor
- Load Job to print

8.3.1 Save job/Save job as

With the option <**Save Job**>, a job which opened for editing is saved under the current name.

With the option <**Save Job as**>, a job which opened for editing or a new created job can be saved under a new or particular name.

Attention! If a job is saved under an already existing data file name, no further safety query happens. The existing data will be overwritten.

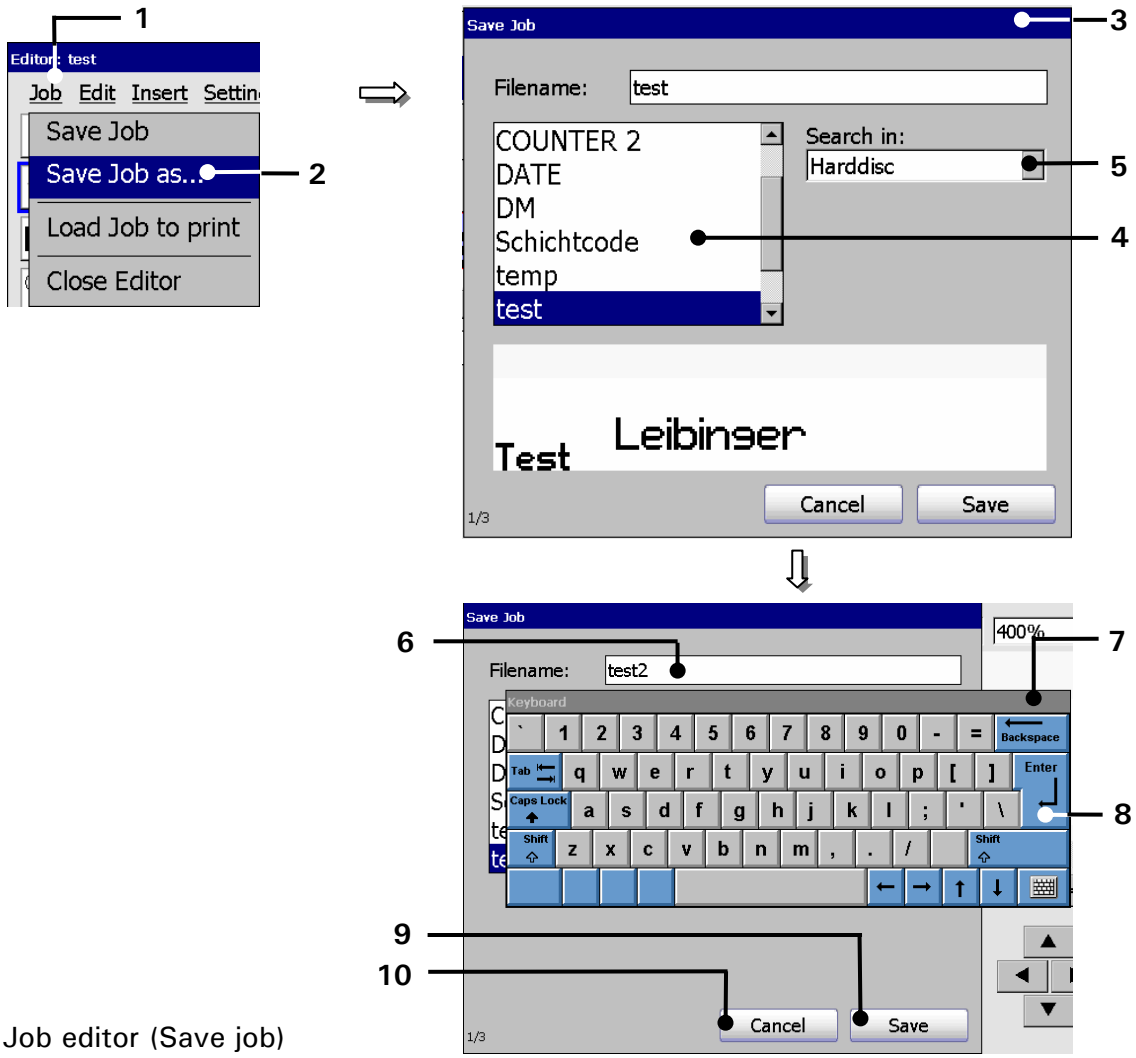
Proceeding:

- Press the button <**Job**> (1) and the option <**Save Job as**> (2).
- The window <**Save Job**> (3) is faded in.
- The names of the already existing graphics are displayed in the data file selection field (4). With the Pop-up window <**Search in**> (5) you can select the different memory devices.
- Click in the display <**Filename**> (6). A keyboard field (7) opens for input.

You will find further information regarding the operation with keyboard fields in the **chapter *Keyboard field***!

- Enter the requested name.
- Press the button <**Enter**> (8) of the keyboard field. The entered name is taken over to the display <**name**> (6).
- Press the button <**Save**> (9) to finish the saving process or press the button <**Cancel**> (10) to abort the process.

Figure 96



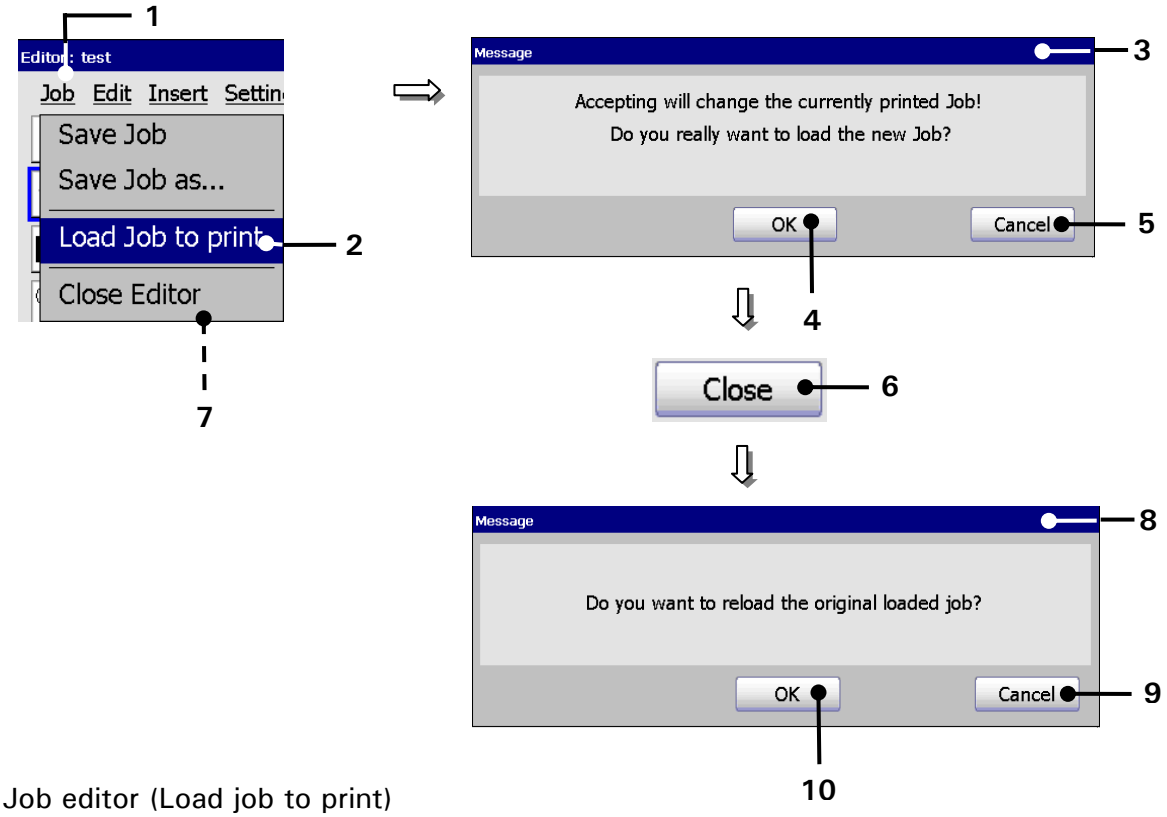
Job editor (Save job)

1 – Button <Job>
2 – Option <Save Job as>
3 – Window <Save Job>
4 – Selection field <Data file>
5 – Pop-up window <Search in>
6 – Display <Filename>
7 – Keyboard field
8 – Button <Enter>
9 – Button <Save>
10 – Button <Cancel>

8.3.2 Load job to print

With the option <**Load Job to print**> the job which is currently opened in the job editor can be loaded directly for printing.

Figure 97



Job editor (Load job to print)

1 – Button <Job>
2 – Option <Load Job to print >
3 – Message <Print job change>
4 – Button <OK>
5 – Button <Cancel>
6 – Button <Close>
7 – Option <Close Editor>
8 – Message <Reload original job>
9 – Button <OK>
10 – Button <Cancel>

Proceeding:

- Press the button <**Job**> (1) and the option <**Load job to print**> (2).
- A **safety query** (3), if the print job should be really changed is faded in.
- Confirm the change by pressing on the button <**OK**> (4) or cancel the process with the button <**Cancel**> (5).
- The job in the job editor is now loaded for printing. **Attention!** If a print start release has already happened for the original job, the JET3 starts immediately with the printing process.

1. Print loaded job (without given print release):

- Press the button <**Close**> (6) of the job editor.

  or

- Press the button <**Job**> (1) and the option <**Close Editor**> (7).
- A **safety query** (8), if the original printing job should be loaded again is faded in.
- Press the button <**Cancel**> (9) to keep the **new loaded** job.
- The job editor will be closed and the main menu is displayed again. The print start release can now be carried out.

2. Load original job again (reload):

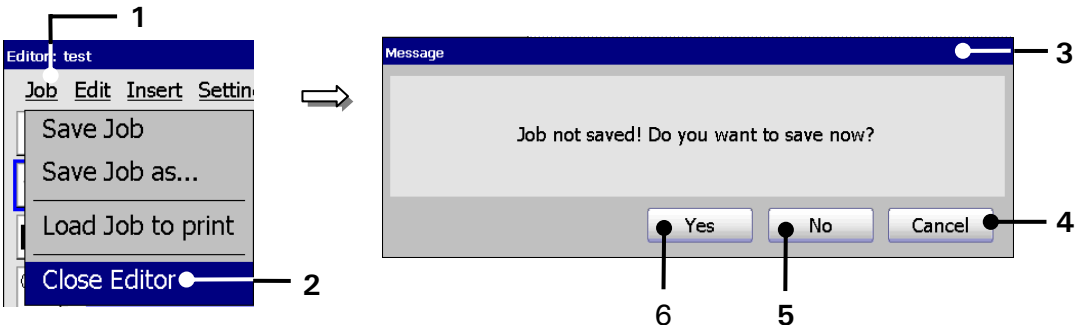
- Press the button <**Close**> (6) of the job editor.

  or

- Press the button <**Job**> (1) and the option <**Close Editor**> (7).
- A **safety query** (8), if the original printing job should be loaded again is faded in.
- Press the button <**OK**> (10) to reload the **original** job.
- The job editor will be closed and the original job is now available. **Attention!** For activated print start release the JET3 starts immediately again with the printing process.

8.3.3 Close job editor

Figure 98



Close job editor

1 – Button <Job>
2 – Option <Close Editor>
3 – Safety query
4 – Button <Cancel>
5 – Button <No>
6 – Button <Yes>

With the option <**Close Editor**> you can close the job editor.

If changes have been carried out at the opened job, an accordant safety query (3) is faded in.

In this case the following possibilities are available:

- Press the button <**Cancel**> (4) to abort the process and to go back to the editor.
- Press the button <**No**> (5) to leave the editor without saving the job.
- Press the button <**Yes**> (6) to save the job when leaving the editor. **Attention!** The saving happens under the current data file name. The existing data will be overwritten!

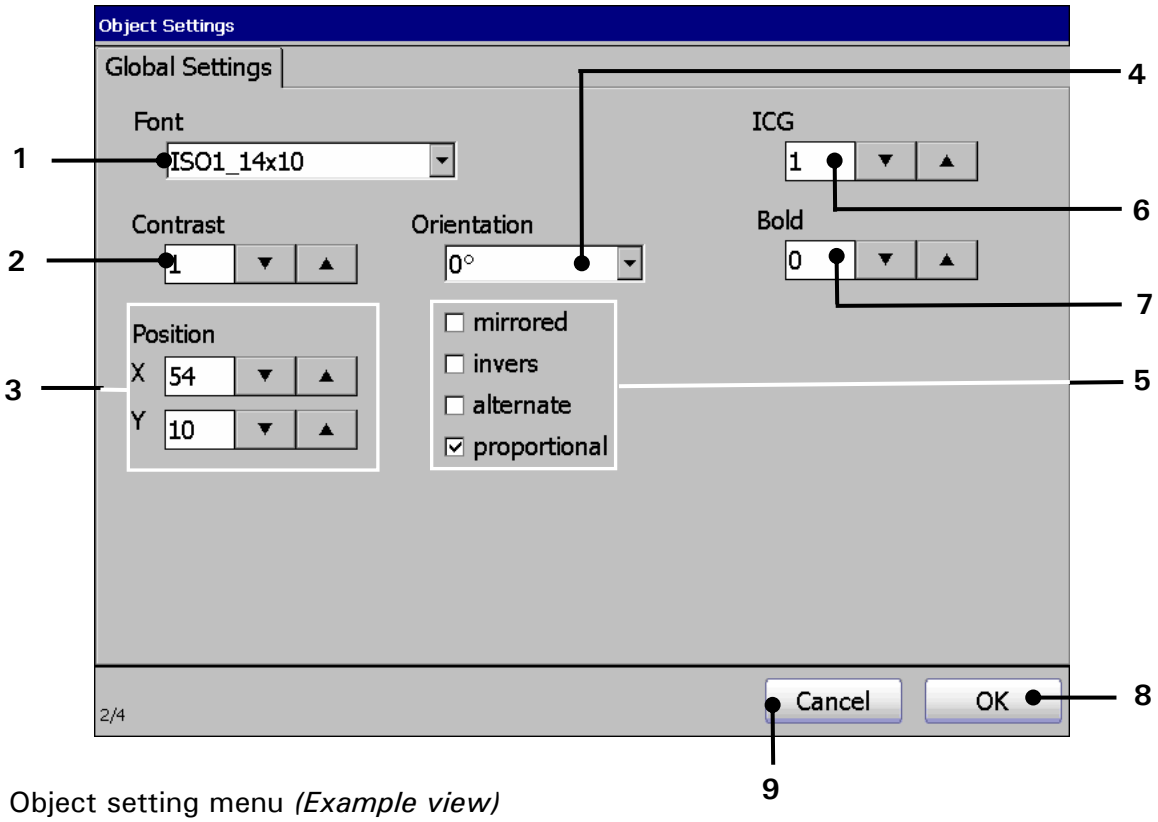
8.4 Object settings

In the menu **<Object Settings>** you can assign several printing elements to different object settings *(e.g. font, contrast, alignment etc.).*

That means the carried out settings have only effects on the selected or applied printing element.

The faded in menu depends on the selected printing element *(e.g. text, graphic, barcode etc.).*

Figure 99



Object setting menu *(Example view)*

1 – Pop-up window <Font>
2 – Display field <Contrast value>
3 – Display fields <Position X/Y>
4 – Display field <Orientation>
5 – Control box <Display options>
6 – Display field <ICG-value>
7 – Display field <Bold level>
8 – Button <OK>
9 – Button <Cancel>

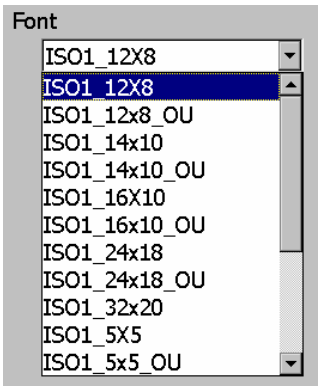
The following settings can be carried out:

Pos.	Object settings	Note
1.	Font selection	Not available for barcodes and graphics
2.	Contrast value	
3.	Position X/Y	
4.	Orientation	
5.1	Display mirrored	
5.2	Display inverted	
5.3	Display alternating	
5.4	Display proportional	Not available for barcodes and graphics
6.	ICG-value	Not available for barcodes and graphics
7.	Bold level	Not available for barcodes and graphics

8.4.1 Font selection

With the Pop-up window <**Font**> you can assign the requested font to the printing element.

Figure 100



Font selection

8.4.2 Contrast value

The setting determines the print contrast of the object. The value can be set between 0 – 7.

To get a contrast increasing of the print out, you have to place several dots on top of each other (on the same position).

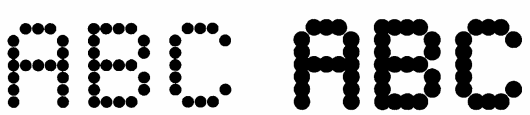
Example 0 = no contrast increasing (single print out)
1 = 2 dots are placed on top of each other
2 = 3 dots are placed on top of each other
.....
7 = 8 dots are placed on top of each other

The set value is shown on the accordant display field.

Figure 101

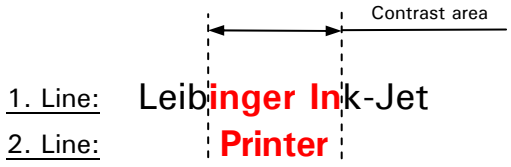
Contrast

Display: normal with contrast



Attention! From the technical side the function <**Contrast**> can only used for complete strokes (vertical dot line). This means that all further strokes which are placed above or below the attribute setting are also generated with the contrast additionally to the affected object.

Example: *For a doublespaced font only the lower line is reserved with the attribute „Contrast“. The elements of the first line which are placed above the attribute setting will be also printed automatically with the attribute “Contrast”.*



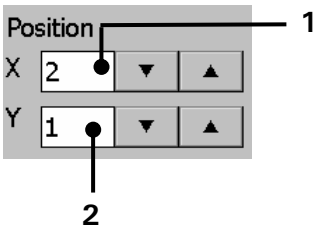
As higher the contrast has been set, as lower is the max. printing speed!

8.4.3 Position settings

With the position inputs you can position the printing object accurately (pixel accurate).

Note: *Important for the displayed position is not the printing element but the position of the displayed object frame.*

Figure 102



1 – Display field <X – Position>
2 – Display field <Y – Position>

Set object position

8.4.4 Bold level (Bold text)

To write a printing text "bold" you have to determine a bold level. The level can be between 0 – 7.

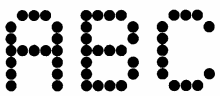
To get a bold text several dots are placed parallel (multiplication of strokes).

Example 0 = no bold text (single strokes)
1 = 2 dots are placed parallel (2 strokes)
2 = 3 dots are placed parallel (3 strokes)
.....
7 = 8 dots are placed parallel (8 strokes)

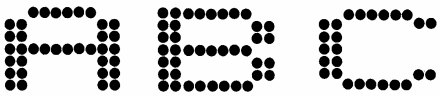
The set value is shown on the accordant display field.

Figure 103

Darstellung: normal



Fettdruck



Bold text

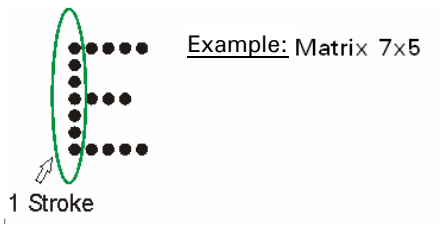
8.4.5 ICG-value

The setting determines the distance between the several characters. As larger the character distance has been selected, as more ***„Blank strokes"*** are inserted between the single characters. The value can be set between 0 – 7.

Example 0 = no distance between the characters
1 = 1 blank stroke is generated between the characters
.....
7 = 7 blank strokes are generated between the characters

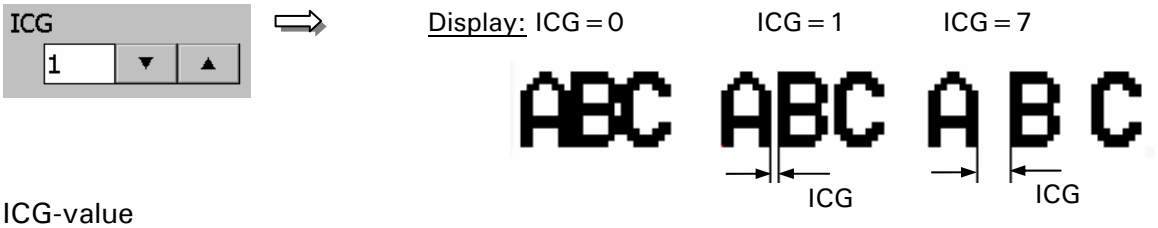
The set value is shown on the accordant display field.

Explanation:



A stroke is a complete dot line in vertical direction (dot height).

Figure 104

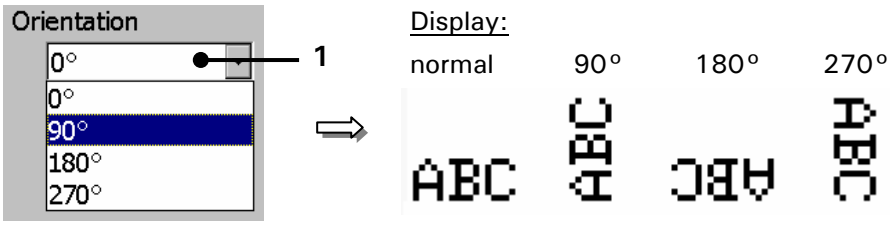


ICG-value

8.4.6 Orientation

With the Pop-up window <**Orientation**> (1) you can rotate the printing object by 90°/180° or 270° .

Figure 105



Orientation

1 – Pop-up window <Orientation>

8.4.7 Display settings

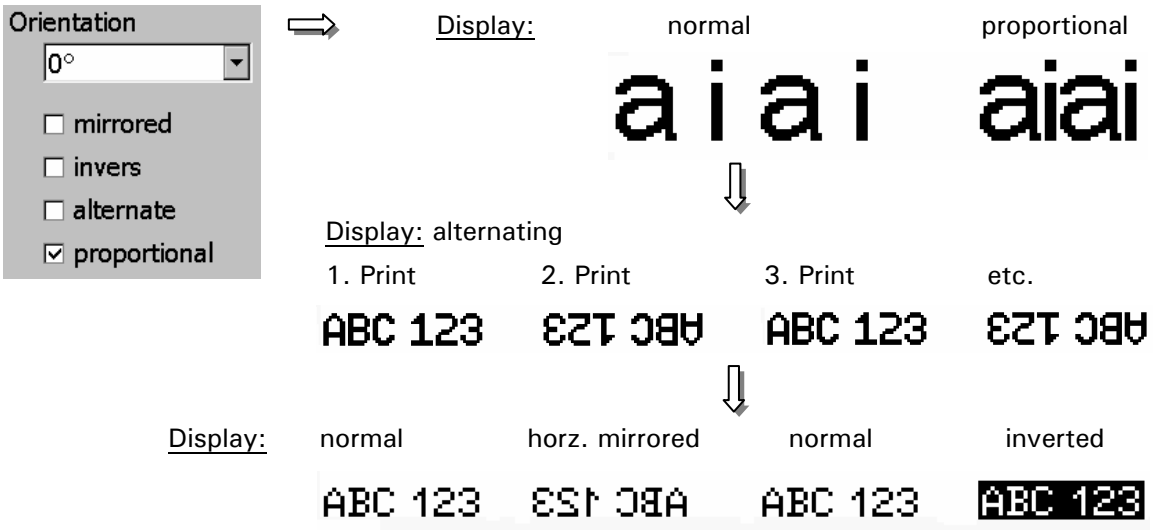
With this function you can activate different display options.

The following display options are available:

- mirrored
- inverted
- alternating
- proportional

An activated option is displayed with a √ in the control box.

Figure 106



Display options

- **mirrored display:** The printing element is mirrored horizontally.
- **Inverse display:** The printing element is displayed inverse.

  Example: For printing a black ink is used on a white medium.

  ***Without** the option <Invers> the letters of the printing text are written in black.*

  ***With** the option <Invers> the area around the letters will be blacken and the characters stay white.*

- **Alternating display:** Every second print out is displayed mirrored horizontally and vertically.
- **Proportional display:** The printing object is displayed proportionally that means unneeded blank fields between the single characters of the printing element can be avoided.

8.5 Parameter settings

You will find further information regarding the calling of the several submenus and the processing of settings in the **chapter *Parameter setting tools***!

8.5.1 Print parameter

In the menu <**Print Parameter** > you can commit the kind of text output, select the PrintGo source and you can activate or deactivate the monitoring functions.

The following settings can be carried out:

- PrintGo-Delay
- PrintGo-Distance
- PrintGo-Repeat
- PrintGo-Holdoff Distance
- Drop Flighttime
- Selection of PrintGo Source
- Selection of function PrintGo-Gate
- Selection monitoring functions

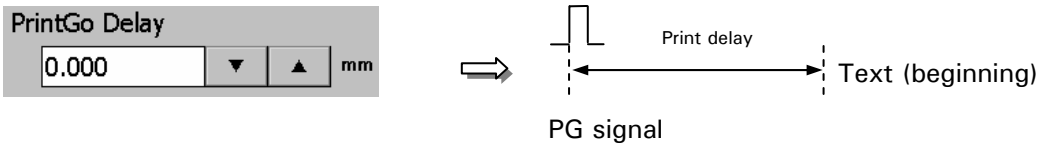
8.5.1.1 PrintGo-delay

The setting allows the delay of the text output by the entered value. The input happens in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

As higher the entered value, as later starts the print.

Figure 107



PrintGo-delay

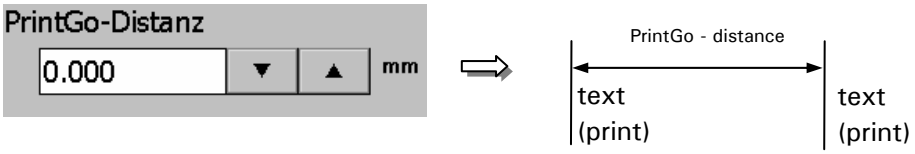
8.5.1.2 PrintGo-distance

The setting defines the distance by the set value between the several text outputs. The input happens in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

As higher the entered value, as higher is the distance between the single prints.

Figure 108



PrintGo-distance

Attention! If the Print-Go distance has been selected too small, Print-Go errors can be caused, because a print has been not printed completely during a new print should be already started!

Example of error:

8.5.1.3 PrintGo-repetitions

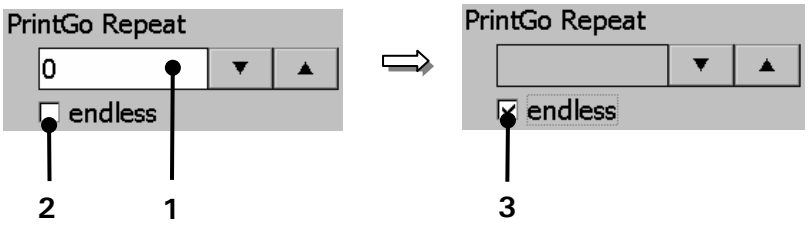
The setting defines the amount of text outputs (print repetitions) by the set value between the several text outputs. Values between 0 – 1000 are permitted.

Example: 0 = no repetition (single print)
1 = one repetition (double print)

The set value is shown on the accordant display field.

To get an endless repetition of the print outputs, you have to activate the control box **<Endless>** (2).

Figure 109



PrintGo-repetitions

1 – Display field <PrintGo-Repeat>
2 – Control box <Endless> deactive
3 – Control box <Endless> active

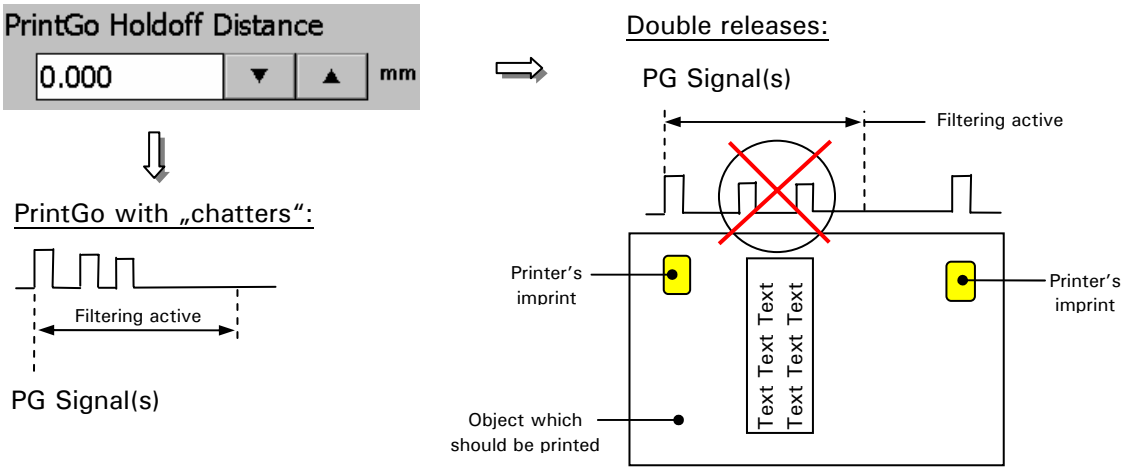
8.5.1.4 PrintGo-holdoff distance

The setting provides a filtering of unrequested PrintGo-signals (e.g. PrintGo with bounces or double releases). The value defines a length „x“ after the PrintGo-signal in which every further signal will be ignored.

The input is carried out in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

Figure 110



PrintGo-holdoff distance

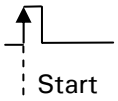
8.5.1.5 PrintGo-source (Print start query)

To inform the JET3 when a printing text should be printed, a so called Print-Go signal is required. It can be generated internally, depending on the set printing parameters, as well as externally by a sensor *(e.g. light barrier, product sensor etc.).*

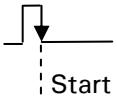
This sensor is called as Print-Go source.

- **Extern:** If this function is activated an external sensor has to be connected to the interface X5 of the LEIBINGER JET3.

  Pos. edge:

  Neg. edge:

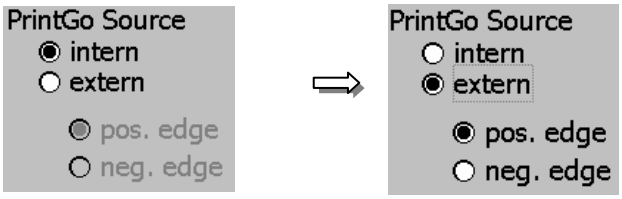
  

  Note: *The product sensor 24V can be NPN- or PNP-connected.*

- **Internal:** If this function is activated a print is generated depending on the set printing parameters.

  Note: *A connected sensor is not inquired.*

Figure 111



PrintGo-source (Print start query)

8.5.1.6 PrintGo-Gate (Print start query)

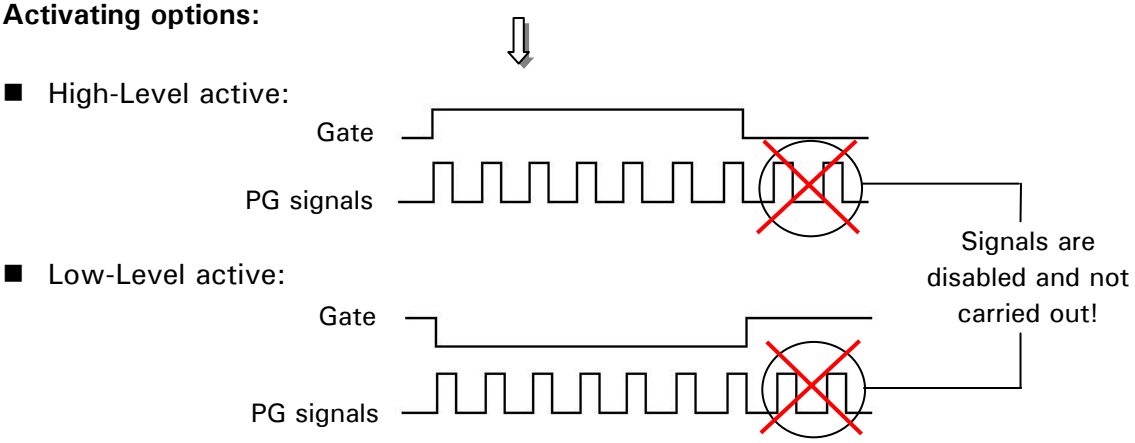
A further print start query option is available with this function. If the function is activated the print process happens only as long as the enquired sensor is active.

The sensor which is required for the PG-gate has to be connected to the interface X5 of the LEIBINGER JET3 also.

Example: *Endless print of tubes with interruptions between the end of the previous tube and the beginning of the following tube.*

Figure 112

Activating options:



PrintGo-Gate (Print start query)

8.5.1.7 Monitoring functions

Two monitoring functions are available. Monitoring functions are especially required for high printing speeds.

Figure 113

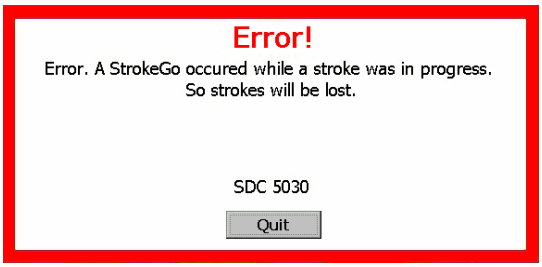
Monitoring functions

PrintGo-monitoring: If the function is activated it is monitored if every Print-Go signal can be processed. If a signal can be not processed, a certain error message is generated.

Example: *A Print Go is generated and is printed. The next PrintGo is generated; if the printing process is not finished yet, an error message is generated on the display.*

StrokeGo-monitoring: If the function is activated, the stroke output is monitored, that means if the StrokeGo-signal is generated faster than the printer can output the several strokes, an error message is also generated.

Example: *If the production speed with the set parameters is too high, stroke errors can be caused. The following error message appears on the display:*



8.5.1.8 Drop flighttime

The setting causes a temporal change of the drop charging. The input happens in µsec.

The set value is shown on the accordant display field.

High speed changes require the drop flying time compensation to prevent deviations of the text positions. Condition is the setting of a higher print delay because the drop charging has to start earlier for higher speed.

This function is only necessary if the printing is carried out at very slow but also very fast processing speeds; that means if the speed differences are very high.

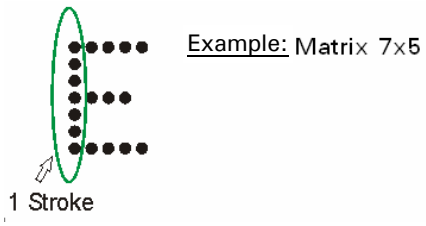
Figure 114

Setting of drop flighttime

8.5.2 Encoder parameter

The LEIBINGER JET3 composes the printed lines of single dots and therefore it requires a signal encoder (encoder) which tranfers when the single dot lines (so called strokes) should be printed.

Explanation:



A stroke is a complete dot line in vertical direction (dot height).

This encoder is also called StrokeGo-source. The required signal can be generated internally as well as externally.

In the menu **<Encoder Parameter>** you can carry out the basic settings of the signal encoder.

The following settings can be carried out depending on the encoder signal source:

- Selection of encoder signal source
- Internal speed
- Lock backward on/off
- Rotating direction
- Resolution

8.5.2.1 Encoder source (StrokeGo-source)

With this setting you can define the encoder source.

- **Internal:** If this function is activated, the signal is generated by the printer and needs no external encoder device.

  Additionally you have to enter the <**Internal speed (intern Speed)**> (3).

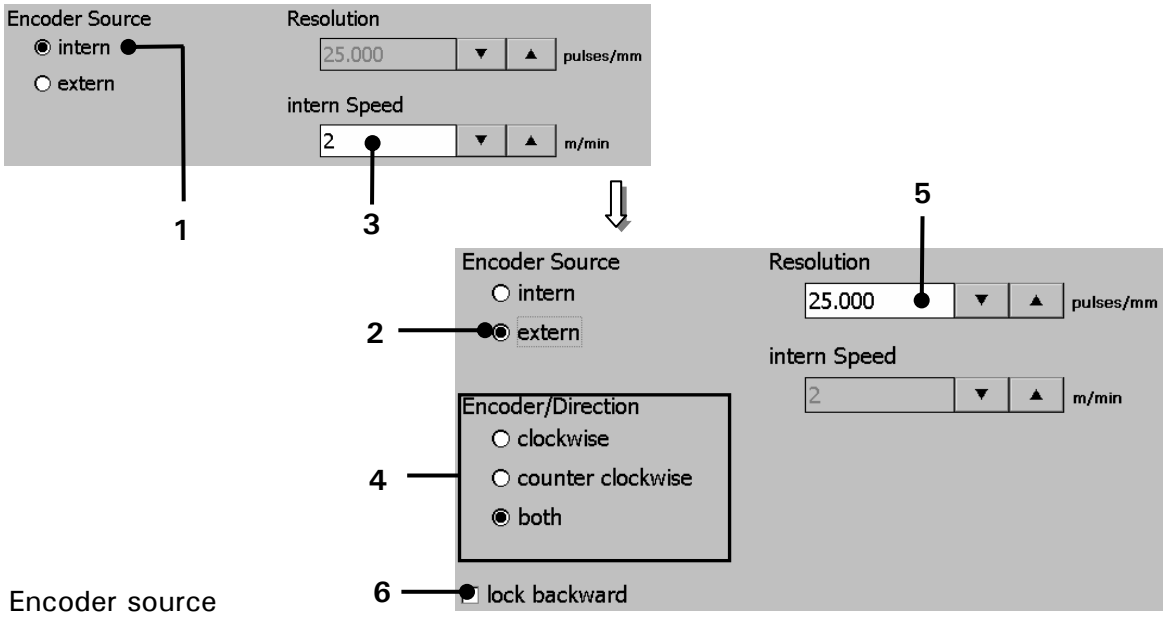
Attention! You should only work with an internal encoder source if the product is always directed at the print head with a fix defined and constant speed. For unsteady production speeds a distortion of the print image can be caused.

You will find further information regarding this topic in the **chapter *Internal speed***!

- **External:** If this function is activated the signal has to be generated by an external encoder (e.g. incremental encoder). The encoder has to be connected to the interface X1 of the LEIBINGER JET3.

  Additionally you have to define the <**Encoder/Direction**> (4) and the <**Resolution**> (5).

Figure 115



Encoder source

1 – Control box <Encoder source int.>
2 – Control box <Encoder source ext.>
3 – Display field <Internal speed>
4 – Control box <Encoder/Direction>
5 – Display field <Resolution>
6 – Control box <lock backward>

8.5.2.2 Internal speed

If you work with the internal encoder source, the production speed, that means the speed which you need to convey the product below the print head, has to be determined exactly. This value can be entered directly in the display field **<Internal speed >** . The input happens in the unit **m/min**.

Attention! Unsteady production speeds can be not identified which causes a distortion of the print image!

If the production speed is higher as the set value, the font will be streched!

If the production speed is lower as the set value, the font will be compressed.

8.5.2.3 Rotating direction (Encoder)

With the setting you can select the rotating direction of the encoder.

- **Rotating direction right:** If this control box is activated, the encoder has to turn right for printing.
- **Rotating direction left:** If this control box is activated the encoder has to turn left for printing.
- **Rotating direction both:** If this control box is activated it is printed if the encoder turns left or right.

Note: *Encoder signals are only analyzed for correct set rotating direction.*

8.5.2.4 Resolution

The setting determines the encoder resolution that means it defines how many impulses are generated by the encoder per set measurement. The input happens in the unit **Pulse/mm**.

The set value is shown on the accordant display field.

Example: An encoder which generates 10.000 impulses/rotation with a friction wheel and which has a circumference of 200 mm is used.

Calculation: Resolution = Impulses/Rotation : Circumference
= 10.000: 200 = 50 (Pulses/mm)

8.5.2.5 Return stop (Stop backwards)

With the control box <**lock backward**> the function „lock backward movement of the encoder“ is activated or deactivated.

For activated “lock backward” the strokes which are generated for a possible backward motion will be included for following forward motion to control the correct start of the text output.

That means the print will be only continued if the correct printing position has been reached. Therefore you will get a print without any gaps or overlaps.

8.5.3 Font parameter values (Print style)

The menu <**Printstyle**> allows the design of the text layout.

The following settings can be carried out:

- Selection of print height
- Selection of font width (Stroke distance)
- Selection of orientation
- Selection of print mode

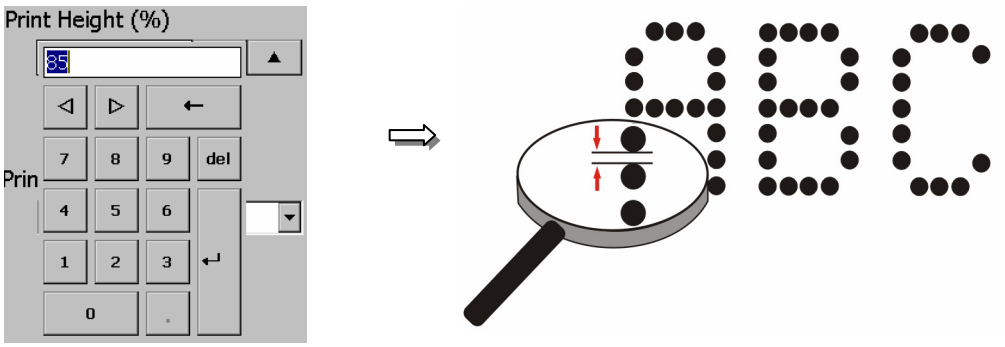
8.5.3.1 Print height

The setting determines the print height. The print height is determined by the vertical drop distance. The value can set between 1 – 100%.

The set value is shown on the accordant display field.

As higher the entered value, as larger the distance between the single dots.

Figure 116



Print height

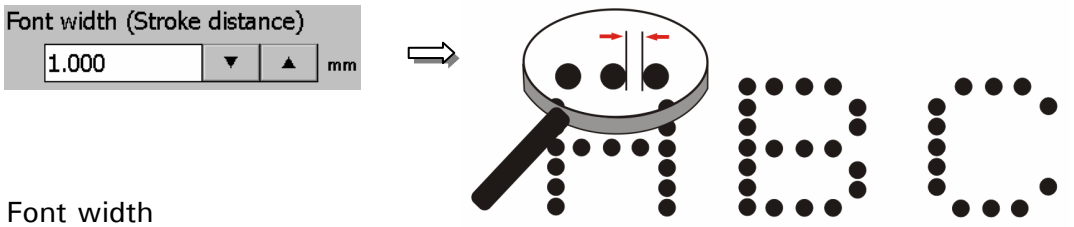
8.5.3.2 Font width (Stroke distance)

The setting determines the print width. The print width is determined by the horizontal drop distance of the strokes. The input happens in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

As higher the entered value, as larger the distance between the several strokes.

Figure 117



Font width

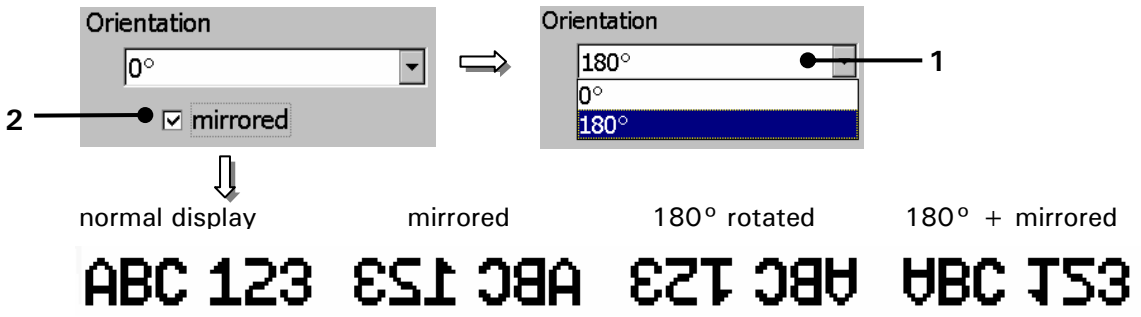
8.5.3.3 Orientation

With the Pop-up window <**Orientation**> (1) you can rotate all printing elements by 180°.

To get a reflection you have to activate the control <**mirrored**> (2).

Attention! The made settings have not only an effect on single printing objects but on the complete print-band!

Figure 118



Orientation

1 – Pop-up window <Orientation> 2 –Control box <mirrored>

8.5.3.4 Printing mode

With the Pop-up window <**Print mode** > you can select the required printing mode. 10 printing modes are available.

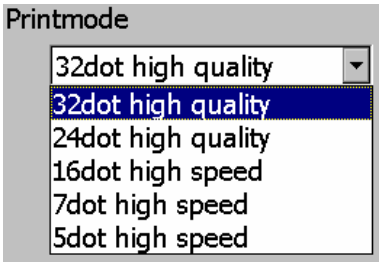
That means in the LEIBINGER JET3 one operating mode is available for every printing mode for a very high-quality or fast print out *(see following list).*

- **High quality mode:** Allows the best possible position of the single dots and therefore the best possible print quality.

  If the required speed cannot be reached in this HQ-mode, it has to be changed to the high speed mode.

- **High speed mode:** The font output is not designed to the best possible font quality but to the fastest possible print speed.

Figure 119



Print mode

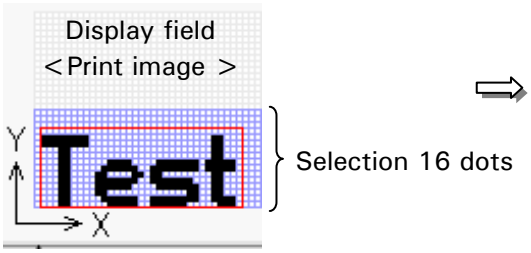
Pos.	Print mode	Annotation
1.	5 dot high quality	Is not available at the moment.
2.	5 dot high speed	
3.	7 dot high quality	Is not available at the moment
4.	7 dot high speed	
5.	16 dot high quality	Is not available at the moment
6.	16 dot high speed	
7.	24 dot high quality	
8.	24 dot high speed	Is not available at the moment
9.	32 dot high quality	
10.	32 dot high speed	Is not available at the moment

Attention! You always have to set a **print mode** which is larger than the selected matrix, otherwise incomplete imprints can be caused.

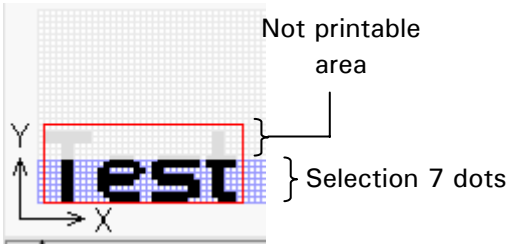
An error between the selected printing mode and the selected matrix can be identified in the display field **<Print image>** of the Job editor.

Example (for matrix 12x 8):

Correct print mode



Faulty print mode



8.5.4 Date changing parameter

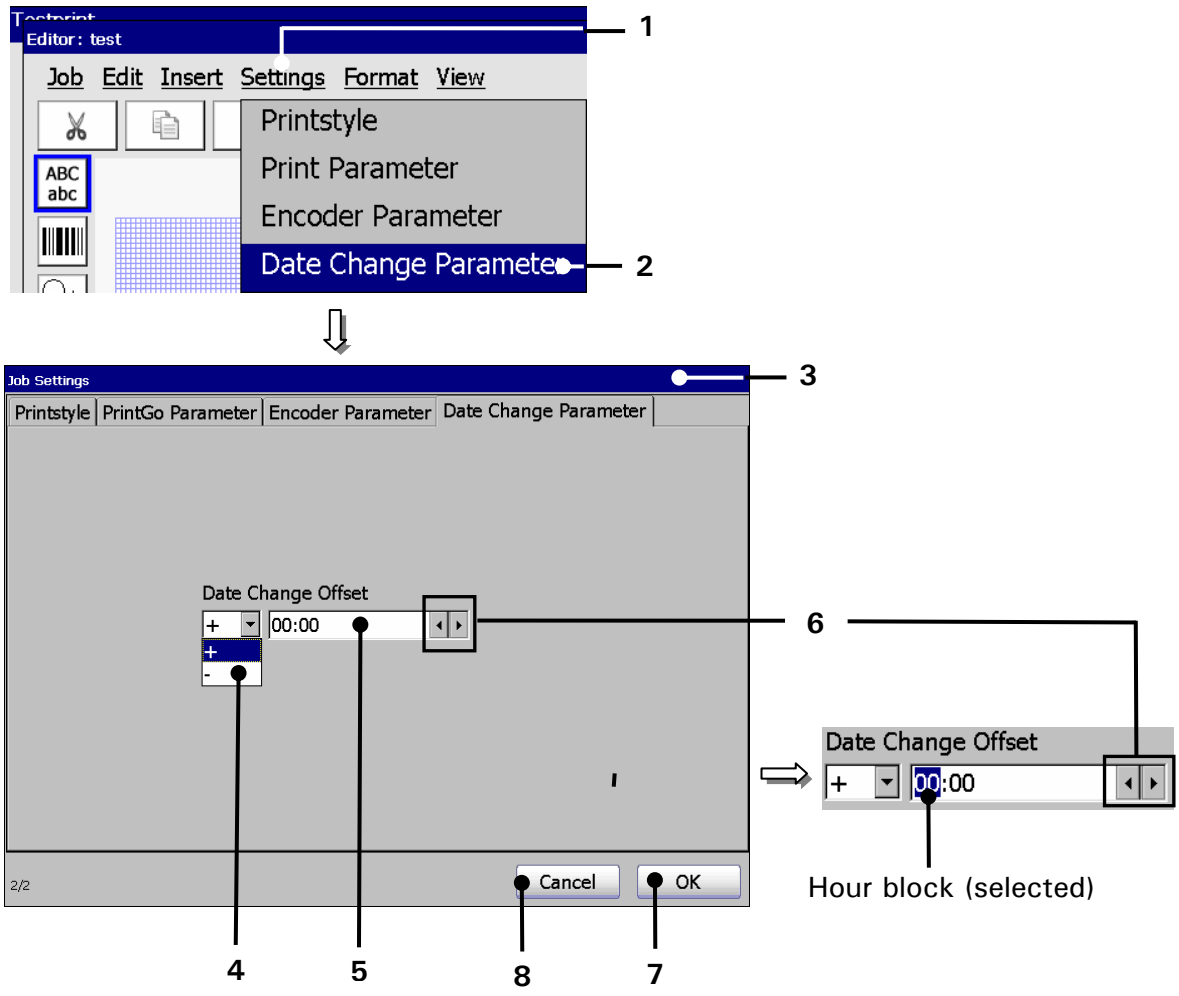
With this function you can postpone the date changing to an earlier or later point of time.

Note: *The postponement happens in hours- and minutes. The max. possible postponement is 23 hours and 59 minutes.*

Proceeding:

- Press the button **<Settings>** (1) and the option **<Date Change Parameter>** (2).

Figure 120



Jobeditor (Set date change offset)

1 – Button <Settings>
2 – Option <Date Change Parameter>
3 – Menu < Date Change Parameter>
4 – Pop-up window <Offset-direction>
5 – Display field <Offset-value>
6 – Arrow buttons
7 – Button <OK>
8 – Button <Cancel>

- The menu <**Date Change Parameter**> (3) is faded in.
- Select in the pop-up window <**Offset-direction**> (4) the direction (+/-) of the shifting.
- Now mark in the display field <**Offset-value**> (5) the hour- or minute block to change the values.
- With the two <**Arrow buttons**> (6) you can increase or reduce the values of the marked block.
- Press the button <**OK**> (7) to take over the settings and to close the menu.

  or

- Press the button <**Cancel**> (8) to leave the menu without saving the changes.

8.6 Carry out settings of job editor

With the display tools you can change the settings of the job editor. The following functions are available:

- Enlarge and reduce display size (Zoom in/out)
- Show grid
- Catch active
- Editor Settings

1. Editor settings

With the option **<Editor Settings>** you can set the editor size (width and height of the display area) as well as the grid size.

Proceeding:

- Press the button **<View>** (1) and the option **<Editor Settings>** (2).
- The window **<Editor Settings>** (3) is faded in.
- With the **Arrow buttons** (4) you can increase or reduce the values of the editor size and the grid size by one step.

  alternatively
- Click in the appropriate display field (5) of the value which you would like to change. A number block opens for input Now enter the requested value.

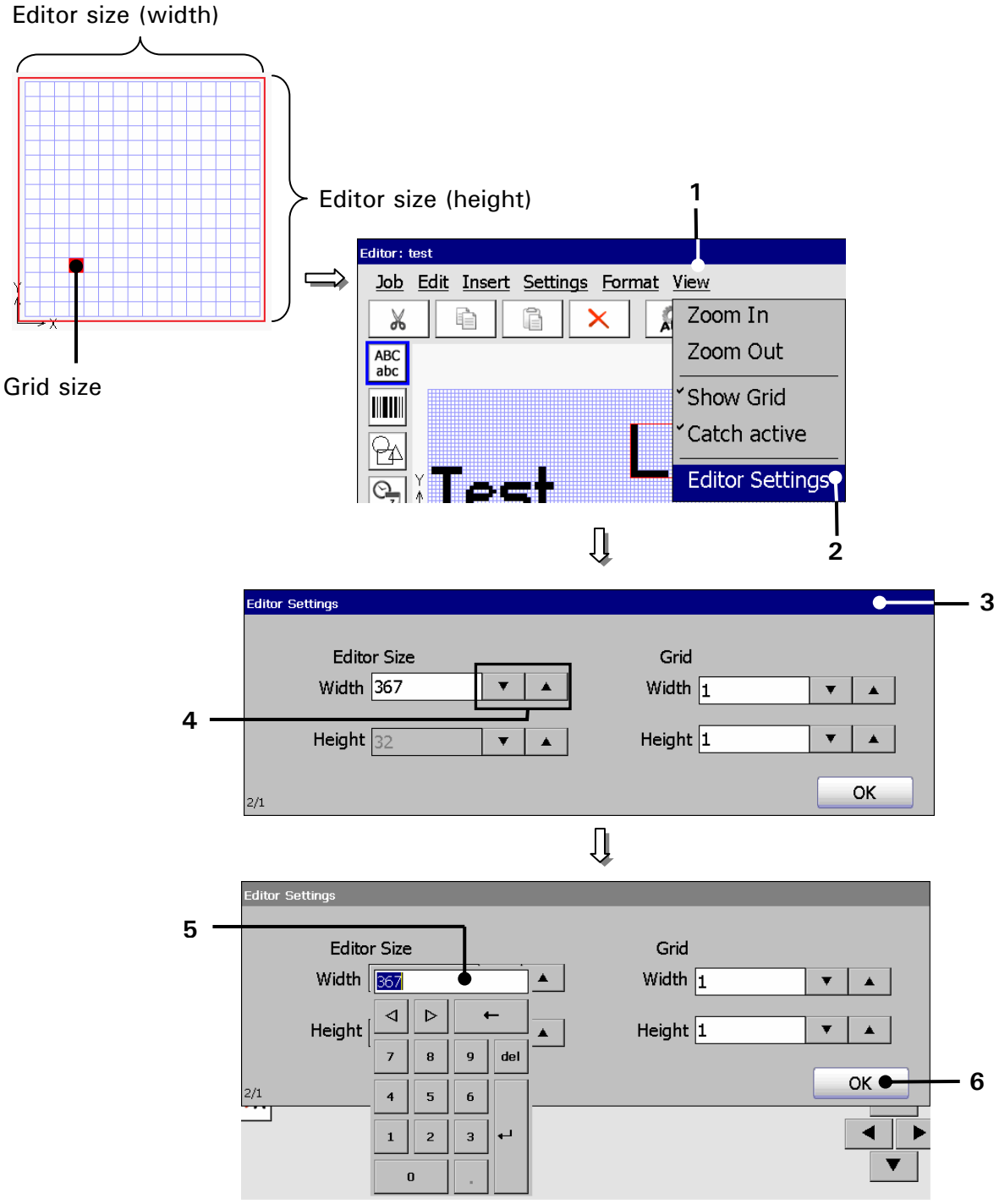
Note: *The editor height is specified and cannot be changed.*

You will find further information regarding the working with number blocks in the **chapter *Number block***!

- The button **<OK>** (6) closes the window.

You will find further information regarding the further display tools in the **chapter *Display tools***!

Figure 121



Job editor (Carry out editor settings)

1 – Button <View>
2 – Option <Editor Settings>
3 – Window <Editor Settings>
4 – Arrow buttons
5 – Display field
6 – Button <OK>

2. Catch function (Catch active)

The function enables the easy and exact positioning of an element at the reticule.

8.7 Printing elements

8.7.1 Barcode

Provides the implementation of barcodes and definition of the required barcode parameters.

8.7.1.1 Barcode informations (The small barcode 1x1)

Note! The LEIBINGER JET3 does not carry out any check digit calculations generally.

This has to be carried out external in advance!

Code 128c:

- is essentially shorter than code 128b
- only numeric characters are valid (no punctuation symbols, letters or spaces are valid (only numbers from 0-9 can be displayed)
- only an even amount of digits is valid

Code 128b:

- is longer than the C-variante
- can display complete ASCII-sentences
- can also display an odd amount of digits

2 of 5 interleaved (Code 25):

- only numerical code (only numbers from 0-9 can be displayed)
- only an even amount of digits is valid

Code 39:

- alphanumerical code
- (is available with or without Gothic character (clear figure) for the LEIBINGER JET3.)

EAN 8:

- (only numbers from 0-9 can be displayed)
- has to be always 8-digits (7 performance characters and 1 check digit)

(is available with or without clear figure for the LEIBINGER JET3)

EAN 13:

- numeric code (only numbers from 0-9 can be displayed)
- has to be always 13-digits (12 performance characters and 1 check digit)

(is available with or without clear figure for the LEIBINGER JET3)

UPC A: (American equivalent to EAN13)

- numeric code (only numbers from 0-9 can be displayed)
- has to be always 12-digits (11 performance characters and 1 check digit)
- (is available with or without clear figure for the LEIBINGER JET3)

UPC E: (American equivalent to EAN8)

- numeric code (only numbers from 0-9 can be displayed)
- has to be always 8-digits
  (6 performance character, 1 check digit and 1 system character)
- (is available with or without clear figure for the LEIBINGER JET3)

Datamatrix-Code (2D-Code):

- up to 50 numerical numbers can be displayed **or** up to 36 letters can be displayed (the combination of numbers and letters is alllowed).
- The form has to be always set that it corresponds with a square.

8.7.1.2 Integration of counters

Due to integrated counters and replacements impermissible number of digits or invalid constellations can be caused. These barcodes are displayed as crossed out codes in the software.

Error example:

Display of a correct barcode

Display of an invalid barcode

8.7.1.3 Carry out replacements

In the functional area **<Replacements>** of the menu you can generate accordant replacements (numbers or letters) for the counter values to get an operating specific display or coding of the specifications.

You will find further information regarding the carrying out of substitutions in the **Chapter *Replacements***!

Due to integrated counters and replacements impermissible number of digits or invalid constellations can be caused. These barcodes are displayed as crossed out codes in the software.

Error example:

Display of a correct barcode

Display of an invalid barcode

8.7.2 Date/time and expiry time

Provides the bonding of date- and time specifications and definition of the expiry time of the font parameters and of the display options.

Further more accordant substitutions (numbers, letters or designations) for the date- and time values can be generated to get an operating-specific display or coding of the specifications.

Note: *"Expiry time" is the time which elapses until the product cannot be used anymore.*

8.7.2.1 Insert date- and time specifications

Example: *Additionally to an existing fix text „A" the current date should be printed and to the existing fixt text „V" the resulting expiry date.*

The date specification should be in the format „Day/Month/Year".

The expiry time is 15 days.

Proceeding (Step 1):

- Press the button <**Insert**> (1) and the option <**Date/Time**> (2) or the accordant direct buttons.
- The menu <**Object Settings (Date/Time)**> (4) is faded in.

  Carry out the requested settings for the font parameters and display options in the functional area <**Global Settings**> (5). You will find further information in the **Chapter *Object settings***.

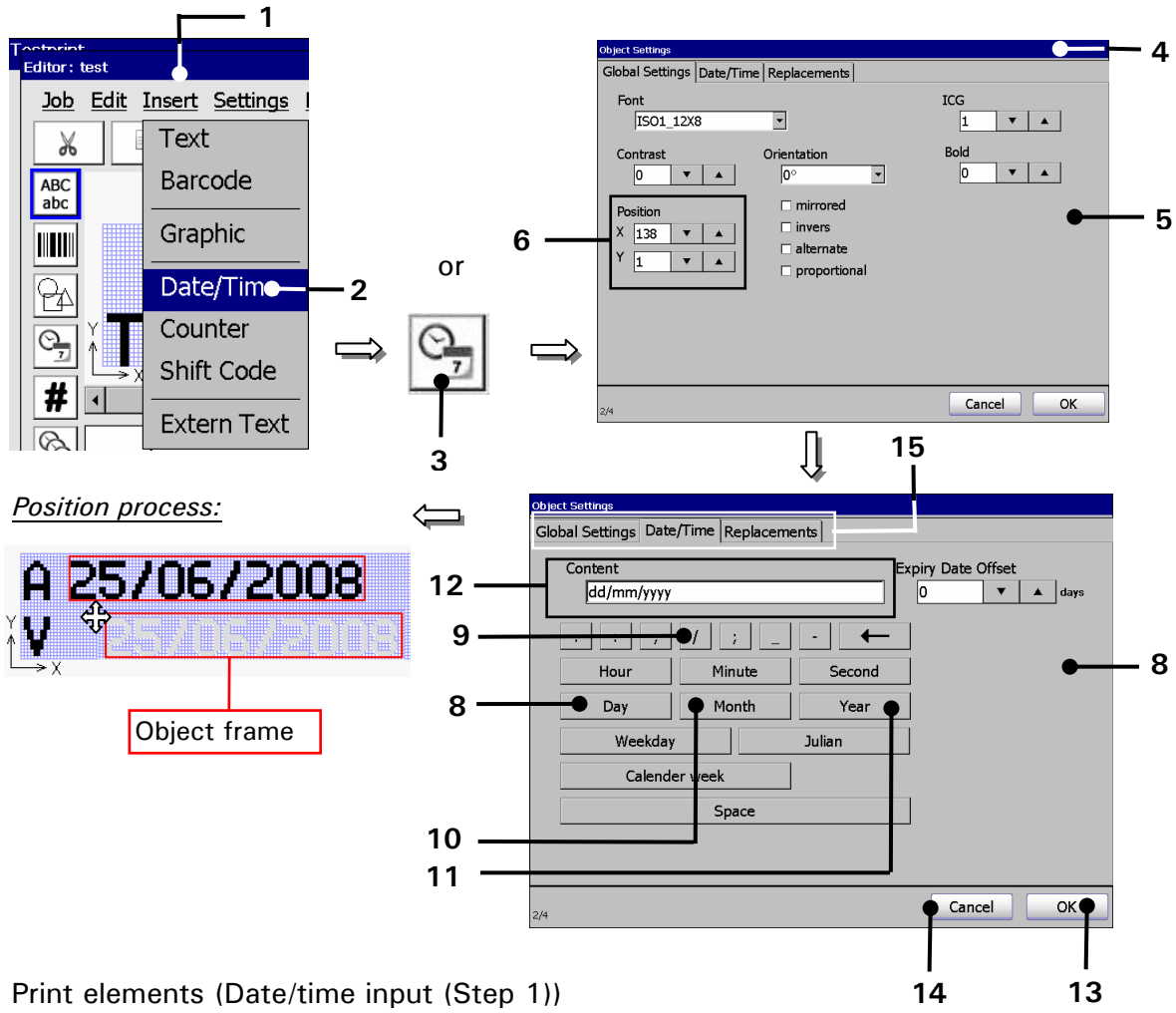
  Note: *In the setting fields <**Position X/Y**> (6)the system shows automatically the next possible position of the object after an existing fix text. This position can or has to be changed depending on the input situation!*
- Now change to the functional area <**Date/Time**> (7). The selection of the functional area happens by clicking on the accordant register card (15).
- Press the following buttons (8-11) in the appropriate sequence to generate the current date input:

  „Day" ▶ „/" ▶ „Month" ▶ „/" ▶ „Year"

  The formatting of the inputs is shown on the display field <**Content**> (12).
- Press the button <**OK**> (13) to take over the inputs and to close the menu or press the button <**Cancel**> (14) to leave the menu without saving the inputs.

- The applied date input is displayed in the menu **<Job editor>**.
- Now click on the date element to mark it. It is now displayed with a red object frame.
- Position the element with the direction buttons of the job editor or use the Drag-function to shift the element.

Figure 122



Print elements (Date/time input (Step 1))

1 – Button <Insert>
2 – Option <Date/Time>
3 – Direct button (Icon)
4 – Menu <Object settings (Date/Timet)>
5 – Functional area <Global Settings>
6 – Setting fields <Position X/Y>
7 – Functional area <Date/Time>
8 – Button <Day>
9 – Button </>
10 – Button <Month>
11 – Button <Year>
12 – Display field <Content>
13 – Button <OK>
14 – Button <Cancel>
15 – Register cards

Proceeding (Step 2):

- Press the button <**Insert**> (1) and the option <**Date/Time**> (2) or the accordant direct buttons (Icon) (3).
- The menu <**Object Settings (Date/Time)**> (4) is faded in.

  Carry out the requested settings for the font parameters and display options in the functional area <**Global Settings**> (5). You will find further information in the **Chapter Object settings**.
- Now change to the functional area <**Date/Time**> (7). The selection of the functional area happens by clicking on the accordant register card (18).
- Press the following buttons (8-11) in the appropriate sequence to generate the current date input:

  „Day“ ▶ „/“ ▶ „Month“ ▶ „/“ ▶ „Year“

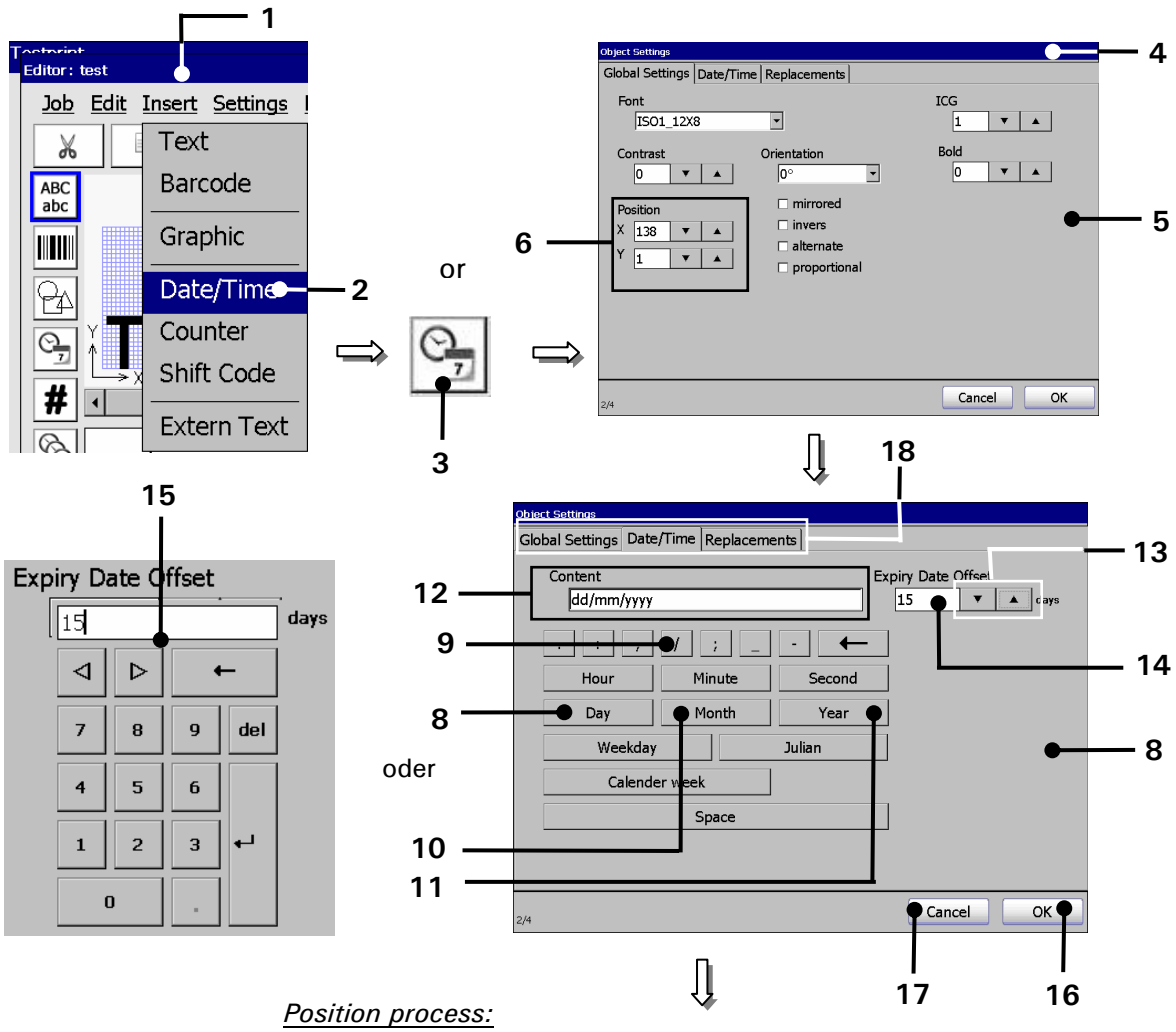
  The formatting of the inputs is shown on the display field <**Content**> (12).
- Now set the requested expiry date of 15 days. The setting can be carried out with the **Arrow buttons** (13), but the value will be increased or reduced by one step.

  or
- Click in the accordant display field <**Expiry Date Offset**> (14). A number block (15) opens for input in which you can enter the value.

You will find further information regarding the working with number blocks in the **chapter *Number block***!

- Press the button <**OK**> (16) to take over the inputs and to close the menu or press the button <**Cancel**> (17) to leave the menu without saving the inputs.
- The applied expiry date is also displayed in the menu <**Job editor**>.
- Click on the date element to mark it. It is now displayed with a red object frame.
- Position the element with the direction buttons of the job editor or use the drag-function to shift the element.

Figure 123



Position process:

Print elements (Date/time input (Step 2))

1 – Button <Insert>
2 – Option <Date/Time>
3 – Direct button (Icon)
4 – Menu <Object settings (Date/Time)>
5 – Functional area <Global Settings>
6 – Setting fields <Position X/Y>
7 – Functional area <Date/Time>
8 – Button <Day>
9 – Button </>
10 – Button <Month>
11 – Button <Year>
12 – Display field <Content>
13 – Arrow buttons
14 – Display field <Expiry date Offset>
15 – Number block
16 – Button <OK>
17 – Button <Cancel>
18 – Register cards

8.7.2.2 Carry out replacements

Further more accordant substitutions (numbers, letters or designations) for the date- and time values can be generated in the functional area <**Replacements**> to get an operating-specific display or coding of the specifications.

You will find further information regarding the execution of substitutions in the **chapter *Replacements***!

8.7.3 Counter

Provides bonding of individual programmable counters as well as definition of counter parameters, font parameters and display options.

Further more accordant replacements (number or letters) can be generated to get a operating specific display or coding of the specifications.

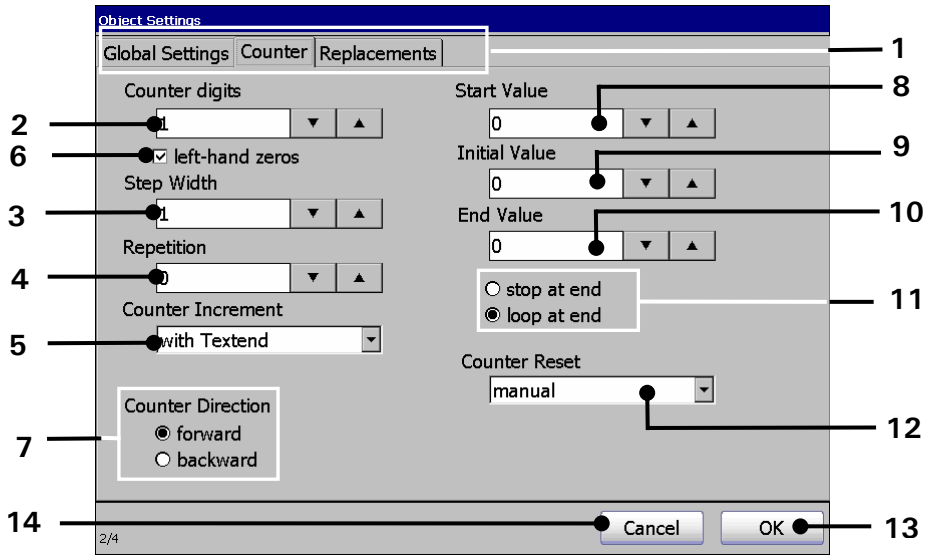
Attention! For leaving a job, the counter states of integrated job counters are usually not saved, that means if you call up this job again the counter states are already again on the start value. If the print should be continued with the already existing counter states you have to activate the function <**Save counter states**> in the menu <**Extras**> in advance.

You will find further information also in the **group *Data Input/Programming*** in the **chapter *Save Counter States***!

8.7.3.1 Counter parameter

In the functional area <**Counter**> of the menu you can define the basic settings.

Figure 124



Print elements Counter menu *(Functional area "Counter")*

1 – Register cards
2 – Display field <Counter digits>
3 – Display field <Step width>
4 – Display field <Repetition>
5 – Pop-up window <Count.increment>
6 – Control box <Left hand zeros>
7 – Selection <Counter direction>
8 – Display field <Start value>
9 – Display field <Initial value>
10 – Display field <End value>
11 – Selection <Counter (Loop/Stopp)>
12 – Pop-up window <Counter reset>
13 – Button <OK>
14 – Button <Cancel>

8.7.3.1.1 Number of digits

The setting defines the number of digits of the counter. The maximum input is 10 digits. The set value is shown on the accordant display field.

8.7.3.1.2 Start value

The setting defines the start value of the counter. The maximum input is 10 digits.

After reaching the end value the counter will be reset to the start value.

The set value is displayed on the accordant display field.

8.7.3.1.3 Initialization value

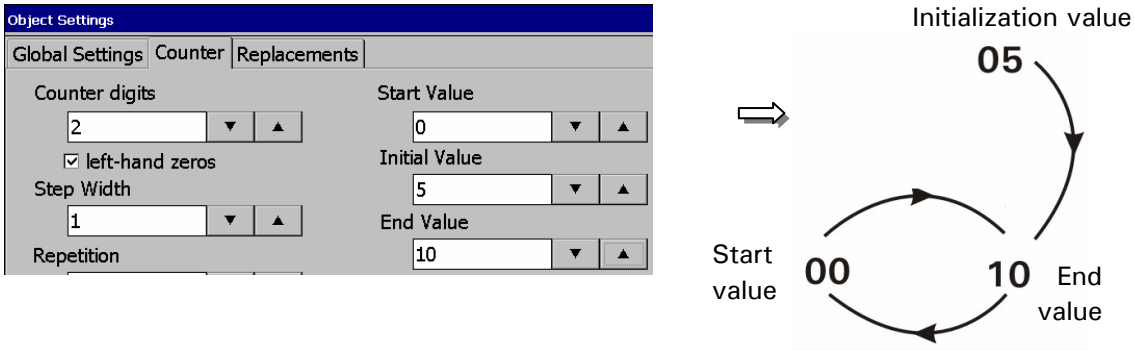
The setting defines the initialization value of the counter. The maximum input is 10 digits.

That means if the job is started or loaded for the first time, it is first counted from the initialization value to the end value. Afterwards it is then always counted from the start value to the end value.

The set value is shown on the accordant display field.

Figure 125

Example:



Counter settings (Initialization value)

8.7.3.1.4 End value

The setting defines the end value of the counter. The maximum input is 10 digits.

After reaching the end value the counter will be reset to the start value.

The set value is shown on the accordant display field.

8.7.3.1.5 Leading zeros (Left-hand zeros)

With this function the display of the leading zeros of a counter are turned on or off.

Example: *4-digits counter*

Function	Value	Display
deactivated	1	1
activated	1	0001

8.7.3.1.6 Step width

The setting defines the increasing of the counter between the several prints.

The set value is shown on the accordant display field.

8.7.3.1.7 Repetitions

The setting defines the amount of prints which should be repeated. If no repetition is requested, you have to enter **„0“**. The counter can print up to 999998-times repetitive.

Example: 0 = no repetition
1 = Every counter value is printed twice consecutively (1repetition)
2 = Every counter value is printed triply consecutively (2 repetitions)
.....

The set value is shown on the accordant display field.

8.7.3.1.8 Counting direction

This setting controls the direction of the counting process.

- **Counting direction forward:** If this control box is activated the counter will be incremented (+).
- **Counting direction backwards:** If this control box is activated, the counter will be decremented (-).

8.7.3.1.9 End value control (Loop/Stop after end value)

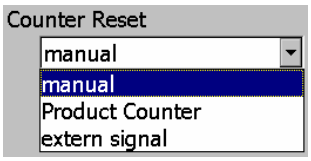
The setting controls the action of the counter by reaching the set end value.

- **Stop at end value:** If this control box is activated, no more counter is displayed after the end value has been reached.
- **Loop after end value:** If this control box is activated the counting process and the print will be started again from the beginning after the end value has been reached.

8.7.3.1.10 Counter reset (methods)

With the Pop-up window <**Counter Reset**> you can define the reset method of the counter.

Figure 126



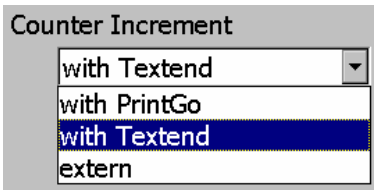
Counter settings (Reset methods)

- **manual:** The reset happens manually by the operator in the menu (**Extra ▶ Product Counter ▶ Reset all Job Counters**
- **Product Counter:** The reset of the job counter happens with the reset of the production counter.
- **extern signal:** The reset happens by an external supplied signal (interface X4).

8.7.3.1.11 Counter increment (methods)

With the pop-up window <**Counter Increment**> you can determine the method at which event the counter value should be changed (incremented or decremented).

Figure 127



Counter settings (Increment methods)

- **with PrintGo:** The change in value of the counter happened with each the PrintGo-signal *(even, if the print out is stopped and the printer still receives some PrintGos from the sensor or the internal PG source).*
- **with printing (text) end:** The change in value of the counter happens after the print out was made.
- **Extern (external signal):** The change in value happens by an external signal (interface X4).

8.7.3.2 Carry out replacements

In the functional area <**Replacements**> of the menu you can generate accordant replacements (numbers or letters) for the counter values to get an operating specific display or coding of the specifications.

You will find further information regarding the carrying out of substitutions in the **chapter *Replacements***!

8.7.4 Shift code

Provides the integration of a text element which is printed in predefined periods (shift times) as well as a definition of the accordant parameters.

Note: *The changing text can be also combined with other printing elements which will not change by the predefined periods (only the „shift-defined" text).*

Proceeding:

Example: A shift code should be written additionally to an existing fix text „xxx".

*In the first shift (early shift) at 6.15 am „xxx **001**".*
*In the second shift (late shift) at 12.15 pm „xxx **002**".*
*In the third shift (night shift) at 20.15 am „xxx **003**".*

- Press the button <**Insert**> (1) and the option <**Shift Code**> (2) or the accordant direct button [icon] (3).
- The menu <**Object settings (Shift Code)**> (4) is faded in.

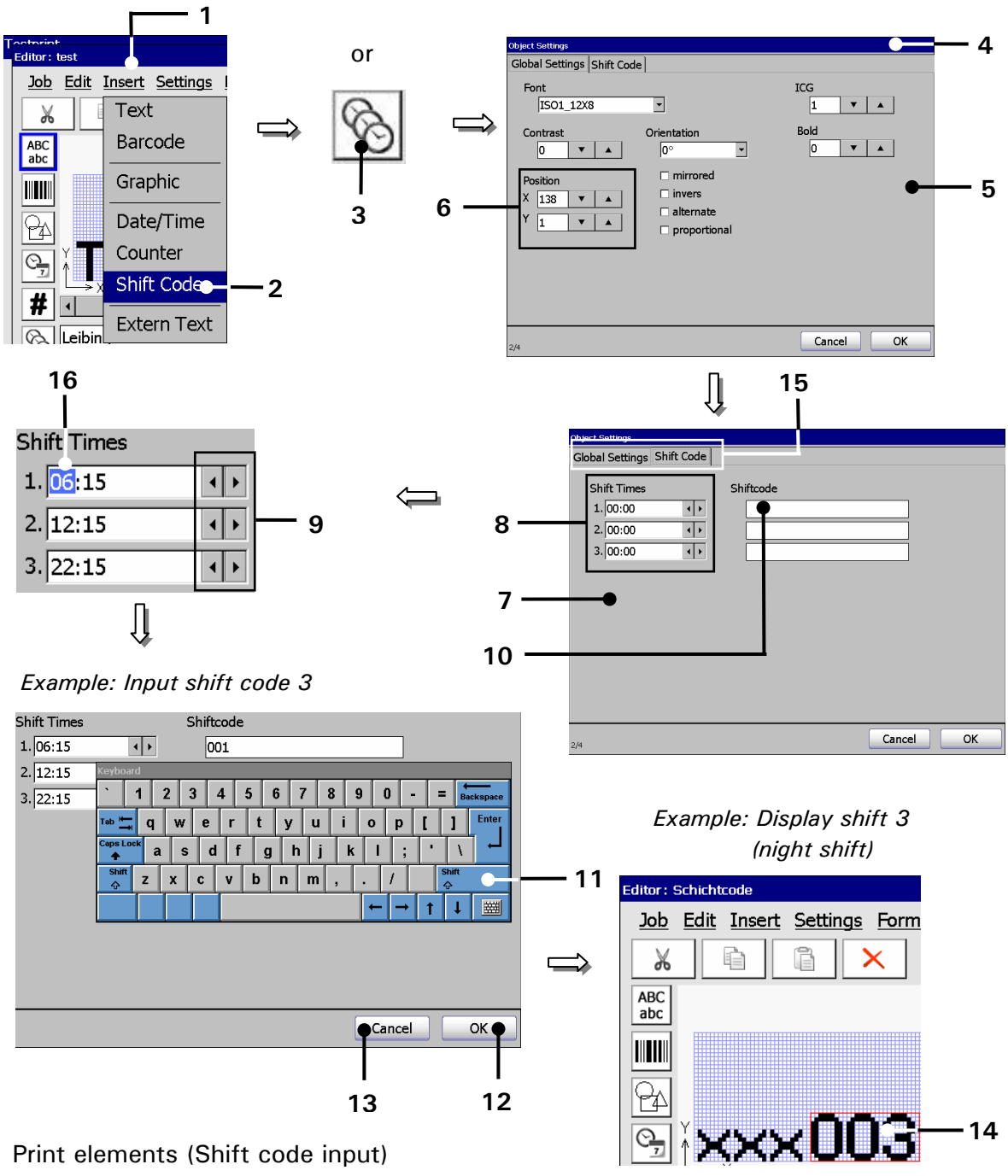
  In the functional area <**Global Settings**> (5) carry out the requested settings for the font parameters and display options. You will find further information in the **Chapter *Object Settings***.

  Note: *In the setting fields <**Position X/Y**> (6) the system shows automatically the next possible position of the shift code after the already existing fix text. This position can be of course changed!*

- Now change to the functional area <**Shift Code**> (7). The selection of the functional area happens by clicking on the accordant register card (15).
- Now mark in the setting fields <**Shift Times**> (8) the hour- or minute block to change the values. With the accordant <**Arrow buttons**> (9) you can increase or reduce the values of the marked block (16).
- Now click in the first setting field <**Shiftcode**> (10). A keyboard field opens for input. Now enter „001".
- Press the button <**Enter**> (11) of the keyboard field. The entered characters are taken over and are displayed in the setting field.

You will find further information regarding the working with keyboard fields in the **chapter *Keyboard fields***!

Figure 128



Print elements (Shift code input)

1 – Button <Insert>
2 – Option <Shift Code>
3 – Direct button (Icon)
4 – Menu <Object Settings (Shift Code)>
5 – Functional area <Glob. Settings>
6 – Setting fields <Position X/Y>
7 – Functional area <Shift Code>
8 – Setting fields <Shift Times>
9 – Arrow buttons
10 – Setting field <Shiftcode>
11 – Button <Enter>
12 – Button <OK>
13 – Buuton <Cancel>
14 – Display in menu <Job editor>
15 – Register cards
16 – Selected (marked) time block

- Carry out the inputs („002“ and „003“) accordingly for the further shift code fields.
- Press the button <**OK**> (12) to take over the input and to close the menu.

  or

- Press the button <**Cancel**> (13) to leave the menu without saving the inputs.
- In the menu <**Jobeditor**> (14) the fix text followed by the applied shift code are displayed.

Note: *Displayed is the shift code which is currently valid (as in the example the night shift „003“).*

8.8 Replacements

The LEIBINGER JET3 offers the possibility to exchange entered date- and time specifications as well as counters by replacements (numbers, letters or designations). Through this you can get an operating specific display or coding of the information.

The definition of the replacements happens always in the functional area <**Replacements**> of the concerned menu. The faded in functional area depends on the substituted printing element.

Replacements can be also carried out for date- and time specifications as well as for counters which are integrated in barcodes.

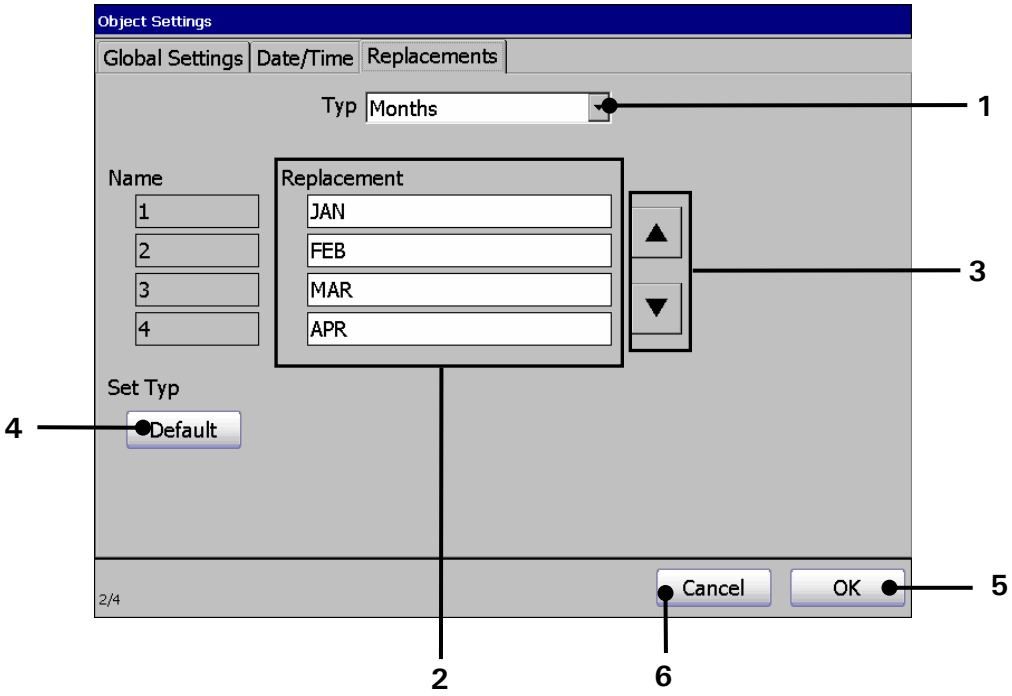
The made settings are only valid for the current created or edit job or for the selected printing element!

- In the Pop-up window <**Type**> (1) you can select the element type for which replacements should be generated.
- In the display field <**Replacement**> (2) the set replacements are displayed for the selected element type.
- The buttons <**Scroll**> (3) allows the scrolling of the display field <**Replacements**>.
- With the button <**Default**> (4) you can reset the definitions of the replacements to the standard values.

Note: *The resetting of thereplacements has only effects on the current created or edit job or on the selected printing element!*

- With the button <**OK**> (5) you can take over the inputs and close the menu.
- The button <**Cancel**> (6) closes the menu without saving the inputs.

Figure 129



Functional area "Replacement" *(Example view)*

1 – Pop-up window <Type>
2 – Dissplay field <Replacement>
3 – Buttens <Scoll>
4 – Button <Default>
5 – Button <OK>
6 – Button <Cancel>

8.8.1 Carry out replacements

Proceeding:

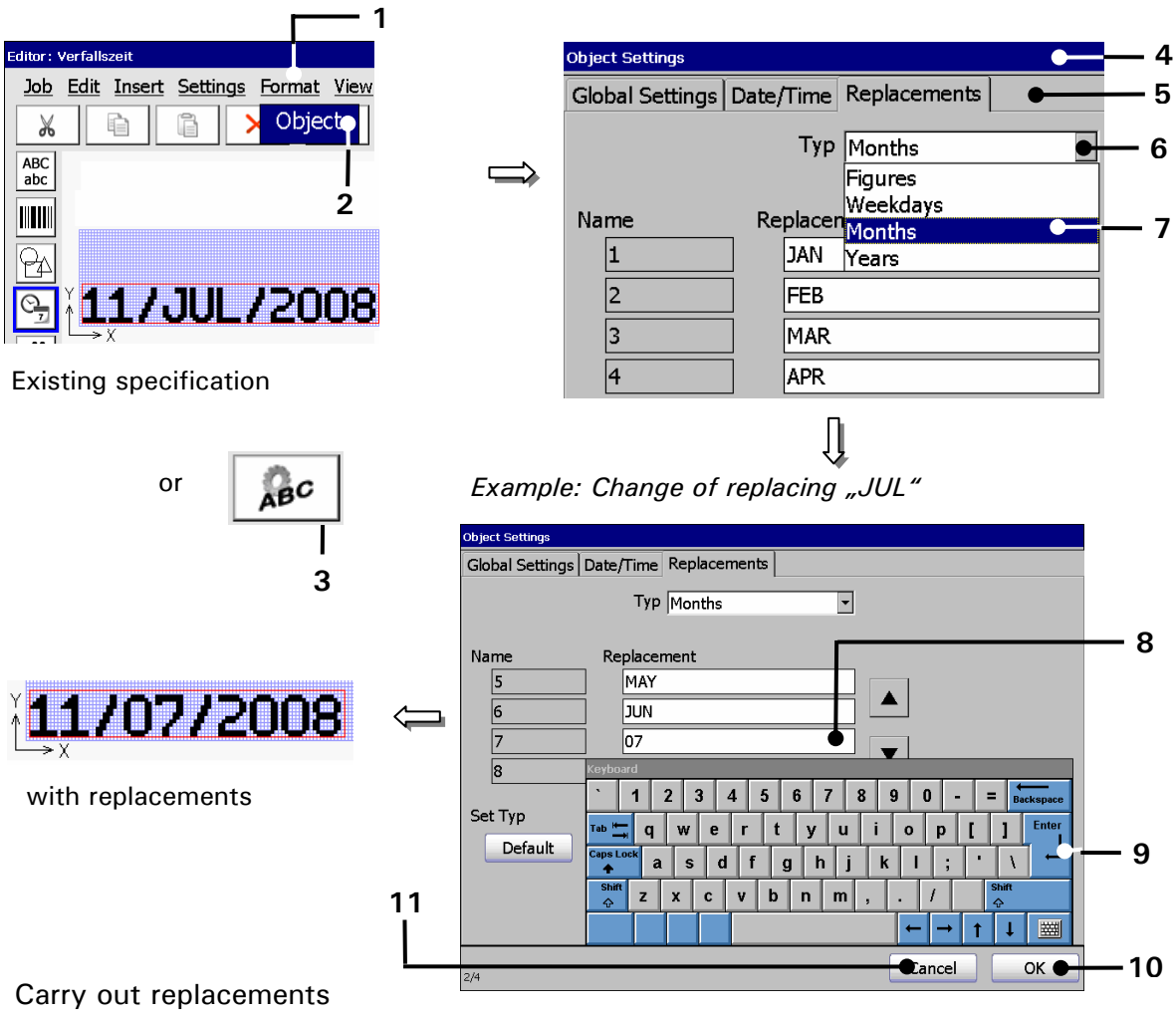
*E.g.: The month specifications (JAN, FEBR.....JUL....) of the date element which is currently defined in the job should be replaced by numbers (JAN=**01**; FEBR=**02**....JUL=**07**...)..*

- Press the button <**Format**> (1) and the option <**Object**> (2) or the accordant direct buttons (Icon) (3).
- The menu <**Object Settings (Date/Time)**> (4) is faded in.
- Press on the register card <**Replacements**> (5) to select the functional area „Replacements ".
- Press on the arrow button of the Pop-up window <**Type**> (6). The Pop-up window opens for selection.
- Now select the element type „month" (7).
- Click on the several setting fields <**Replacement**> (8). A keyboard field opens for input. Enter the accordant values.

- Press the button <**Enter**> (9) of the keyboard field to take over the replacements to the setting field.
- Press the button <**OK**> (10) to take over the inputs and to close the menu or press the button <**Cancel**> (11) to leave the menu without saving the inputs.
- In the menu <**Job editor**> the date specifications with replacements are displayed.

You will find further information regarding the working with keyboard fields in the **chapter *Keyboard fields***!

Figure 130



1 – Button <Format>
2 – Option <Object>
3 – Direct button (Icon)
4 – Menu <Object Settings (Date/Time)>
5 – Register cards <Replacements>
6 – Pop-up window <Type>
7 – Element type “Months”
8 – Setting fields <Replacement>
9 – Button <Enter>
10 – Button <OK>
11 – Button <Cancel>

9. Disturbances/Trouble shooting

9.1 General

With the help of the error diagnosis the operating personnel should be given the possibility of removing lesser defects. Should it not be possible to achieve a satisfactory result despite the measures carried out or should a lack of clarity prevail please contact the service department or a service technician of your dealer.

Dangerous material in the machine!

Danger of serious damage through burns, skin irriation and poisoning!

9.2 Display of device messages

The LEIBINGER JET3 generates two kinds of device messages. The warning messages and the error messages.

Warning messages: Shows a critical device condition which requires an intervention of the operating staff in the foreseeable future. Warning messages are e.g. refill messages.

The messages are displayed with the text „Warning“ and an orange frame. It contains a warning text in clear text, the necessary operator action and if necessary the display of the remaining <balance time> (2) until the condition causes a shutdown.

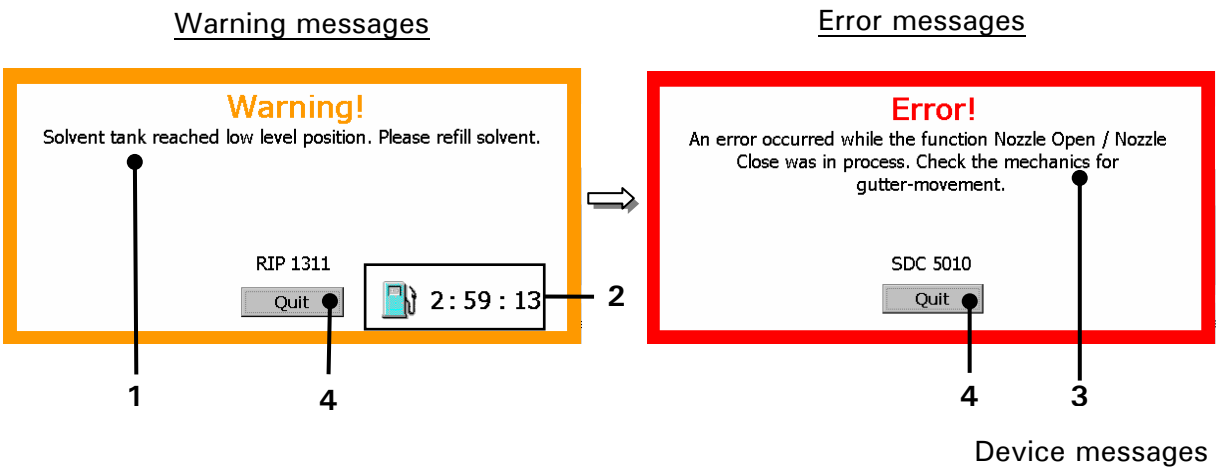
The confirmation of the message happens by pressing the button **<Quit>.**

Error messages: Shows a condition which requires an immediate intervention of the operating staff.

The messages are displayed with the text „error“ and with a red frame. It contains an error text in clear text and a possible troubleshooting.

The confirmation of the message happens by pressing the button **<Quit>.**

Figure 131



1 – Warning text
2 – Count down timer
3 – Error text
4 – Button <Quit>

9.3 Error messages

Error no.	Error message	Reason of failure	Workaround
5000	Charging electrode is dirty	Charging electrode is dirty.	Clean charging electrode
5001	Phasing error	Charging electrode is dirty.	Clean charging electrode
5002	Error of drop control	Charging electrode is dirty. Wrong frequency has been set. Oscillator is defect.	Clean charging electrode Change frequency Exchange oscillator
5003	Error of oscillator voltage	Bad drop control point. Charging electrode is dirty. Wrong frequency has been set. Oscillator is defect.	Clean charging electrode Change frequency Exchange oscillator
5020	HV-current too high. Please check deflection plates for dirt or dampness.	Dirt at the deflection plates. Dampness at the deflection plates.	Clean deflection plates Dry deflection plates
5060	Overload of the charging voltage amplifier.	Overload of charging voltate amplifier.	Clean charging electrode
1309	Ink return monitoring		
1308	Failure of compression. Please check compressors and all connections.	The compressor could not set the compression within 120 sec.	Check pneum. connections for leakages. Check compressor and if necessary exchange it.

Error no.	Error message	Reason of failure	Workaround
1307	Ink delivery is faulty. Please check pump and all connections.	Main pump could not place the membrane to the central position within 2,5 sec. during the normal operation. Air in the system. Leakage. Bleeding valve does not close correctly. Main pump is defect electrically. Main pump is defect mechanically.	Activate function permanent bleeding for some minutes. Check for leakage Check bleeding valve and if necessary replace it. Check main pump and if necessary replace it.
1312	Leakage in hydraulic has been found. Please check immediately.	Leakage sensor at the cabinet bottom reports liquid.	Check system for liquid and repair. Check leakage sensor for dirt and if necessary clean it.
5030	Stroke-Go error	During a stroke has been generated, the next stroke output has been already initiated.	Reduce production speed. Increase font width. Use other printing mode (high speed mode). Reduce height of total printing image (Reduce amount of dots).
5050	Print-Go distance error	The printing distance (PG-distance) which is specified in the job editor between two prints is smaller than the print.	Reduce font width. Increase the PG-distance value.
5051	Print-Go error	During a print the next PrintGo-signal has been already received.	Reduce font width. Check signal encoder (sensor). Check signal encoder for multi-identification during a print. Enlarge product distance.

10. Equipping/Maintenance

10.1 Equipping

Dangerous material in the machine!

Danger of serious damage through burns, skin irriation and poisoning!

Dangerous material in the machine!

Read the safety leaflets and the regulations on personal safety equipment!

10.1.1 Refilling of ink and solvent

The storage containers for ink and solvent are installed beneath the cover flap of the refill unit *(see illustration below).*

The two reservoir tanks are monitored by level sensors. They are always unpressurized and can be opened in every device condition – also during the production.

For correct handling the LEIBINGER re-filling system allows an odor- and splash free refilling of the consumables.

The reservoir tanks should be not overfilled, that means a re-filling should be only carried out if a certain message has been generated by the printer!

After filling the containers (reservoir tanks) as well as the empty refill bottles, they have to be closed carefully again.

Figure 132

Reservoir tank and re-filling process (Example: solvent re-filling)

1 – Re-filling unit
2 – Cap (cover flap)
3 – Reservoir tank „Ink“
4 – Reservoir tank „Solvent“
5 – Re-filling bottle „Solvent “
6 – Seal of re-filling bottle

Proceeding

(Example: Re-filling of solvent)

Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the divice!

- Open the cap (2) of the re-filling unit (1).
- Open the screw cap of the solvent tank (4) and of the re-filling bottle (5).

Attention! Do not open the seal of the re-filling bottle!

- Put the re-filling bottle on the solvent tank. The seal of the bottle will be breached and the closing valve of the tank will open automatically and the reservoir tank is filled up.
- Wait until the re-filling bottle is completely emtpy.
- Take out the empty re-filling bottle. The closing valve of the reservoir tank will be closed automatically.
- Finally screw off the sealing cap of the reservoir tank as well as the empty refill bottle carefully.

10.2 Service/Maintenance

Dangerous voltage!

After opening the head cover and turning on the „safety contact bypass“ on the head, arbitrarly dangerous voltage occurs. Only authorized staff or Leibinger service technicians can work under voltage!

Inflammable (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!

Dangerous material in the machine!

Read the safety leaflets and the regulations on personal safety equipment!

Risk of injury!

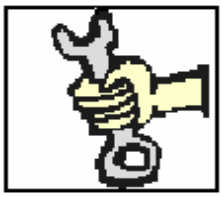
Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

10.2.1 Daily servicing work

The daily servicing work includes the checking of the print head and in particular of the deflector unit, the charging electrode as well as of the guides for dirt. If necessary the components must be cleaned as described in the chapter **Cleaning**.

10.2.2 Weekly servicing work

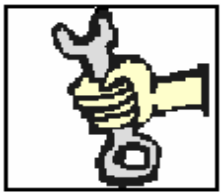
The weekly servicing work includes the checking of the spindles and of the guides of the nozzle seal for dirt. If necessary the components must be cleaned as described in the chapter **Cleaning**.



This work must only be carried out by trained personnel or by Leibinger service technicians!

10.2.3 Anual servicing work

The manufacturer recommends a regular servicing interval of 6–12 months.



This work must only be carried out by trained personnel or by Leibinger service technicians!

10.2.4 Other servicing work

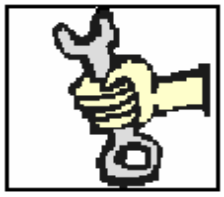
10.2.4.1 Replacement of the battery

Dangerous electrical voltage!

Contact causes serious damage through an electric shock! Disconnect the device from the mains supply prior to opening. Remove mains plug!

Caution – risk of explosion!

Risk of explosion in the event of incorrect replacement of the battery. Replace only with an identical battery or with an equal value battery type in accordance with the recommendations of the manufacturer! The instructions of the battery manufacturer must be observed when disposing of the battery!

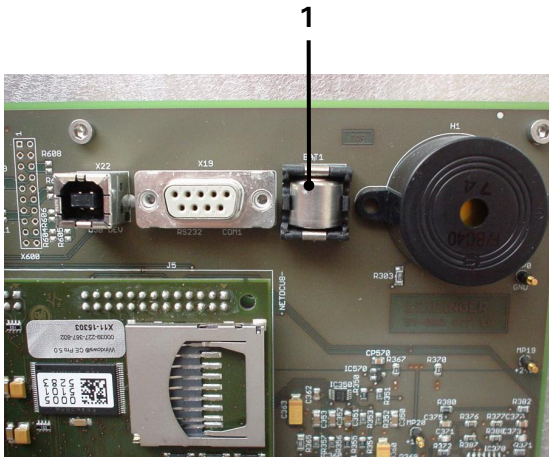


Replacement of the battery!

This work must only be carried out by trained personnel or by Leibinger service technicians!

The battery is situated in the electronics housing on the controller board. If necessary the battery must be replaced. When changing the battery it is imperative that the **Safety instructions** as well as the **Disposal instructions** of the battery manufacturer are observed!

Figure 133



1 – Battery, lithium, 3.2 VDC (54-003 032 KA)

Replacement of the battery

10.3 Cleaning

10.3.1 Cleaning the print head

Dangerous electrical voltage!

Contact causes serious damage through an electric shock! Disconnect the device from the mains supply prior to opening. Remove mains plug!

Inflammabele (Risk of fire)!

Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!

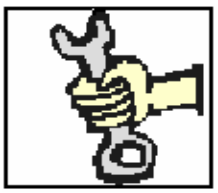
Risk of injury!

Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

Risk of injury!

Upon contact the contents causes skin irritation. Protective equipment is necessary!

The print head must be checked daily and cleaned in the event of recognisable dirt through penetrating dust or ink. In this respect high release of solvent vapours should be avoided through the economical use of Leibinger solvent (corresponding to the Leibinger ink). This is achieved through applying the Leibinger solvent to fluff-free paper with the spray bottle and wiping off the parts to be cleaned with this. Direct spraying off of the print head with solvent should only be carried out with very major dirt and should be limited to the front part of the print head. Following intensive cleaning the nozzle seal must be lubricated with a commercially available oil (spindle and guide). **Oil must not get into the gutter (back absorption)!** Solvent dropping down must be collected using a solvent resistant metal vessel and disposed of properly.



This work must only be carried out by trained personnel or by Leibinger service technicians!

11. Taking out of operation/Dismantling

11.1 Taking out of operation

The ink and solvent which still remains in the high performance printer have to be removed. For this a special draining routine is available.

You will find further information regarding the procedure of draining in the **chapter *Draining routine***!

Dangerous material in the machine!

Read the safety leaflets and the regulations on personal safety equipment!

Now the high performance printer has to be turned off and disconnected from the mains supply. Further more you have to disconnect possible connected additional devices. You will find the capabilities of connecting on the back side of the device. **You have to follow the instructions of the serveral devices!**

Finally you have to cleanse the device of dirt, ink rests etc. as described in the chapter **Cleaning.**

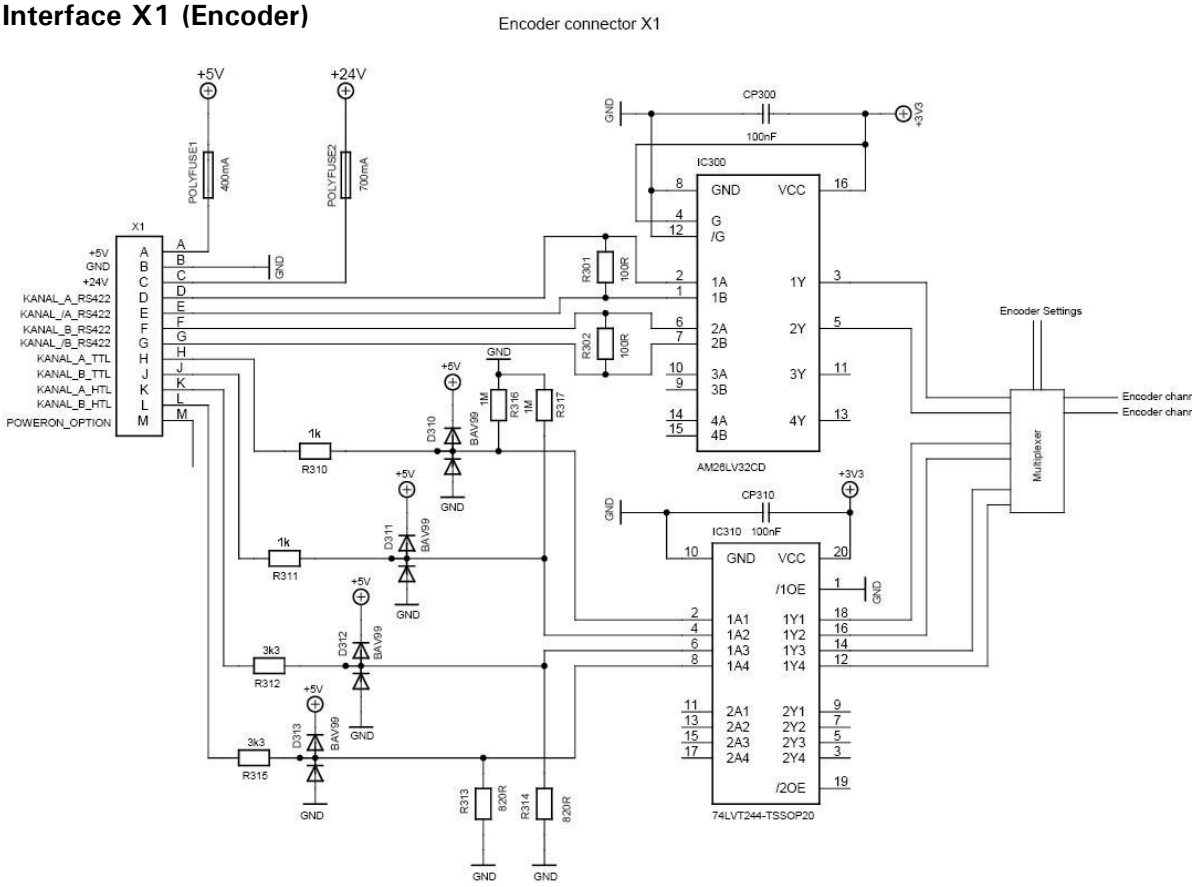
11.2 Dismantling/Disposal

The LEIBINGER JET3 has been developed and built with materials that ensure problem-free dismantling and disposal. When dismantling, the information in the **chapter *Taking out of operation*** as well as the respective country specific disposal regulations (e.g. for inks and solvents) must be taken into consideration

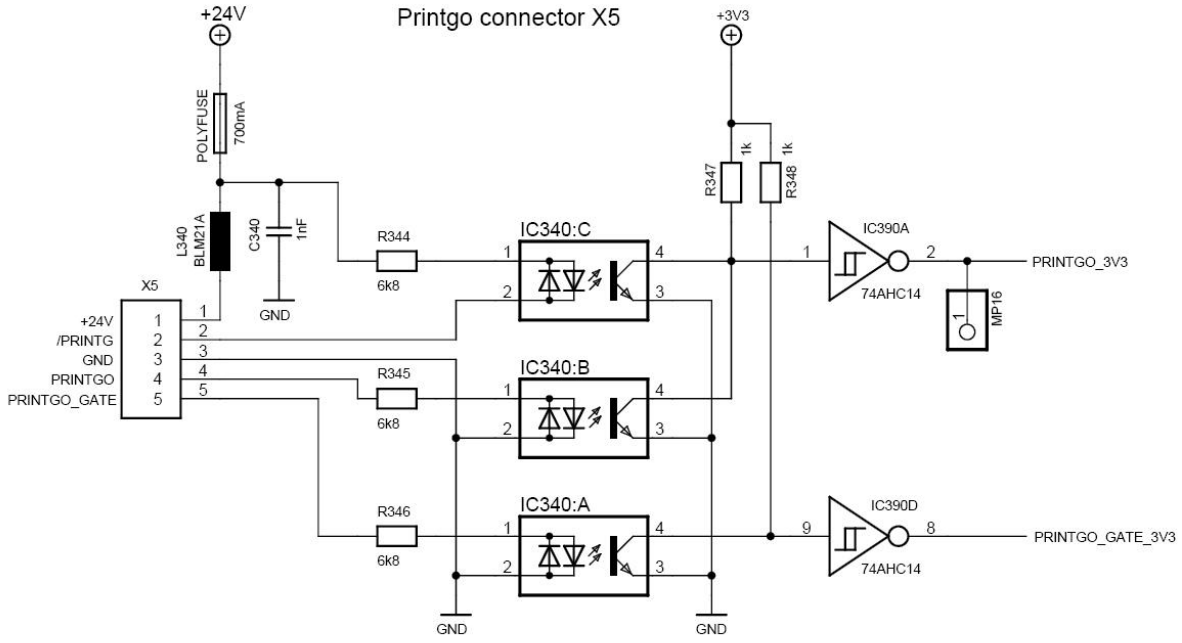
12. Appendix

12.1 Circuit diagrams of the interfaces

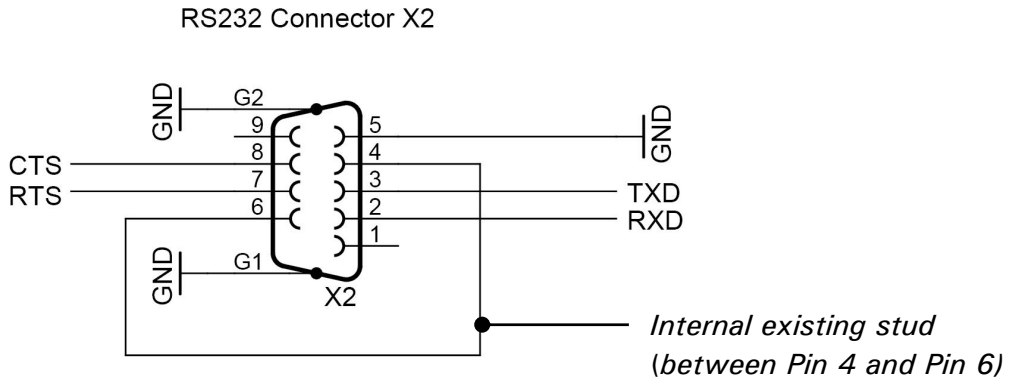
Interface X1 (Encoder)



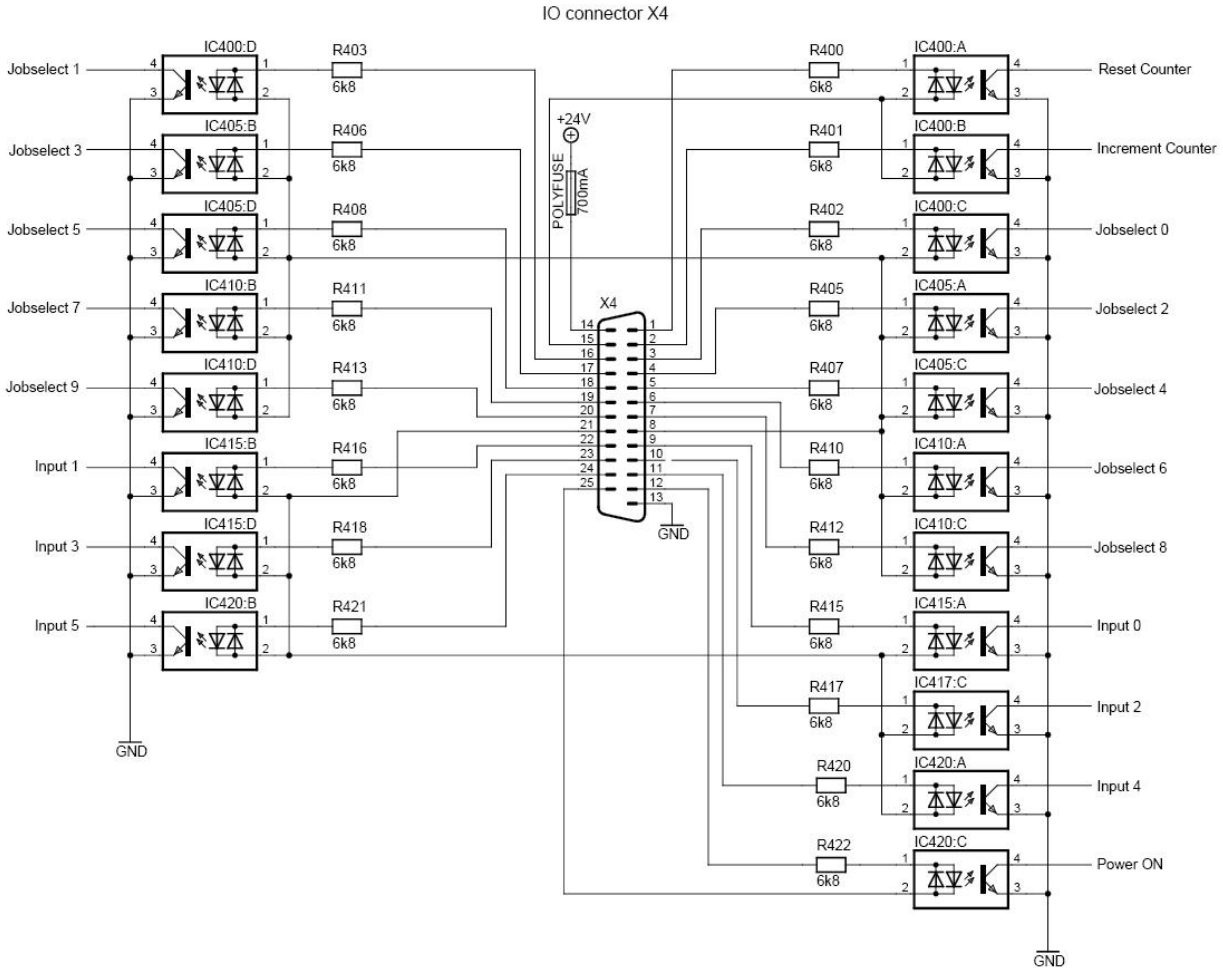
Interface X5 (PrintGo)



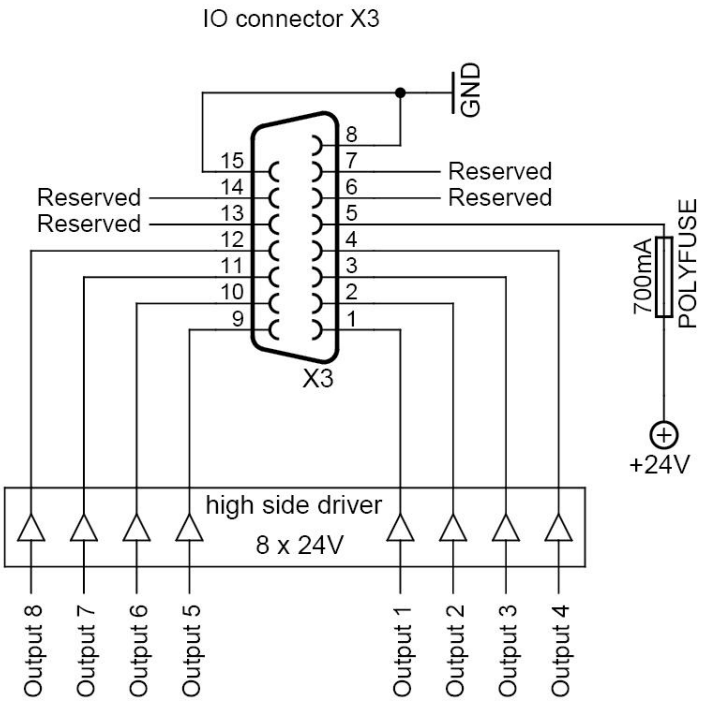
Interface X2 (RS232 – Serial Interface)



Interface X4 (Inputs)



Interface X3 (Outputs)

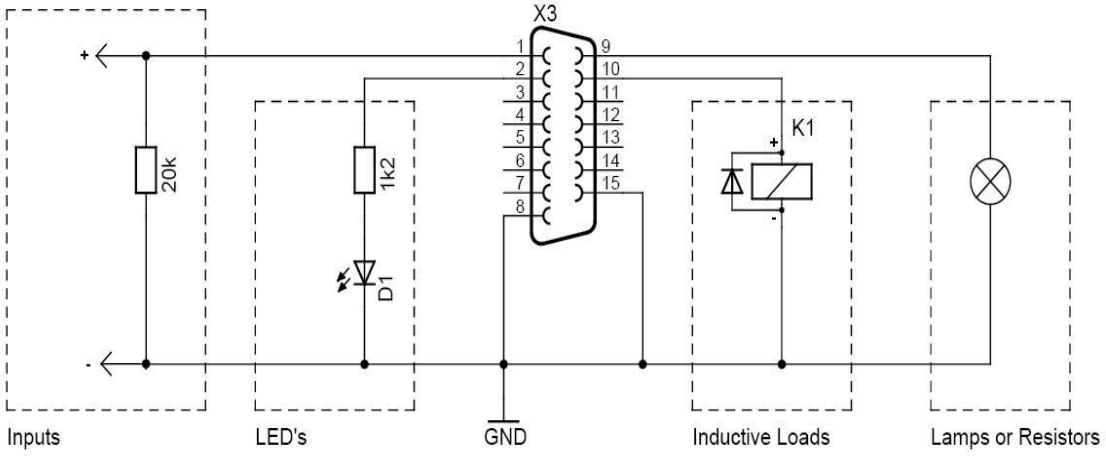


12.2 Connection examples of the interfaces

The wiring examples which are described in the following are only for support. Other combinations, actuators, sensors and switching elements are of course possible and cannot be described completely here.

For the connection please pay attention to the specifications which are described for the plug assignment!

12.2.1 Interface X3 (Outputs)



The described examples are possible at all 8 outputs.

Inputs:

Is used when an printer-output is connected to an input of a external logic (e.g. PLC). Due to the high resistance of the low level signal of the output driver, a 20kOhm Pull-down resistor is recommended.
The resistor can be dropped if the following input wiring has already an accordant low input resistance.

LED's:

LED can be connected by a series resistance. (as in the example for a LED with U_F = 2V and $I_{nominal}$ = 20mA)

Inductive Loads:

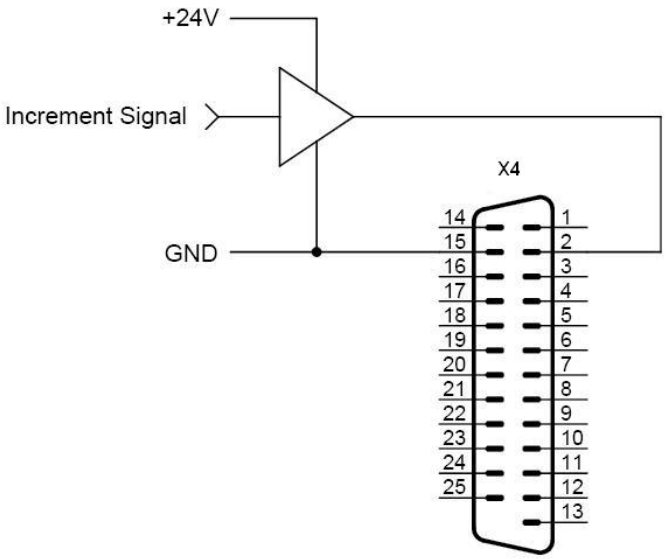
For the usage of inductive loads (relay, motors etc.) a parallel-diode is provided to avoid a turning-off peak.

Lamps or Resistors:

Lamps or other resistor loads can be directly connected to the output, but the sum of the output loads should not be higher than 700 mA (in sum of all outputs together).

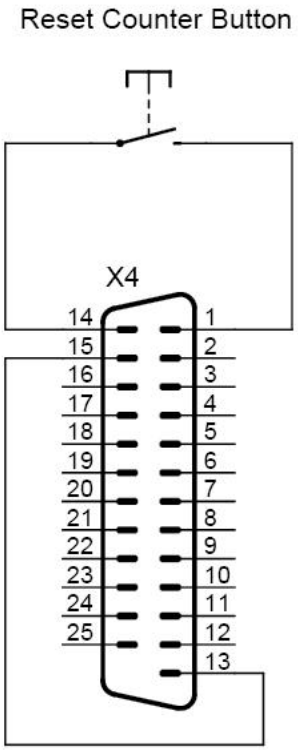
12.2.2 Interface X4 (Inputs)

12.2.2.1 Increment Counter Signal (PIN 2)

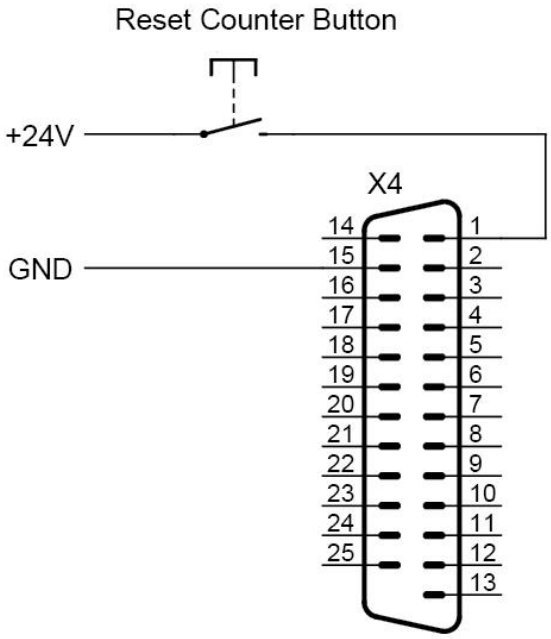


Mechanical switch or relay contacts are improper for the counter input because bounce processes at the switching contacts can cause faulty countings.

12.2.3.2 Reset Counter Signal (Example with pushbutton)

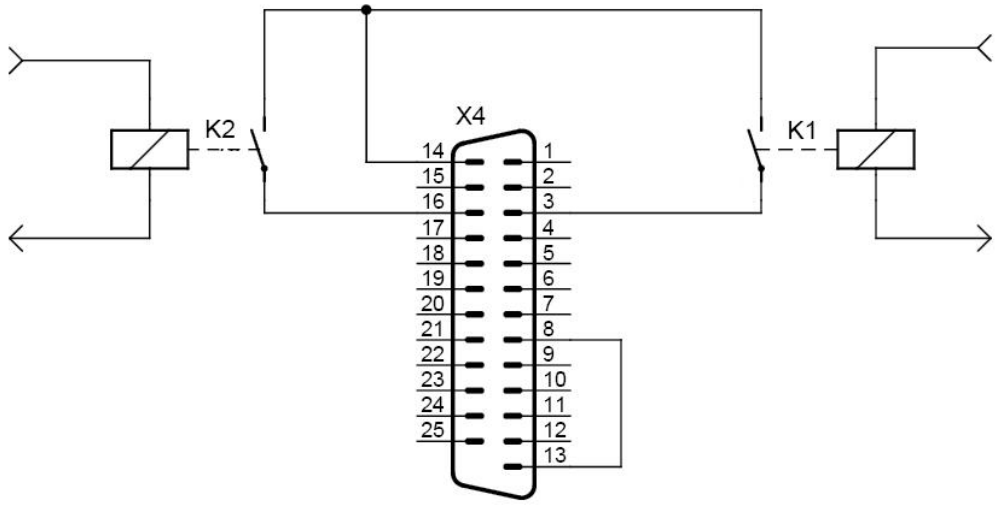


with internal supply

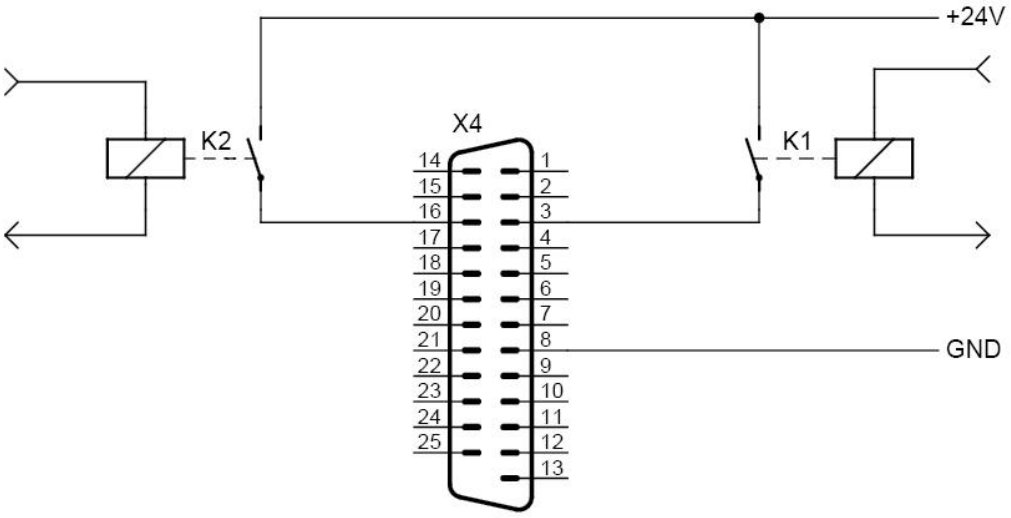


with external supply

12.2.2.3 Jobselect Input (Example with relay contacts)



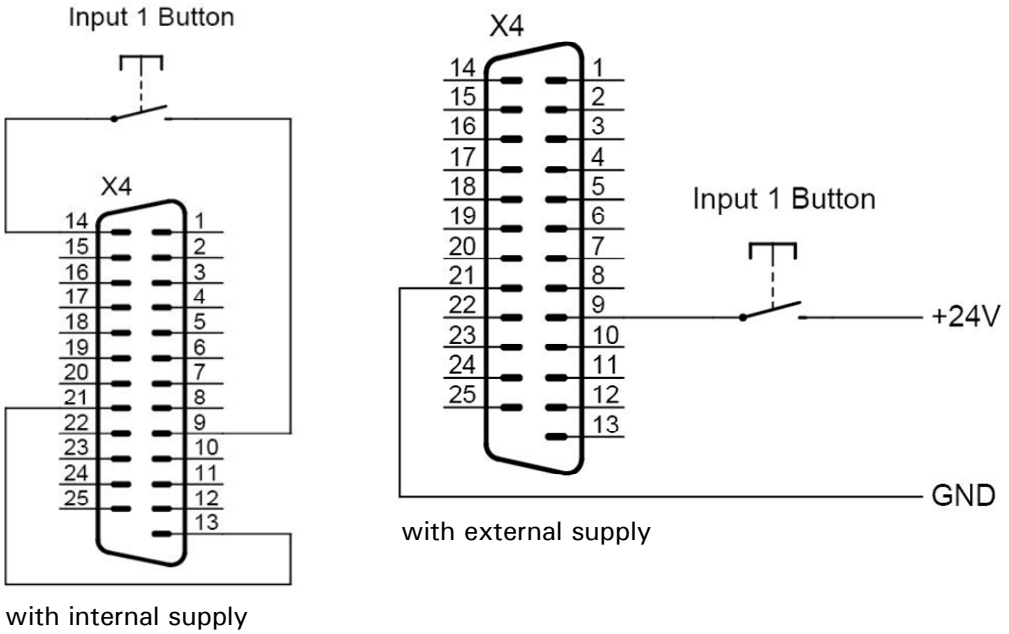
With internal supply



With external supply

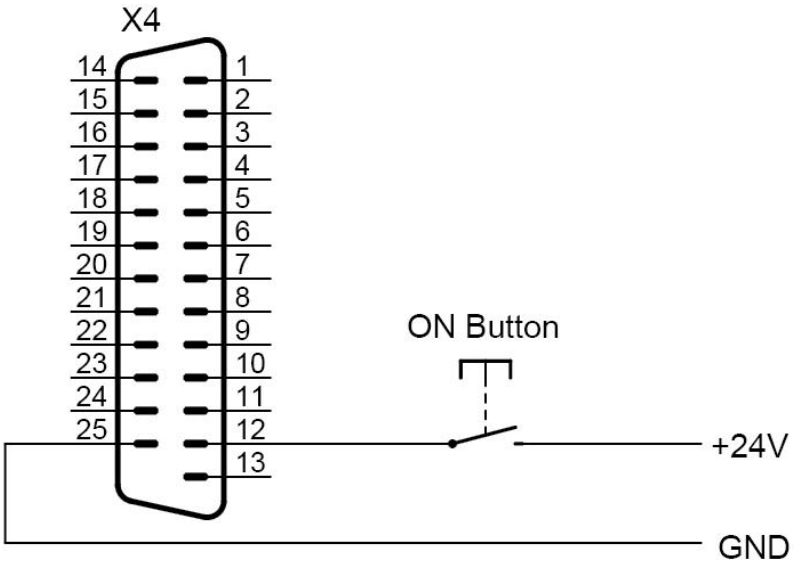
Note: *Only Jobselect 0 and 1 are displayed. The same connection-schema is also possible for Jobselect 2 up to 9.*

12.2.2.4 Inputs (Example with pushbotton)



Note: *Only input 1 is displayed, the same goes also for input 2 up to 6*

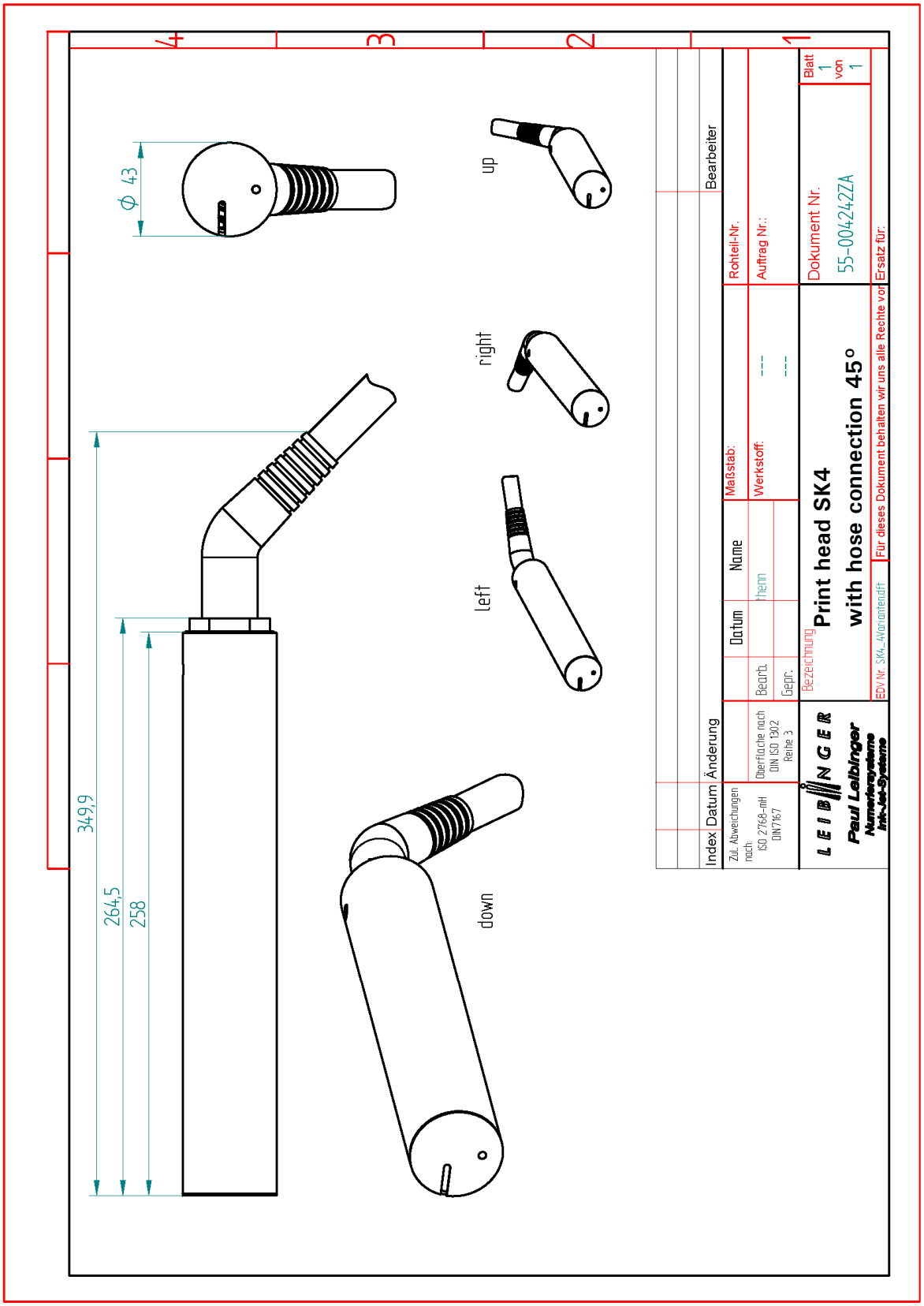
12.2.4.5 ON Input (Example with pushbotton)



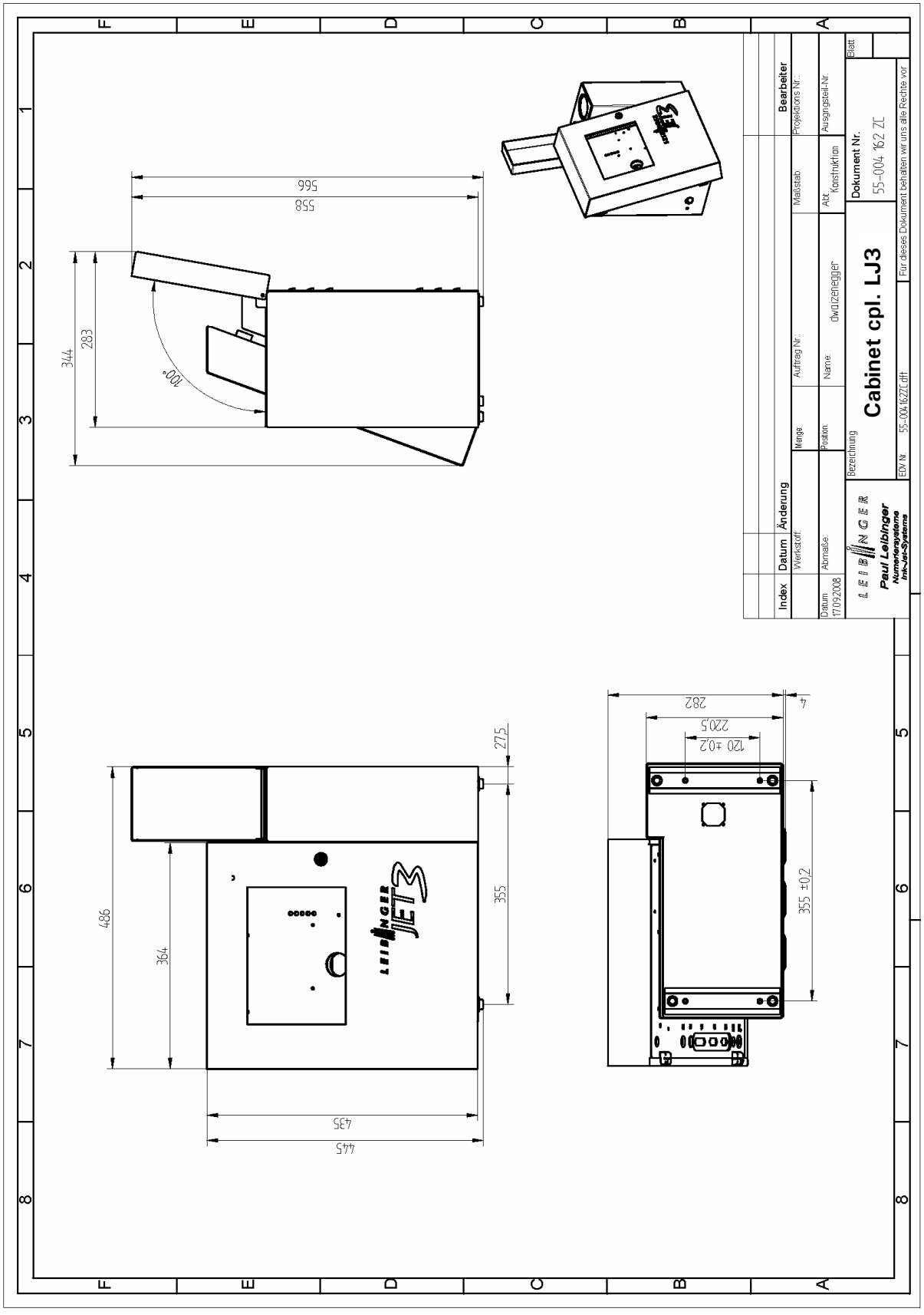
Note: *A switching option which works with the internal 24V supply (Pin 14) is not possible because it is not available at the plug in the OFF-status of the printer.*

12.3 Technical drawings

12.3.1 Print head SK 4



12.3.2 Cabinet LJ3



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