



durst

Rho P10 200

Operating Instructions

Issued 10/2013

Retain for future use!



Original instructions

Contents

A	About these operating instructions	8
B	Safety	10
C	Description	22
D	Transport, installation and commissioning	29
E	Operation	30
F	Software	49
G	Faults	74
H	Service	75
I	Decommissioning and disassembly	114
J	Appendix	115
	Index	118

Table of Contents

A	About these operating instructions	8
1	Using these operating instructions.....	8
2	Symbols and signs	8
2.1	Structure of warnings.....	9
B	Safety	10
1	Intended use	10
1.1	Impermissible use	10
2	Duties of the owner.....	10
2.1	Safety measures	10
3	Safety and monitoring equipment.....	11
3.1	Housing covers.....	11
3.2	Protective switches on printer	11
3.3	Signs on printer	11
4	Ambient conditions	14
5	Modifications, attachments and changes in location.....	14
6	Connection of external devices	15
7	Electromagnetic compatibility	15
8	Specific types of danger	15
8.1	UV light	15
8.2	High temperatures	15
8.3	Electrical energy	16
8.4	Moving parts.....	16
8.5	Contact with ink	16
8.6	Ozone buildup.....	17
8.7	Pneumatic system	17
8.8	Danger of falling	17
8.9	Weights	17
9	Protective equipment.....	18
9.1	Safety goggles and protective gloves.....	18
9.2	Safety shoes	18
10	Maintenance and cleaning.....	18
11	Disposal	18
12	Emergencies	19
12.1	Emergency-Stop switchr	19
12.2	What to do in case of an emergency	19
12.3	Switching on the printer again after an emergency stop.....	19
13	Faults	20
13.1	Handling faults	20
14	Avoiding damage to property.....	20

14.1	Print head maintenance	20
14.2	Careful handling of the encoder ruler	20
14.3	Careful handling of the conveyor belt	20
14.4	Media	21
14.5	Purge	21
14.6	Lubrication	21
14.7	Changing the UV lamps	21
C	Description	22
1	Printer	22
1.1	Heavy Roll Tool 30 (optional)	22
1.2	Light Roll Tool (optional)	23
1.3	Workstation	24
1.4	Ink supply unit	25
1.5	Cleaning system	26
2	Workflow	27
D	Transport, installation and commissioning	29
E	Operation	30
1	Overview of daily work	30
1.1	Carrying out the daily work	30
2	Main operating elements and displays	31
3	Workstation	32
3.1	Booting up workstation	32
3.2	Shutting down workstation	32
3.3	Connecting a USB stick/an external USB hard disk	32
4	Heavy Roll Tool 30 (optional)	33
4.1	Docking Heavy Roll Tool 30	33
4.2	Operating drives of the unwinding and winding units ..	34
5	Roller table (optional)	35
5.1	Docking the roller table	35
6	Loading medium	35
6.1	Loading plate medium with roller table	35
6.2	Loading roll medium with Heavy Roll Tool 30	38
6.3	Loading roll medium with Light Roll Tool	45
F	Software	49
1	Basic functions	49
1.1	Installation	49
1.2	The menu bar	49
1.3	The status bar	50
1.4	Basic operation	50
2	Configuration	51
2.1	Switch-on times	51

2.2	Input queue	52
2.3	Media families	52
2.4	General basic setup options	53
3	Operating printer functions	54
3.1	Basic functions	54
3.2	Purging functions	56
3.3	Maintenance.....	56
3.4	Ink batch tracking	57
3.5	Changing UV lamps	58
4	Managing media channels.....	59
4.1	Buttons on the right edge of the dialog window	59
4.2	Medium type.....	59
4.3	Media specification	60
4.4	Standard settings for jobs.....	62
4.5	Creating, editing and deleting media channels.....	62
5	Printing.....	63
5.1	Input queue	63
5.2	Printing Queue	71
5.3	Borderless printing.....	72
G	Faults	74
H	Service	75
1	Service intervals of the owner.....	75
2	Service intervals of Durst customer service	78
3	Creating a backup	78
4	Refilling ink	79
5	Cleaning conveyor belt.....	81
6	Emptying catch tank.....	82
7	Lubricating carriage guide	82
8	Changing lubrication plates.....	83
9	Lubricating print head height adjustment spindle system .	85
10	Checking and changing air filter of UV lamp.....	85
11	Cleaning aerosol extractor.....	87
12	Cleaning the vacuum ventilator air filter.....	89
13	Changing the air filter for fusion board cooling	90
14	Changing main ink filter	91
15	Checking fuses	93
16	Changing UV lamp	94
17	Cleaning outlet hole of purge unit.....	97
18	Cleaning encoder ruler.....	97
19	Cleaning electrodes of the anti-static unit.....	99
20	Cleaning suction holes	99

21	Checking suction pressure of the conveyor belt.....	100
22	Checking lung filter for proper seal	100
23	Print head maintenance.....	102
23.1	Required tools/accessories	102
23.2	Daily print head maintenance	102
23.3	Preparation and completion of cleaning	103
23.4	Wiping the print heads	105
23.5	Suction-cleaning soiled nozzles.....	107
23.6	Cleaning the printing plate	112
23.7	Documentation of the print head state.....	112
24	Disposal	113
24.1	Disposing of ink, cleaning cloths and refill tanks	113
I	Decommissioning and disassembly	114
J	Appendix.....	115
1	Technical data.....	115
1.1	General specifications.....	115
1.2	Print specifications.....	115
1.3	Media specifications	116
1.4	Workstation	116
1.5	Requirements of location	117
2	Accessories and spare parts	117
3	CE Declaration of Conformity	117
	Index.....	118

A About these operating instructions





1 Using these operating instructions

These operating instructions is part of the printer.

- ▶ Ensure that these operating instructions are accessible to personnel at all times.
- ▶ Any supplements received from Durst Phototechnik AG are to be included with these operating instructions.
- ▶ Give these operating instructions to any subsequent owners or users of this printer.

2 Symbols and signs

The following symbols are used in these operating instructions:

Symbol	Meaning
✓	Requirement for an action
▶	One-step action
First	Step within a multi-step action
↳	Result of an action or sequence of actions
i	Information on easier or safer work
(→ Page 22 / Description)	Cross reference
	Imminently hazardous situation that, if not avoided, will result in death or serious injury.
	Potentially hazardous situation that, if not avoided, could result in death or serious injury.
	Potentially hazardous situation that may result in minor injury if the safety precautions are not complied with.
	Potentially hazardous situation that, if not avoided, may result in property damage.

The following typographical markings (e.g. **bold**) are used in these operating instructions for differentiating between types of information:

Example	Meaning
Start Queue	<ul style="list-style-type: none"> ■ Operating element on unit, e.g. buttons, levers etc. ■ Software element, e.g. menu name, menu entry, operating elements etc.
start	File name, path name
[ALT]	Keyboard key

2.1 Structure of warnings

Warnings are structured as follows (here: example for the warning level WARNING):

 WARNING
Type and source of danger! Consequence of the danger ► Measure for avoiding the danger

- Read and observe the warnings.

B Safety

i Read these operating instructions before using the printer and ensure that you have understood everything!

i If it is determined that damage has been caused by a person's non-compliance with these operating instructions, Durst Phototechnik AG is in no way liable. Safe operation of the printer is only ensured when the following safety precautions and warnings are observed exactly.

1 Intended use

The printer is suitable for printing plate and roll media within the specified limits. The following framework conditions apply in particular:

- The printer may only be operated in closed rooms.
- Only Durst-certified inks and media may be used. Other inks or media may only be used after agreement with Durst Phototechnik AG.
- Intended use includes only the activities described in these operating instructions. Transport, installation, commissioning, decommissioning, disassembly and disposal of the components may only be performed by service technicians authorized by Durst Phototechnik AG.

1.1 Impermissible use

The printer may not be used to print the following media:

- Foodstuffs
- Animals
- Media outside the specified limit values
- Media with an ignition point of less than 150 °C (302 °F)

2 Duties of the owner

To ensure the safety of personnel, the owner must take the following safety measures:

2.1 Safety measures

- ▶ Ensure that the personnel possesses the appropriate qualifications and is sufficiently trained. Brush up on knowledge by taking training courses on a regular basis.
- ▶ Provide the personnel with the stipulated protective equipment.
- ▶ Keep the warnings on the printer in a legible, visible and clean condition.
- ▶ Ensure sufficient lighting.

- ▶ Keep the concentration of ozone and spray mist of the ink below the maximum permissible value. For this purpose, ensure sufficient ventilation in the immediate vicinity the printer.
- ▶ Ensure sufficient fire protection around the printer and issue instructions for fire-extinguishing measures.
- ▶ Observe all regional and national regulations and safety requirements.

3 Safety and monitoring equipment

3.1 Housing covers

The housing covers should prevent the user from being exposed to electrical or mechanical danger and UV light when loading and unloading media and ink.

- ▶ Do not change the way these devices function.

3.2 Protective switches on printer

All moving housing covers must always be closed. They may only be opened for maintenance and checks, e.g. for checking the material advance.

Protective switches are located on the flip doors and the light trap carrier. The printing process can only start if the flip doors or light trap carrier is closed.

The light trap carrier may only be pulled out for print head maintenance.

- ▶ Do not change the method of functioning of the protective switches.
- ▶ Do not bypass protective switches.

3.3 Signs on printer

3.3.1 Rating plate



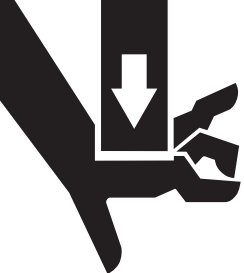







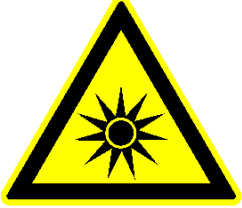


Fig. 1 Rating plate


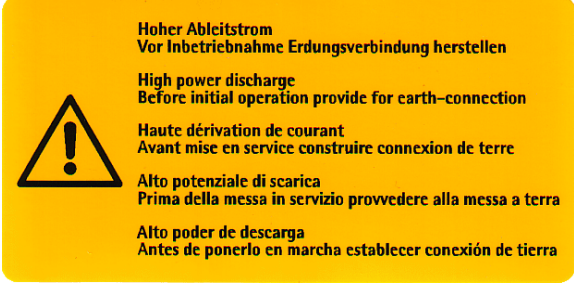

3.3.2 Safety signs

All safety signs attached to the printer must be observed.

The safety signs have the following meaning:

Safety sign	Meaning
	Wear protective gloves
	Wear safety goggles
	Extremities can be crushed
	Extremities can be crushed
	Extremities can be crushed
 <p data-bbox="368 1666 635 1778"> ACHTUNG Auch wenn Netzschalter in "Off-Position", steht Teil unter Netzspannung </p> <p data-bbox="368 1805 603 1917"> CAUTION Even if Mains switch in "Off-Position" part stay under hazardous live </p>	The component is energized even when the main switch is switched off

Safety sign	Meaning
 <p>Disconnect main switch before opening Vor dem Öffnen Hauptschalter ausschalten</p>	<ul style="list-style-type: none"> ■ Warning on UV light ■ Switch off main switch before opening
	<p>Warning on UV light</p>
	<p>Warning on UV light</p>
	<p>Warning on hot surfaces</p>
	<p>Warning on chemical substances</p>

Safety sign	Meaning
	<p>Dispose of the device via a separate collection for electric and electronic devices in accordance with the locally applicable regulations</p>
 <p>Hoher Ableitstrom Vor Inbetriebnahme Erdungsverbinding herstellen</p> <p>High power discharge Before initial operation provide for earth-connection</p> <p>Haute dérivation de courant Avant mise en service construire connexion de terre</p> <p>Alto potenziale di scarica Prima della messa in servizio provvedere alla messa a terra</p> <p>Alto poder de descarga Antes de ponerlo en marcha establecer conexión de tierra</p>	<p>High leakage current Make ground connection before commissioning</p>
 <p>Bitte Bedienungsanleitung lesen! Achtung: Mechanische Teile in Bewegung. Bitte beim Öffnen der Deckel nicht in die seitlichen Öffnungen greifen.</p> <p>Please read the Operating Manual! Caution: Mechanical parts in motion. Please do not hand into the side openings when removing the covers.</p> <p>Lire le Mode d'emploi! Attention: Parties mécaniques en mouvement. Ne pas introduire les mains dans les couvertures laterales quand elles sont ouvertes.</p> <p>Leggere le Istruzioni per l'uso! Attenzione: Parti meccaniche in movimento. A coperchi aperti non introdurre le mani nelle aperture laterali.</p> <p>Por favor, lean el Manual de instrucciones! Atención: Partes mecánicas en movimiento. Por favor, no introduzcan las manos en las aperturas laterales cuando se desmonten las cubiertas.</p>	<p>Read the operating instructions</p>

4 Ambient conditions

The printer may only be operated under the specified ambient conditions (→ Page 115 / Technical data).

5 Modifications, attachments and changes in location

The printer is installed and commissioned by authorized Durst service technicians.

- The installation location of the printer may not be changed. Structural stresses and strains are taken into account during installation. Any change to the installation location or structural modifications to the building must be approved by Durst Phototechnik AG.
- Opening housing covers and electronics cases, except for routine work, and opening the workstation or unplugging the cable may only be performed by authorized Durst service technicians.
- Print heads may only be replaced by authorized Durst service technicians.
- The UV lamp protection prevents reflected light from drying out the ink in the print head, thus damaging it. The UV lamp protection may therefore not be removed.

6 Connection of external devices

The printer features SELV connections in accordance with IEC60950. The computer features two Fast Ethernet connections (SELV) for connection to LAN/WAN networks. Only SELV-compatible peripheral devices approved by Durst may be connected to the printer.

7 Electromagnetic compatibility

For users in the US The printer has been tested and corresponds with the restrictions for a Class A digital unit in agreement with the regulations of the FCC, Paragraph 15. These restrictions serve to provide appropriate protection against harmful interference with equipment used commercially. This printer generates, uses and radiates energy in the radio frequency range and can, if not installed or used in accordance with the requirements of these operating instructions, cause harmful interference in radio communication. The use of the system in a residential area can lead to such interference. In this case, damage/loss caused by the interference are the fault of the user.

8 Specific types of danger

The printer was built using the best available technology and in compliance with the recognized safety regulations. Areas of danger which cannot be avoided through design are provided with appropriate protective equipment. If the printer is used improperly, however, the user or third parties risk death or injury. The printer itself or the medium could also be damaged.

8.1 UV light

UV light emitted by the UV lamps onto the print carriage can cause lethal burns and damage to the eyes. The viewing windows filter out UV rays.

The UV lamps are not switched off automatically when the flip doors are opened. Scattered light can thus be discharged.

- ▶ Do not remove the flip doors.
- ▶ Check to make sure the flip doors are closed and locked during printing.
- ▶ Carry out the following measures during print head maintenance:
 - Ensure that the UV lamps are switched off.
 - Wear safety goggles
- ▶ When the flip door is open, do not look at the UV lamps.

8.2 High temperatures

The UV lamps on the print carriage are heated up to temperatures exceeding 65 °C (149 °F). Contact with the UV lamps can cause severe burns.

Flammable media can ignite as a result of the UV lamps heating up.

- ▶ Before carrying out work on the UV lamp head, wait at least half an hour after the unit has been switched off until the UV lamps have cooled down.
- ▶ During print head maintenance, do not touch UV lamps.

- ▶ Do not print media which have an ignition point of less than 150 °C (302 °F).
- ▶ Observe sufficient fire protection around the printer and issue instructions for fire-extinguishing measures.

8.3 Electrical energy

The printer has a leakage current greater than 3.5 mA. Safe operation of the printer is ensured via a fixed connection to the ground wire.

The entire unit is not de-energized even when the main switch is switched off. Solely the disconnect switch serves as the power isolator.

The capacitors remain charged for several minutes after switching the printer off. There is a risk of electric shock if you touch electrical components.

- ▶ Do not touch any cables or electrical components even when the main switch is switched off.

8.4 Moving parts

The following dangers are present near moving parts:

- Hair, jewelry and clothing being caught and drawn in
- Crushing, impacting, cutting and severing of extremities

Lethal injuries could result.

Dangerous areas include, in particular:

- Print carriage
- Rollers, rolls, belt drives of docked system components (e.g. tables, roll feeders)
- Infeed points of the conveyor belt
- Impacting edges between printer and system components when docking
- ▶ Do not remove the flip door.
- ▶ Do not remove the housing covers.
- ▶ Do not wear long hair, jewelry or loose clothing.
- ▶ When feeding media, do not reach into the infeed points.
- ▶ When placing the roll medium into the roll mounts:
 - Wear protective gloves.
 - Do not grip the ends of the axes.

8.5 Contact with ink

Coming into contact with ink is harmful to your health. Sources of danger include:

- Ink supply unit
- Waste tank
- Carriage guide
- Light trap carrier
- Non-hardened inks on print-outs due to burnt out UV lamps
- Spray mist of ink droplets in case of large print head distance
- ▶ Observe the safety data sheets supplied with the ink.
- ▶ Operate the printer with Durst inks only.
- ▶ Use only the refill tank intended for the printer.
- ▶ Wear protective gloves and safety goggles when cleaning the print heads, adding ink or emptying the waste tank.
- ▶ Avoid allowing ink to contact your face or eyes, e.g. by rubbing your eyes with dirty hands.
- ▶ If contact with the skin occurs, wash affected areas with pH-neutral soap and water.
- ▶ Carry out all specified inspection and cleaning work.

8.6 Ozone buildup

To prevent ozone from building up in the room, Durst recommends setting up the external ventilator with a switch-off time delay. The switch-off time delay should switch off the ventilator at least 10 minutes after the printer is switched off.

The external exhaust equipment must be capable of extracting the required minimum exhaust quantity (→ Page 115 / Technical data).

- ▶ Do not switch off external ventilator for exhaust during printing.

8.7 Pneumatic system

The pneumatic circuits for generating a vacuum at the print head, conveyor belt and ink transport are under pressure. Ink which is ejected suddenly from leaky lines and connections or compressed air released suddenly from leaky lines and connections can cause severe injury.

- ▶ Ensure that the required service work is carried out regularly by Durst customer service.

8.8 Danger of falling

There is a danger of falling when climbing components of the printer. Components can also be damaged.

- ▶ Do not use components of the printer as climbing aids.

8.9 Weights

Falling media present the following dangers:

- Danger of impact and crushing due to heavy weight
- Danger of cuts from sharp edges
- ▶ Wear safety shoes.
- ▶ Perform the following measures before loading/unloading:
 - Ensure that there are no obstacles near the printer.
 - Ensure that the printer has a secure footing.

9 Protective equipment

9.1 Safety goggles and protective gloves

- ▶ When cleaning components which come into contact with ink, wear the protective gloves provided for this purpose and recommended safety goggles (→ Page 117 / Accessories and spare parts).

9.2 Safety shoes

- ▶ Wear safety shoes when loading and unloading media.

10 Maintenance and cleaning



If the service work is not carried out sufficiently, all warranty and guarantee claims are null and void.

- Apart from the activities described in the "Service" section, the customer may not perform maintenance or cleaning work. Regular and additional special service may only be performed by authorized Durst service technicians.
- Only spare parts and consumable media which have been specially developed and optimized by Durst may be used.
- When cleaning the housing or workstation, the printer and workstation must be switched off and de-energized via the power isolator.

11 Disposal

- Tools and accessories that come into contact with ink must be disposed of in an environmentally-friendly manner according to local regulations. This includes, among other things:
 - Ink and ink waste
 - Cleaning cloths
 - Protective gloves
 - Air filter
 - Refill filter
 - Ink filter
- Information on proper disposal of Durst inks can be found on the data sheet for media safety contained in the ink refilling set or which can be obtained from Durst Phototechnik AG.

12 Emergencies

12.1 Emergency-Stop switch

1 Emergency-Stop switch

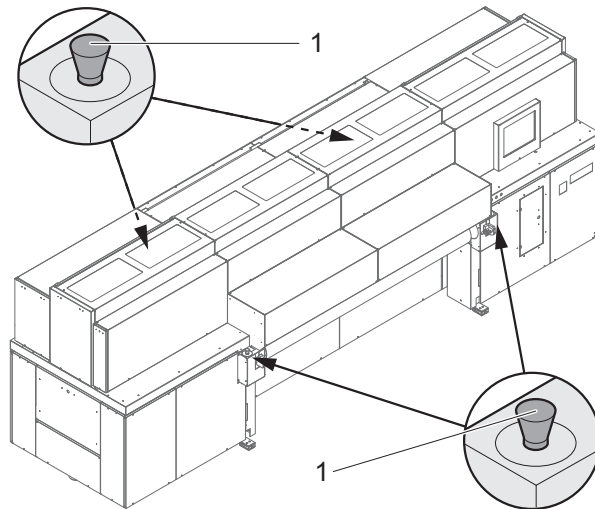


Fig. 2 Emergency-Stop switch

The printer can be switched off with the main switch or one of the Emergency-Stop switches (1).

12.2 What to do in case of an emergency

12.2.1 Printer shutdown

- ▶ Switch off the printer with one of the Emergency-Stop switches or the main switch if a fault occurs which could endanger personal safety.

12.2.2 First aid in case ink contacts skin, mucous membranes or eyes

- ▶ Wash affected areas with pH-neutral soap and water. Under no circumstances should solvents be used, as it remove oils from the skin and increase irritation.
- ▶ Change your clothes immediately if heavy contamination has occurred.
- ▶ If some spray has entered your eyes, wash your eyes immediately with lots water and contact a doctor.

12.3 Switching on the printer again after an emergency stop

12.3.1 Reactivating an Emergency-Stop switch

1. Turn Emergency-Stop switch to the right.
 - ↳ Emergency-Stop switch pops out
2. Switch on printer.

13 Faults

13.1 Handling faults

- ▶ If the printer stops unexpectedly:
 - Switch off the printer with the Emergency-Stop switch and/or the main switch.
 - Notify the Durst customer service.
- ▶ If a paper jam occurs, never reach under the covers with your hand.

14 Avoiding damage to property

14.1 Print head maintenance

The print heads can be damaged if the ink dries out.

- ▶ Carry out all prescribed maintenance work on the print heads.

14.2 Careful handling of the encoder ruler

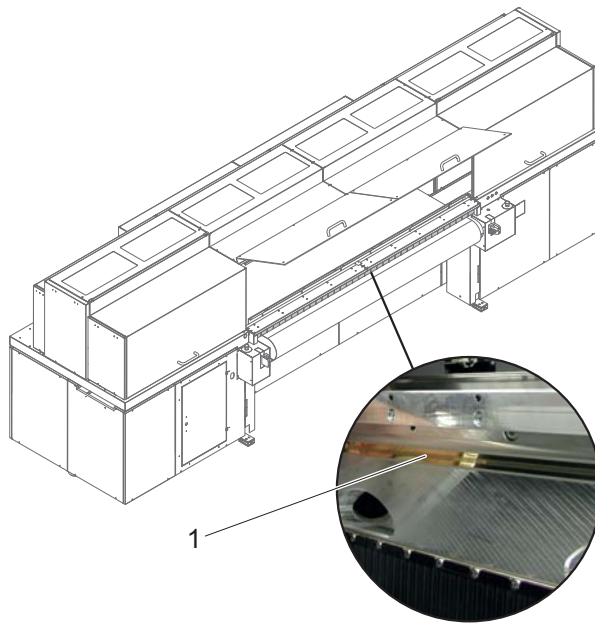


Fig. 3 Encoder ruler

Scratching of the encoder ruler (1) reduces the functionality of the printer.

- ▶ Do not touch the encoder ruler with hard objects.

14.3 Careful handling of the conveyor belt

1. Do not damage the conveyor belt.
2. Do not soil the conveyor belt.
3. Do not clean the conveyor belt with aggressive cleaning fluids.
4. Remove soiling from the conveyor belt only by means of adhesive tape.

14.4 Media

Unsuitable media can cause a collision with the print carriage.

Examples:

- Bent sheet metal
- Media with uneven surfaces
- Media with insufficient temperature stability
- Media with ribs or ridges
- ▶ Do not load media which could cause a collision.

14.5 Purge

Incorrect cleaning of the nozzle plate can cause print heads to dry out. This will lead to decreased printing quality or even the failure of individual nozzles.

Due to soiling on the nozzle plate, the ink can be smeared on the printed medium.

Soiled filters can lead to malfunctioning of the exhaust and ventilation. This can cause electronic components to fail.

Soiling on the conveyor belt and on the encoder ruler reduce print quality.

Unsuitable cleaning tools, corrosive cleaning agents and the penetration of liquids into the printer or workstation can cause damage.

- ▶ Carry out all specified cleaning work.
- ▶ Use only the specified cleaning tools.

14.6 Lubrication

Improper lubrication of the carriage guide and the use of the lubricating plates past the specified usage duration shortens the service life of the bearings.

- ▶ Carry out all specified service work.

14.7 Changing the UV lamps

Insufficient UV exposure can cause the following damage:

- Moist, sticky printed media
- Unhardened ink on components of the printer
- ▶ Change UV lamps according to the specified intervals (→ Page 75 / Service).

C Description

1 Printer

Task The printer prints coated and uncoated plate or roll media, such as rigid- and flexible-foam panels, aluminum, acrylic glass, polycarbonate, etc. with a width of up to 2.5 m.

Components The printer consists of the following components:

- 1 UV lamp head
- 2 Print carriage
- 3 Operating panel
- 4 Roller table (optional)
- 5 Medium

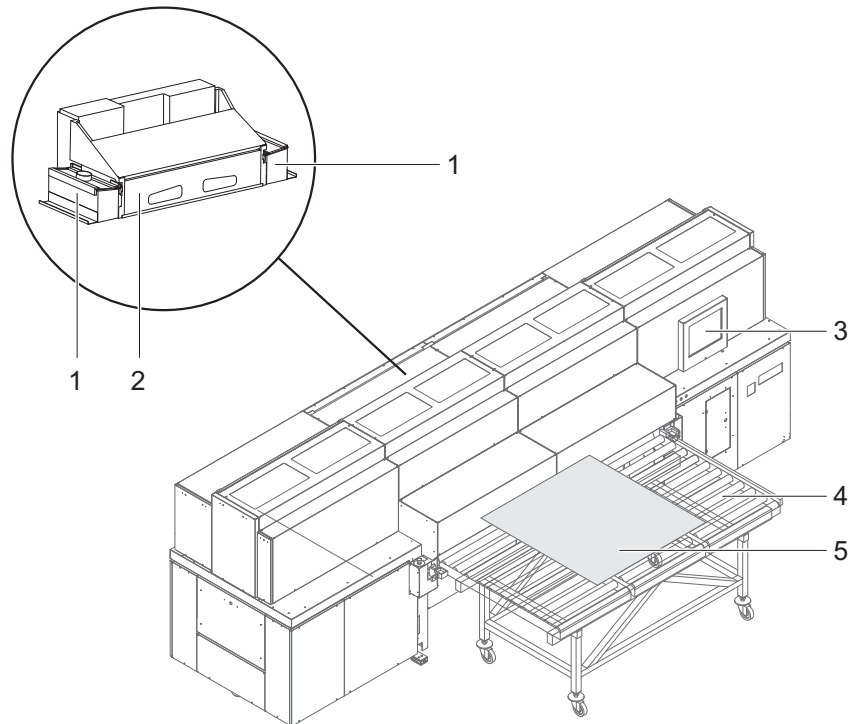


Fig. 4 Components of the printer (end at which the operating panel is located: loading side)

Function The medium (5) is fed from the loading side. Usage of the roller table (4) allows plate media to be fed continuously on a larger scale.

Transport rollers on the inside of the printer transport the medium through the printer during the printing process.

The printer is operated at the operating panel (3).

During printing, the print carriage (2) passes over the medium. The print heads on the print carriage print the medium with ink. The UV lamps in the UV lamp head (1) dry the ink on the medium.

1.1 Heavy Roll Tool 30 (optional)

Task Using the Heavy Roll Tool 30, roll media weighing up to 300 kg can be loaded.

Components The Heavy Roll Tool 30 is comprised of an unwinding unit on the loading side and a winding unit on the unloading side. The winding and unwinding units have essentially the same design

- 1 Roll mount
- 2 Roll medium
- 3 Roll-end sensor
- 4 Optical sensor

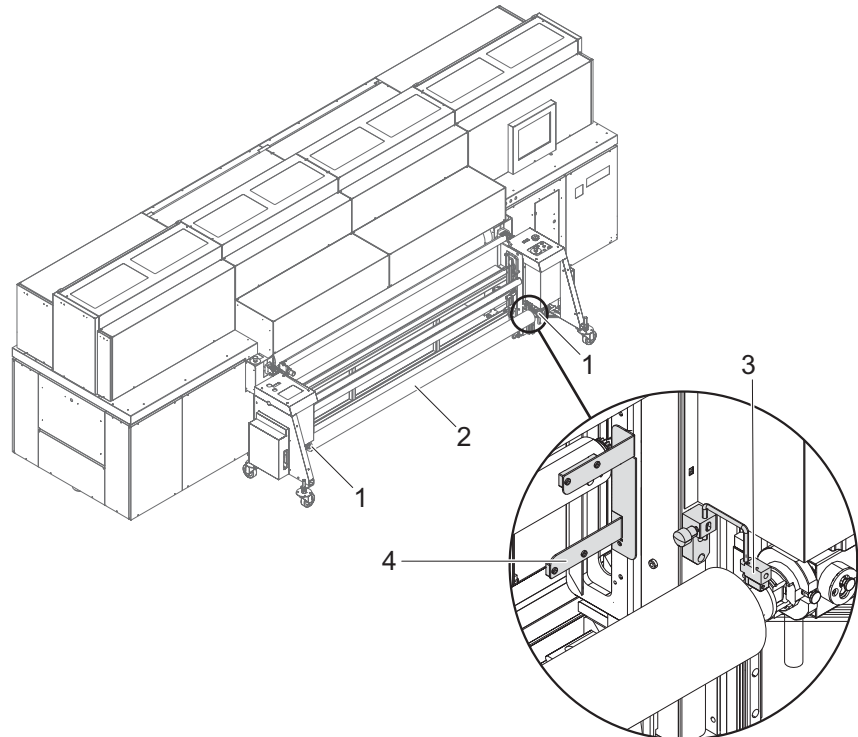


Fig. 5 Components of the Heavy Roll Tool 30 (here: unwinding unit on the loading side)

Function The core of the roll medium (2) rests on an axis that is borne in the roll mounts (1) of the unwinding unit or winding unit. Locking jaws on the axis are pressed against the core using compressed air. This secures the core on the axis.

The roll medium is lead through the printer over the redirection and tensioning rollers and wound on the winding unit on the unloading side.

Drives controlled via optical sensors (4) wind and unwind the medium.

The roll-end sensor (3) on the unwinding unit detects when the roll medium is fully unwound. The printing process is then automatically interrupted, and a message appears in the software.

1.2 Light Roll Tool (optional)

Task Roll media up to a weight of 70 kg are loaded with the Light Roll Tool.

Components The Light Roll Tool is comprised of an unwinding unit on the loading side and a winding unit on the unloading side.

- 1 Roll mount
- 2 Redirection roller

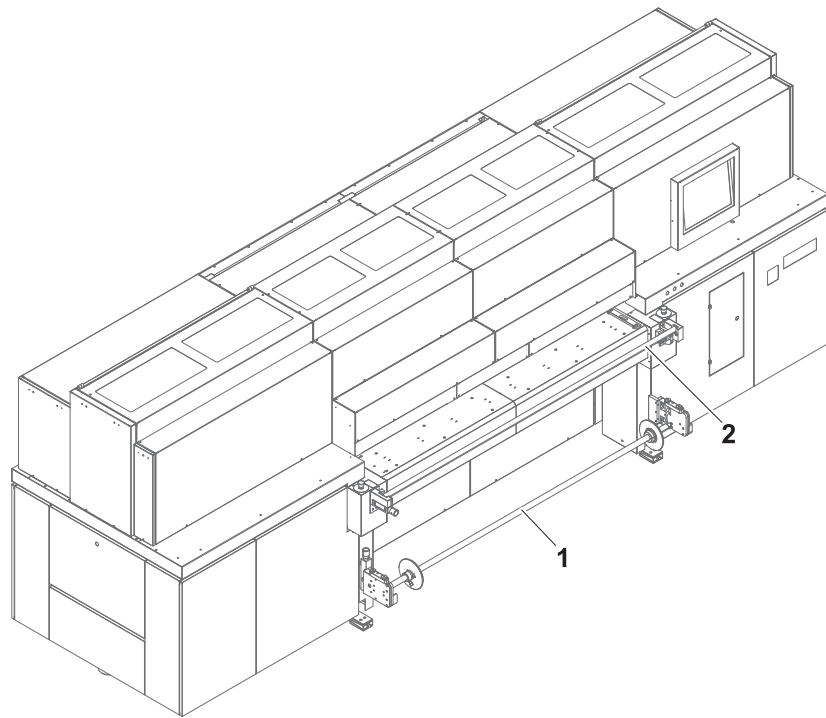


Fig. 6 Components of the Light Roll Tool (here: unwinding unit on the loading side)

Function The core of the roll medium rests on an axis that is borne in the roll mounts (1) of the unwinding unit or winding unit.

The roll medium is lead through the printer over the redirection roller (2) and wound on the winding unit on the unloading side.

1.3 Workstation

Task The printing process is controlled and monitored at the workstation.

Components

- 1 Touch screen
- 2 Computer

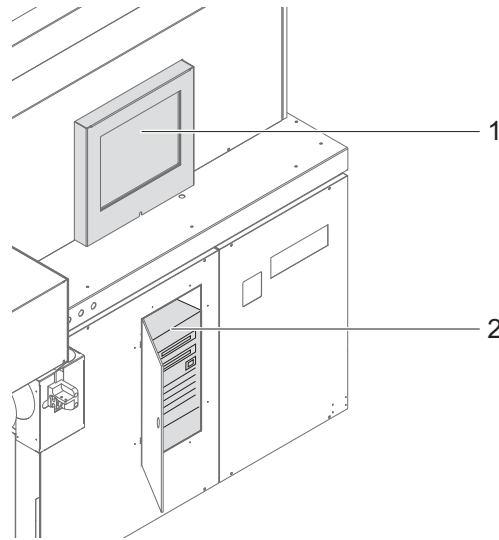


Fig. 7 Workstation

The workstation is comprised of a computer (2) and a touch screen (1).

Function The workstation makes available the software for controlling the printer.

The images to be printed can be loaded via a network cable to the workstation from the external CALDERA RIP station.

The operator performs the following activities at the touch screen:

- Preparation of the printer for loading the medium and for maintenance work
- Basic printing settings
- Modification of print parameters
- Sorting of images in the printing queue
- Initiation of the printing process

1.4 Ink supply unit

Task The ink supply unit provides the print heads with ink of different colors.

Components

1 Ink supply unit

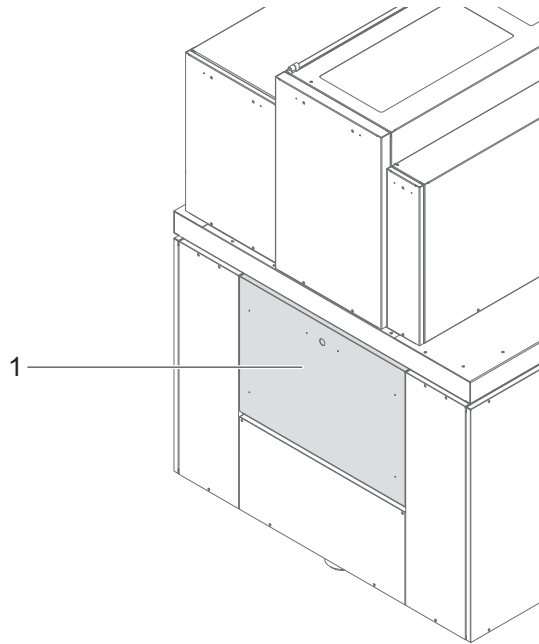


Fig. 8 Ink supply unit

Depending on the version, the ink supply unit (1) contains 4 to 8 ink tanks for ink of different colors and loading compartments for cubitainers.

Function The ink is stored in the ink tanks. New cubitainers are connected in the loading compartments to refill the ink tanks.

1.5 Cleaning system

Task The purging system is used for automatic and manual purging of the print heads.

Components The cleaning system consists of a catch tank and a cleaning access point.

- 1 Catch tank
- 2 Cleaning access point

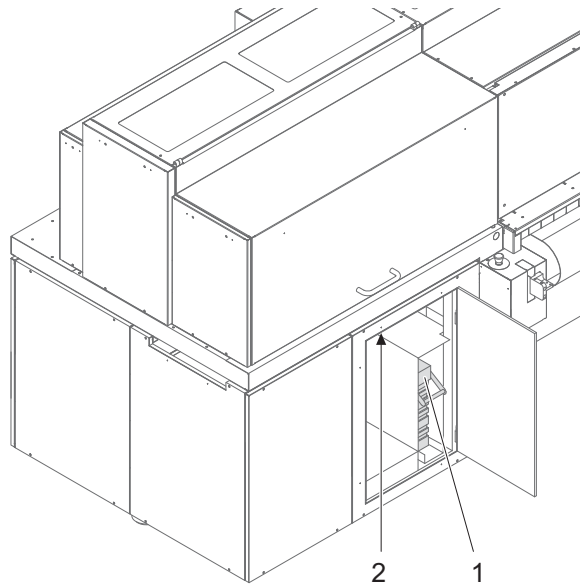


Fig. 9 Cleaning system

Function When the purging function is initiated, ink is forced through the print heads and collected in the catch tank (1).

The cleaning access point (2) allows manual cleaning of the print heads from below.

2 Workflow

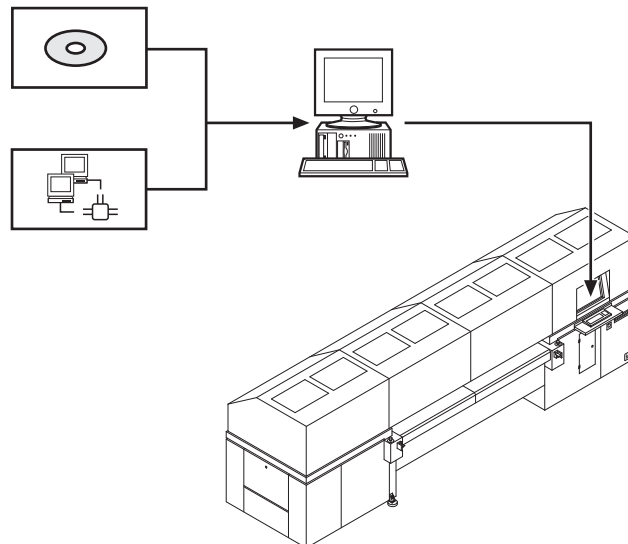


Fig. 10 Workflow

The image files to be printed are loaded onto an external RIP server via CD/DVD, USB stick, external USB hard disk or network. A DTP professional or an automated workflow then fully prepares the image files for printing. The prepared image files are then transferred to an input queue of the printer via the network.

The operator selects or checks the desired print options at the operating panel of the printer. He/she then adds the image files to the printing queue. The image data is printed automatically in succession there.

D Transport, installation and commissioning

Transport, installation and commissioning are performed by service technicians authorized by Durst Phototechnik AG.

E Operation

1 Overview of daily work

1.1 Carrying out the daily work

- Preparing printer**
- ✓ The workstation is booted up
 - ✓ Printer is switched on with the main switch
 - 1. Close flip doors.
 - 2. Start the software.
 - 3. Press **Printer > Printer** in the software.
 - 4. Under **Printer Startup**, press the **Initialize** button.
 - ↳ The print carriage, printing table and all motors move to the reference position.
 - ↳ The interface between the internal electronics and workstation is initialized.
 - ↳ The UV lamp system is initialized.
 - 5. Carry out the work of daily print head maintenance (→ Page 102 / Print head maintenance).
 - 6. Check fill level of ink and refill ink if necessary.
- Printing**
- 7. If printing extends past the medium edge, tape the conveyor belt at the edges of the medium to prevent soiling.
 - 8. Prepare images on external RIP server and send them to printer.
 - 9. Select or check print options at the workstation.
 - 10. Move images to the queue.
 - 11. Print media.
- Finishing work**
- i** For economical work, we recommend not shutting down the workstation when switching off the printer.

This allows you to prepare files and transfer data from the RIP server to the workstation even if the printer is switched off. You can also use the auto timer for switching on ink heating.
 - 12. Print a test image and archive it.
 - 13. Press **Printer > Printer** in the software.
 - 14. Press the **Daily** button under **Printer Shutdown**.
 - ↳ The ink heating is switched off.
 - ↳ The UV lamp system is switched off.
 - 15. Close all doors to prevent ambient light from shining in.

2 Main operating elements and displays

- 1 Key switch
- 2 Lamp
- 3 Acoustic signaller
- 4 Main switch

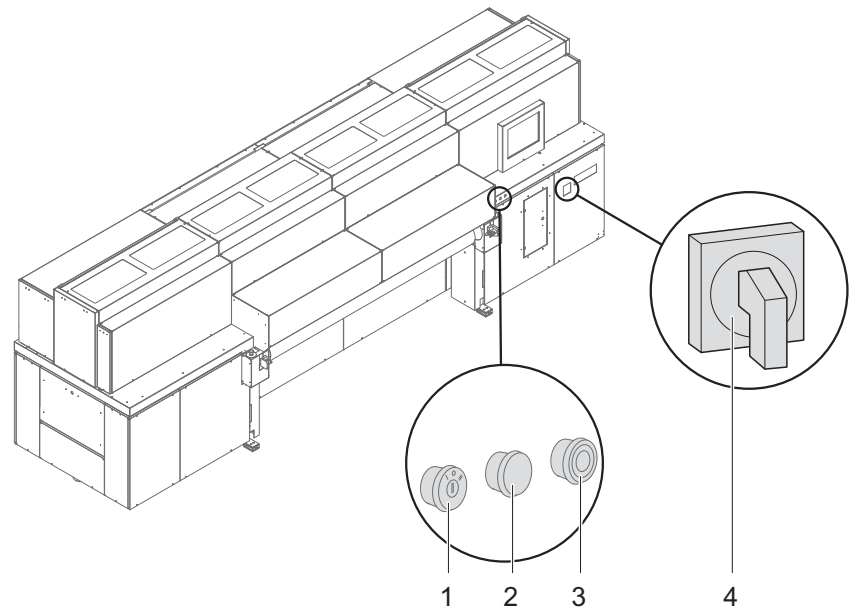


Fig. 11 Main operating elements

Button The main operating elements and displays have the following function:

Position	Operating element	Function
1	Key switch	<p>Select operating mode:</p> <ul style="list-style-type: none"> ■ 0: Safety setting: <ul style="list-style-type: none"> – All drives blocked – UV lamps switched off – Electrical components still energized – Emergency-Stop switch ready for operation ■ 1: Normal mode (all safety circuits must be closed; otherwise, the corresponding component is blocked) <ul style="list-style-type: none"> – All connected peripheral devices are operated. ■ 2: Device-change position (only active for 10 min) <ul style="list-style-type: none"> – Enables changing of peripheral devices (tables, stacking unit, Heavy Roll Tool, etc.) without the main switch dropping to 0. – All drives blocked – UV lamps switched off – Electrical components still energized – Emergency-Stop switch bridged
2	Lamp	For manual loading of plate media: Lamp lights up when the next plate medium can be inserted.
3	Acoustic signaller	For manual loading of plate media: An acoustic signal is emitted when the next plate medium can be inserted.
4	Main switch	<ul style="list-style-type: none"> ■ Switch printer on and off. Electrical components are still energized. ■ The printer is only switched off at the main switch for maintenance or a longer standstill. ■ The workstation is still supplied with power when the printer is switched off at the main switch.

Operating mode **2** can only be maintained for max. 10 minutes. The printer is then switched off at the main switch and must be switched on again and reinitialized.

The printer can only be switched to the **0** or **1** operating mode if all the control connections for peripheral devices are bridged. This is ensured by the following measures:

- Connection of a peripheral device
- Insertion of a jumper

3 Workstation

3.1 Booting up workstation

1. Switch on main switch of computer.
 - ↳ The LED illuminates.
 - ↳ The computer boots up.
 - ↳ The Linux screen interface appears on the monitor after booting up.
2. If an auto logon is not installed, log on with the following data:
 - User name: root
 - Password: Digilarger

3.2 Shutting down workstation

i Only the software should be exited daily, without shutting down the workstation. The monitor switches off automatically.

We recommend only shutting down the workstation if the unit will not be used for more than two days.

- ✓ The software has been exited
- ▶ Shut down Linux operating system.
- ↳ Once the Linux operating system has shut down, the workstation switches off automatically.

3.3 Connecting a USB stick/an external USB hard disk

i Data transfer from an external USB hard disk, for example, only makes sense via the connected RIP server since the image data to be printed must be in the 1-bit format.

NOTICE

Connection of an incompatible device to the workstation!

Damage to the workstation

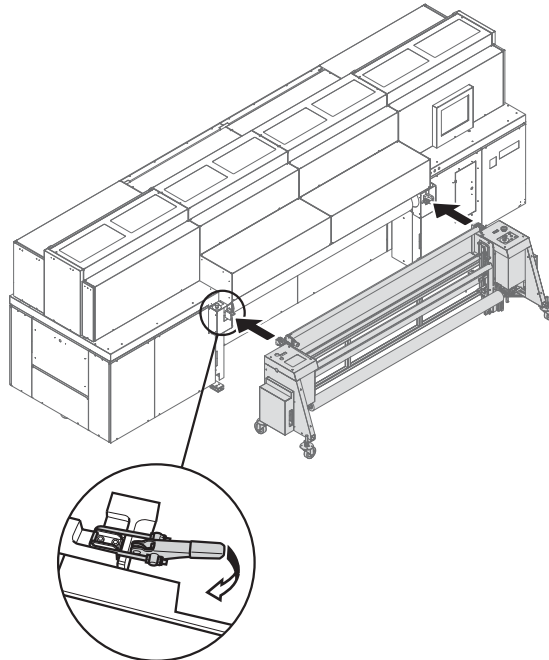
- ▶ Connect only SELV-compatible devices to the workstation.

- ▶ Connect a USB stick/USB hard disk to the USB port of the computer.

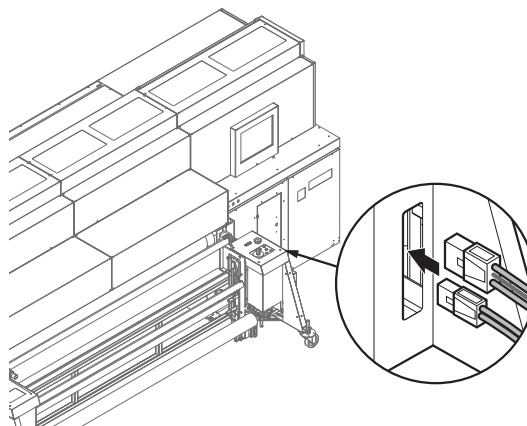
4 Heavy Roll Tool 30 (optional)

4.1 Docking Heavy Roll Tool 30

The unwinding unit is docked on the loading side, and the winding unit is docked on the unloading side in the same manner.



1. Slide the Heavy Roll Tool 30 into the guide of the printer.
2. Close clamping lock.



3. Connect power cable to the connector on the unwinding unit and to the connector on the printer (1).
4. Attach connecting cable (2) to the connectors on the unwinding and winding units.

4.2 Operating drives of the unwinding and winding units

The drives of the unwinding and winding units are operated at the operator panels, one of which is located on each of the right and left sides.

- 1 **UP**
- 2 **DOWN**
- 3 Selector switch
- 4 **REVERSE**
- 5 **FORWARD**

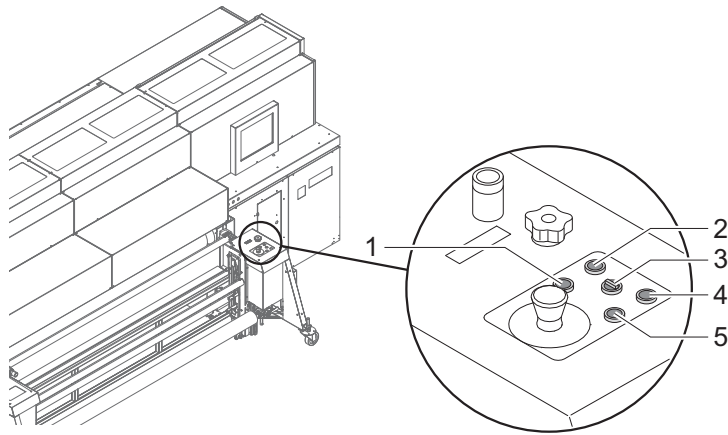


Fig. 12 Operator panel

4.2.1 Setting axis drives to automatic operation

- ▶ Depending on the desired rotation direction, set the selector switch to **Autom. Forward** or **Autom. Reverse**.

4.2.2 Rotating axis drives forward and in reverse manually

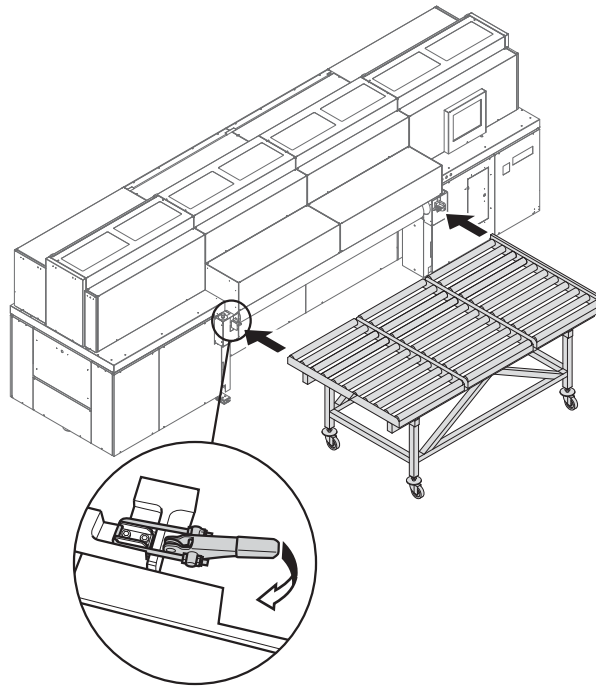
1. Set selector switch to **Manual**.
2. Press and hold the **FORWARD** or **REVERSE** button as long as desired.

4.2.3 Moving unwinding or winding unit up or down

- ▶ Press and hold the **UP** or **DOWN** button as long as desired.

5 Roller table (optional)

5.1 Docking the roller table



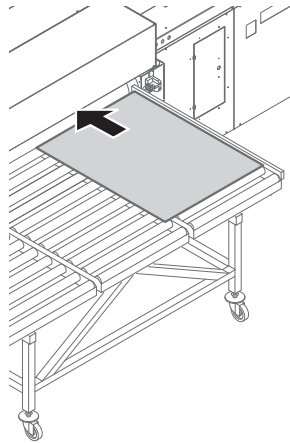
1. Slide roller table into the guide mechanism of the printer.
2. Close clamping lock.

6 Loading medium

6.1 Loading plate medium with roller table

6.1.1 Loading a narrow medium without a mechanical front stop

1. Select the desired media channel in the software. Select the following settings here:
 - Activate **Board**.
 - Deactivate **Mechanical Front Stop**.
 - If several media are to be loaded one after another: Activate **Manual Continuous Feeding**.

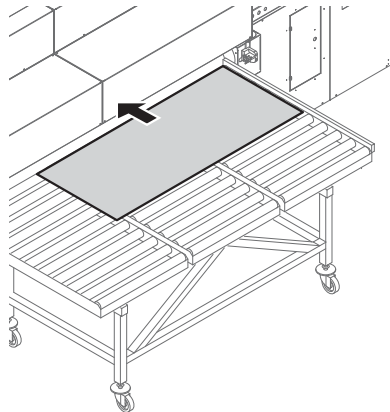


2. Lay medium right-aligned on the conveyor belt and slide it into the printer.
↳ The optical sensor automatically recognizes the medium edge.

6.1.2 Loading a wide medium with a mechanical front stop

The mechanical front stop is used for the proper loading of short, wide media. The mechanical front stop is only used for stiff media which are at least 3 mm thick. If the mechanical front stop in the media channel is activated, it moves downward when loading the medium.

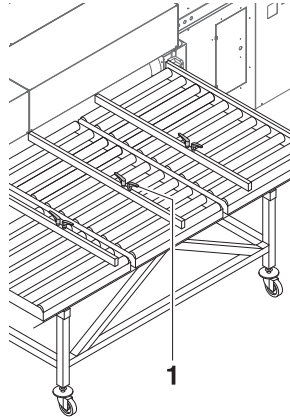
1. Select the desired media channel in the software. Select the following settings here:
 - Activate **Board**.
 - Activate **Mechanical Front Stop**.
 - Deactivate **Manual Continuous Feeding**.



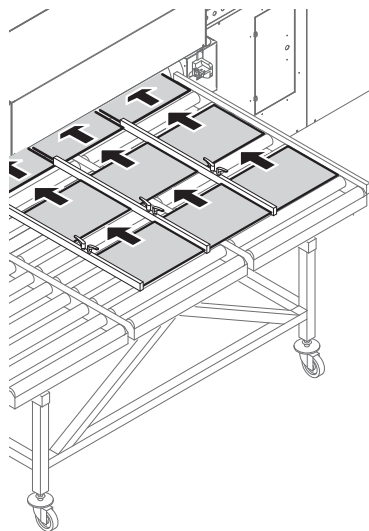
2. Lay medium right-aligned on the conveyor belt.
↳ An acoustic signal sounds as soon as the medium contacts the sensor of the mechanical stop.

6.1.3 Printing several rows serially (optional)

The medium must have the same size if several webs of medium are to be loaded side by side. The guide rails are used to guide the webs on the roller table. They have to be set to the medium width.



1. Lay the desired number of guide rails (1) on the roller table so that exact guiding of the media webs can be ensured.
2. Fasten the guide rails using the screw lock.
3. Lay the desired number of media between the guide rails on the roller table.
4. Select the desired media channel in the software. Select the following settings here:
 - Activate **Board**.
 - Deactivate **Mechanical Front Stop**.
 - If several media are to be loaded one after another: Activate **Manual Continuous Feeding**.
 - Enter the number of rows.



5. Lay further media on the roller table while the media are being drawn in.
 - ↳ The media are transported automatically to the printer.

6.2 Loading roll medium with Heavy Roll Tool 30

A roll medium is loaded in the following steps:

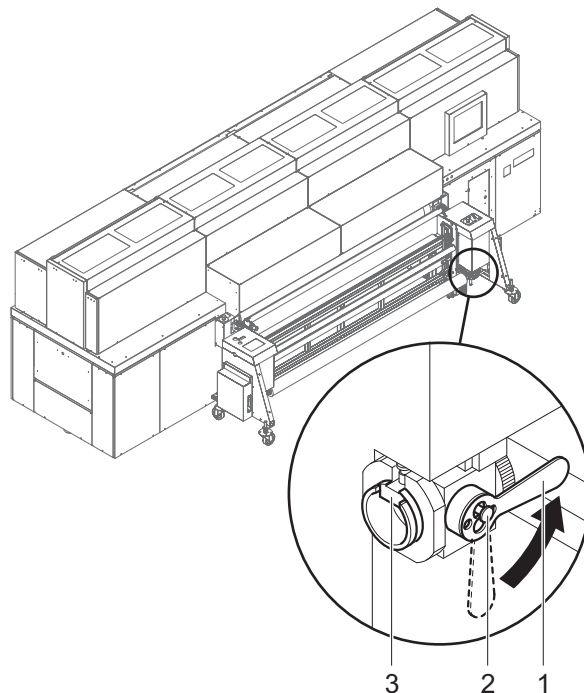
- Initiate loading process in the software.
- Insert roll medium on the loading side.
- Insert empty core on the unloading side.
- Guide roll medium through the printer.
- Aligning roll medium.
- Set roll-end sensor.
- Commission unwinding and winding units.

6.2.1 Initiating loading procedure in the software

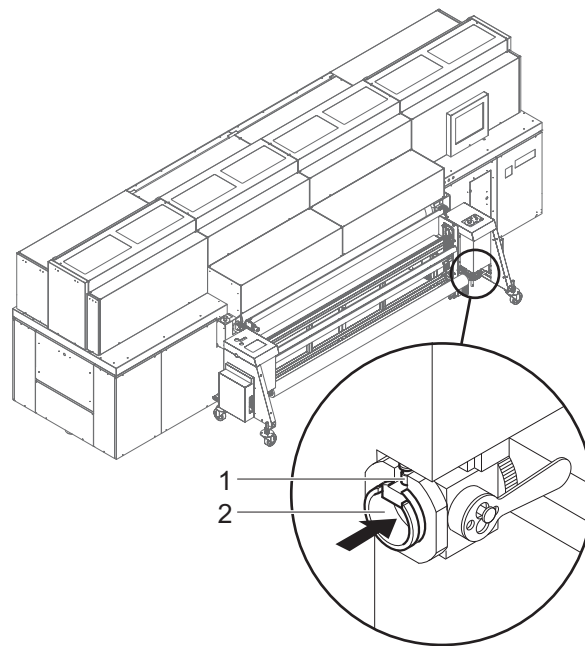
- ▶ Select the desired media channel in the software. Ensure that **Roll Media** and **Heavy Roll Tool** are activated in the media channel (→ Page 59 / Managing media channels).

6.2.2 Inserting roll medium on the loading side

1. Move unwinding unit to the bottom position.



2. Disengage locking button (2) for coupling.
3. Rotate lever (1) to the horizontal position to decouple the roll mount from the drive.
4. Turn roll mount manually until the groove (3) faces upward.



5. Open grooves of the right and left roll mounts in the following manner:
 - Disengage locking button (2).
 - Slide sliding ring in such a way (1) that the groove is exposed.

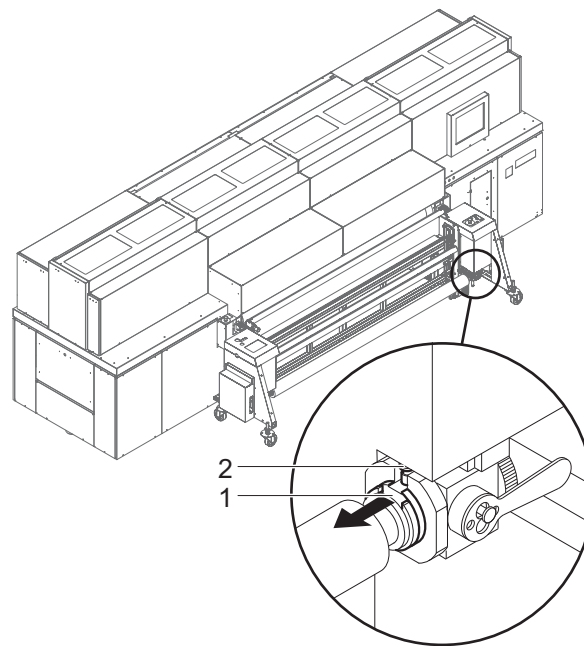
⚠ WARNING

High weight of the medium!

Danger of crushing when inserting the ends of the axes into the roll mount

- ▶ Wear protective gloves.
- ▶ When loading the roll, do not grip the ends of the axes.

6. Using a hand lift, position the roll with the axis in such a way that the axis ends are located above the grooves in the roll mounts.
7. Move unwinding unit to the top position. Allow the axis ends to slide into the grooves and take the roll upward.



8. Secure both axis ends as follows:
 - Disengage locking button (2).
 - Slide sliding ring (1) over the axis end.
 - Lock locking button.

6.2.3 Inserting empty core on the unloading side

- ▶ Insert empty core to wind up the roll medium in the same manner as the roll medium on the loading side.

6.2.4 Guiding roll medium through the printer

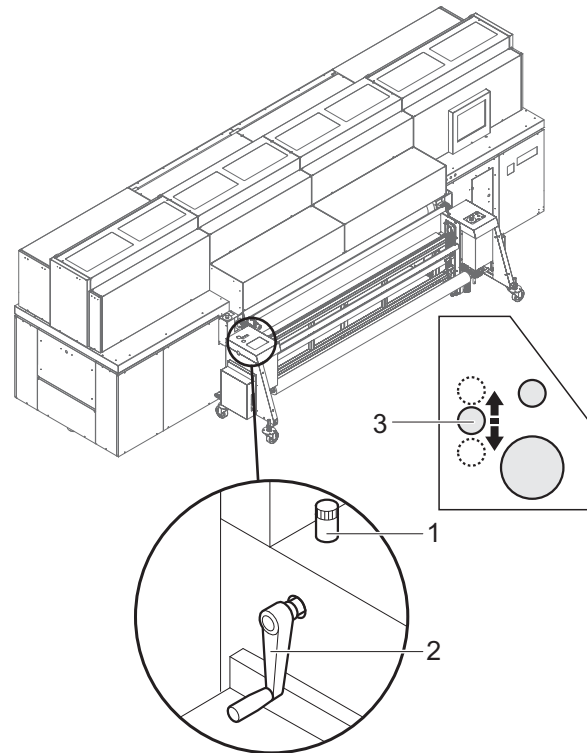


Fig. 13 Moving the tensioning roller upward (movement of the tensioning roller (3) shown schematically)

1. To make threading of the roll medium around the tensioning roller easier, carry out the following measures on the unloading and loading sides:
 - Loosen set screw (1).
 - Move tensioning roller (3) upward with crank (2).
 - Secure tensioning roller with set screw.

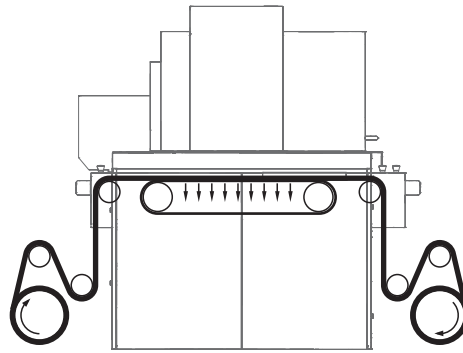


Fig. 14 Guide roll medium around tensioning roller and redirection rolls (shown here: schematically for front printing)

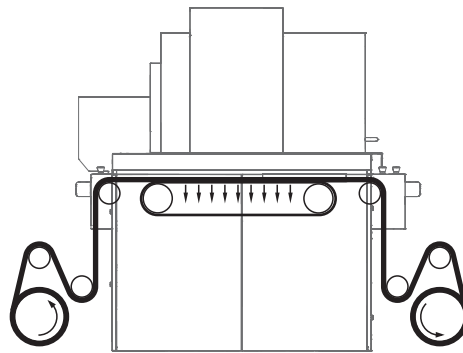
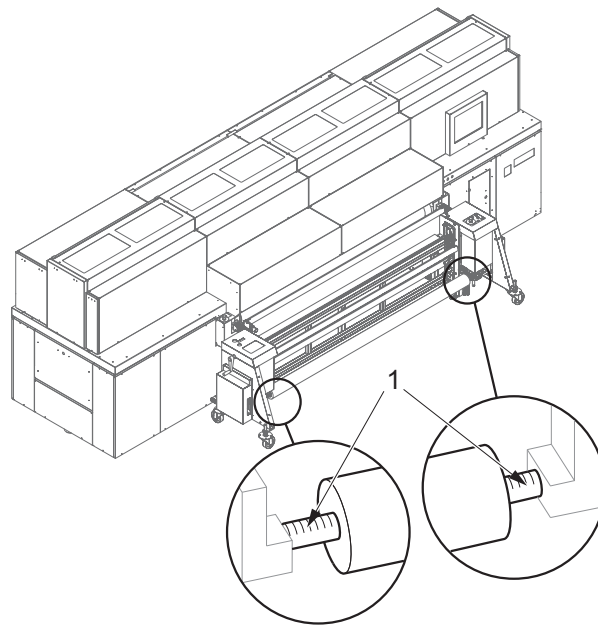


Fig. 15 Guide roll medium around tensioning roller and redirection rolls (shown here: schematically for back printing)

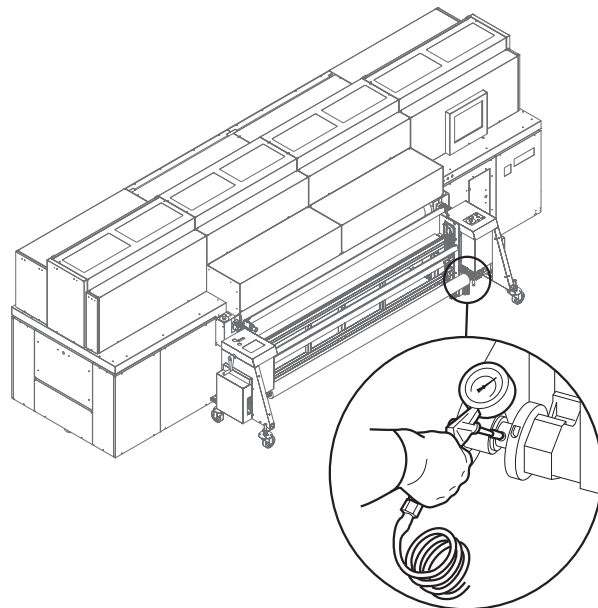
2. Guide roll medium around tensioning roller and redirection rolls.
3. Guide roll medium through the printer.
4. Guide the roll medium around the redirection rolls and tensioning roller in the same way at the winding unit and attach it to the empty core.
5. Return tensioning rollers to bottom position on unloading and loading sides.

6.2.5 Aligning the roll medium

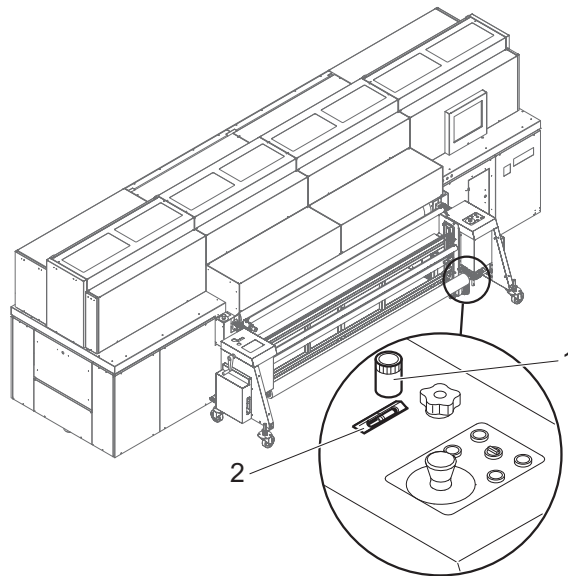
Carry out the following measures on both the loading and unloading sides.



1. Pre-position roll on the axis manually using the markings (1).

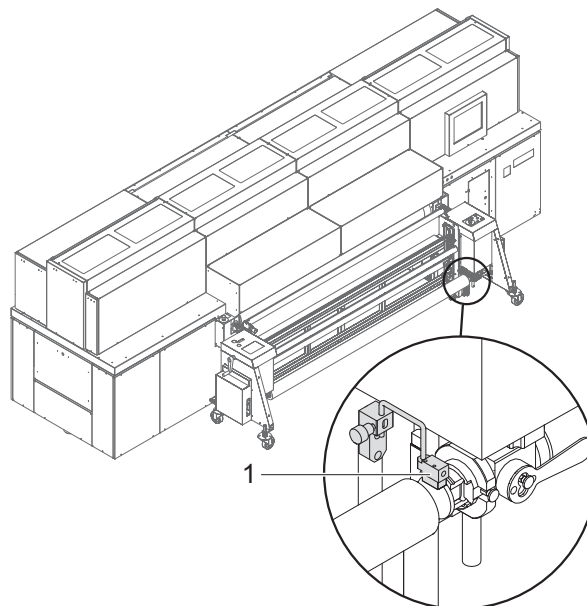


2. To secure the roll on the axis, place air blow gun on valve and fill compressed air into valve.
↳ The roll is secured to the axis via the locking jaws.



3. Using the controller (1), position the medium horizontally in such a way that it contacts the stop.
 - ↳ The horizontal position is shown on the scale (2).

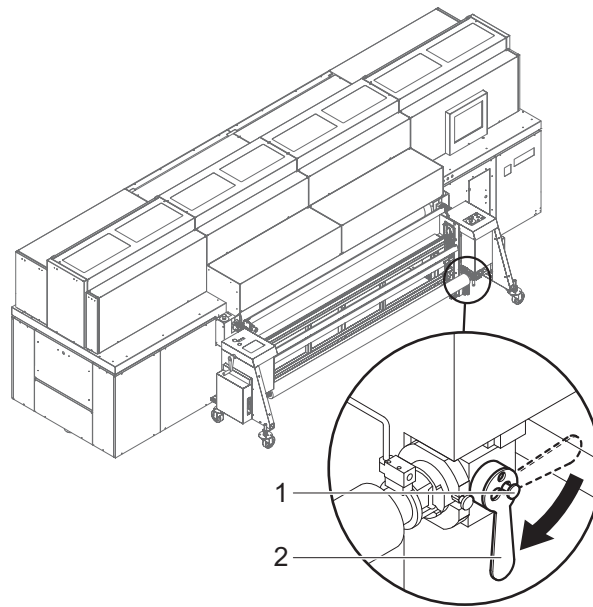
6.2.6 Setting the roll-end sensor



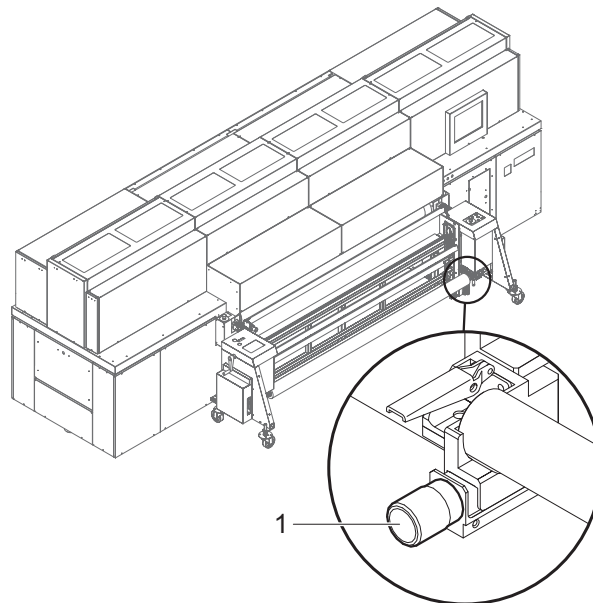
- ▶ Set the roll-end sensor (1) on the unwinding unit to the desired height.

6.2.7 Commissioning unwinding and winding units

Carry out the following measures on both the loading and unloading sides.



1. Turn lever (2) down to the vertical position to couple the roll mount to the drive.
2. Engage locking button (1).
3. Set drive to automatic operation at the operator panel.



4. If necessary, adjust the roll medium for straight running, e.g. if it is throwing folds, with the straight-running controller (1).

6.3 Loading roll medium with Light Roll Tool

A roll media is loaded with the Light Roll Tool in the following steps:

- Initiate loading process in the software.
- Insert roll medium on the loading side.
- Insert empty core on the unloading side.
- Guide roll medium through the printer.
- Aligning roll medium.
- Activate centered loading if necessary.

6.3.1 Initiating loading procedure in the software

- ▶ Select the desired media channel in the software.

6.3.2 Inserting roll medium on the loading side

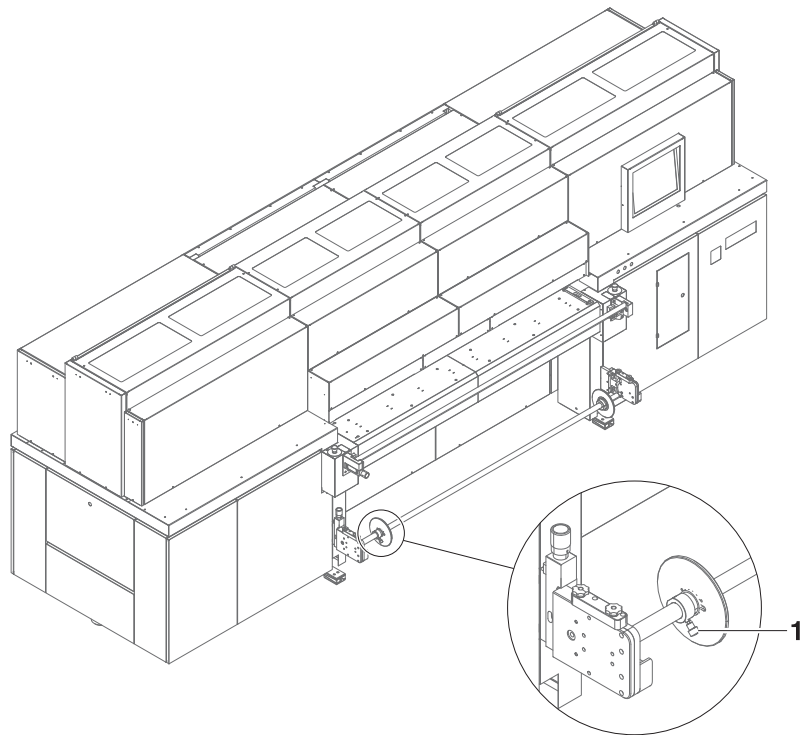
- ✓ Roll does not exceed maximum diameter of 190 mm
- ✓ Roll does not weigh more than 50 kg

▲ WARNING

High weight of the medium!

Danger of crushing when inserting the ends of the axes into the roll mount

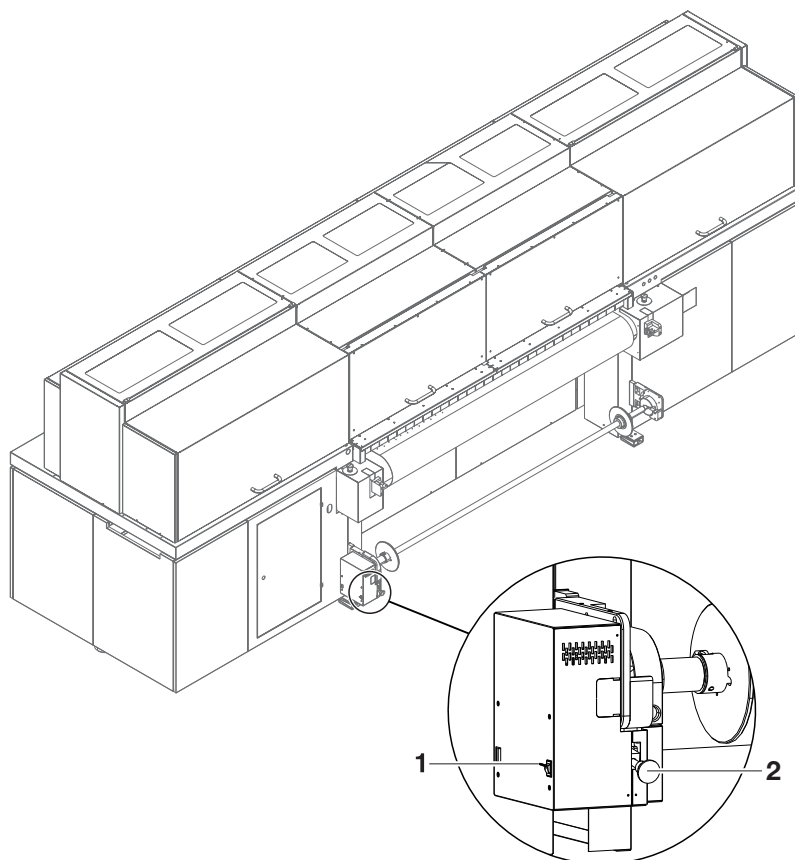
- ▶ Wear protective gloves.
- ▶ When loading the roll, do not grip the ends of the axes.



1. Insert the axis into the core of the roll.
2. Push core onto the flange provided for this purpose.

3. Push axle into the retainer with a slight jerk.
4. Reposition flange and roll if necessary:
 - Lift and turn fixing bolt.
 - Reposition flange and roll.
 - Tighten set screws (1) on both flanges to secure the position of the roll.
5. Insert redirection roller into the roller-borne guides.

6.3.3 Inserting empty core on the unloading side



1. Open the protective cover on the side of the winding motor.
2. Align axle so that the side with the gear wheel attached is on the side of the winding motor.
3. Push axle into the retainer with a slight jerk.
4. Pull out lever (2) on the side of the winding motor and lift it up to couple the gear wheels.
5. Reposition flange and roll if necessary:
 - Lift and turn fixing bolt.
 - Reposition flange and roll.
 - Tighten set screws on both flanges to secure the position of the roll.
6. Close protective cover.
7. Switch on motor using the switch (1).

6.3.4 Guiding roll medium through the printer

1. Pull roll medium upwards and guide it around the redirection roller.
2. Guide roll medium onto the printing table.
3. Guide roll medium through the printer approx. 2 m.
4. Attach the roll medium to the empty core at the winding unit.

6.3.5 Aligning the roll medium

- ▶ If necessary, align the roll medium using the feed-side turning devices on the left-hand side of the Light Roll Tool:
 - Align redirection roller horizontally.
 - Align axle suspension height of the Light Roll Tool.

6.3.6 Loading a slim roll medium of high weight

To avoid sagging of the axle and skewing of the medium, slim roll media of high weight must be loaded centrally.

NOTICE

Heavy soiling of the conveyor belt!

The medium end cannot be detected by the sensor when loaded centrally.

- ▶ Ensure that the printing length is suitable for the media length.

1. Load roll medium centrally into the printer.
2. Ensure that central loading is activated in the desired media channel.

F Software

1 Basic functions

1.1 Installation

You can install the software either via the Durst FTP server or from a CD/DVD.

During the initial installation, you will have to enter the license number after starting the software in order to access all functions.

1.1.1 Installing software via the Durst FTP server

You can download software updates as an ISO file from the Durst FTP server.

- ▶ Contact Durst customer service for information on download and installation.

1.1.2 Installing software from CD / DVD

- ▶ Insert printer software CD/DVD and follow the instructions on the screen.

1.1.3 Entering software license

- ✓ The software has been started

1. Press **Setup** > **General**.
2. Press **Edit**.

- **i** Durst recommends retaining the installation CD together with the license number for future use.

3. Enter the supplied license number in the **Validation Code** entry box.
4. Press **Save**.




1.2 The menu bar

The menu bar is the starting point for all activities of the software. You can see the current program function at all times.



Fig. 16 Menu bar

The menu bar contains the following dialog elements, among other things:

Item	Function
	Open operating instructions
	Maximize/minimize program window
	Exiting the software

1.3 The status bar

The status bar informs you of the important current data of the printer, e.g. loaded medium, medium width, remaining length and ink fill level.

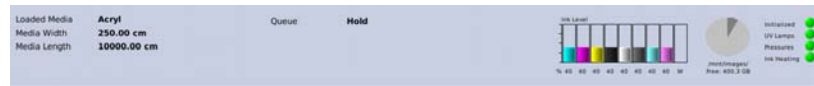



Fig. 17 Status bar

If the **Special mode** display appears and flashes, the function **Imprinting Settings (Setup > General under Special Printing Options)** is activated. This causes the printing settings to be printed on the image as well.

1.4 Basic operation

1.4.1 Starting the software

- ✓ Monitor and computer are switched on
- ✓ The Linux operating system has been started
- ▶ Press  twice.

1.4.2 Exiting the software

1. Press .
 - ↳ The **Durst Rho** dialog window appears.
2. Confirm with **Yes**.

1.4.3 Modifying parameters

Parameters can be changed on many tabs. The basic procedure is as follows:

1. Press **Edit**.
2. Modify desired parameters.
3. Press **Save**.

2 Configuration

2.1 Switch-on times

On the **Auto Timer** tab, you define the daily switch-on times for automatic ink heating.

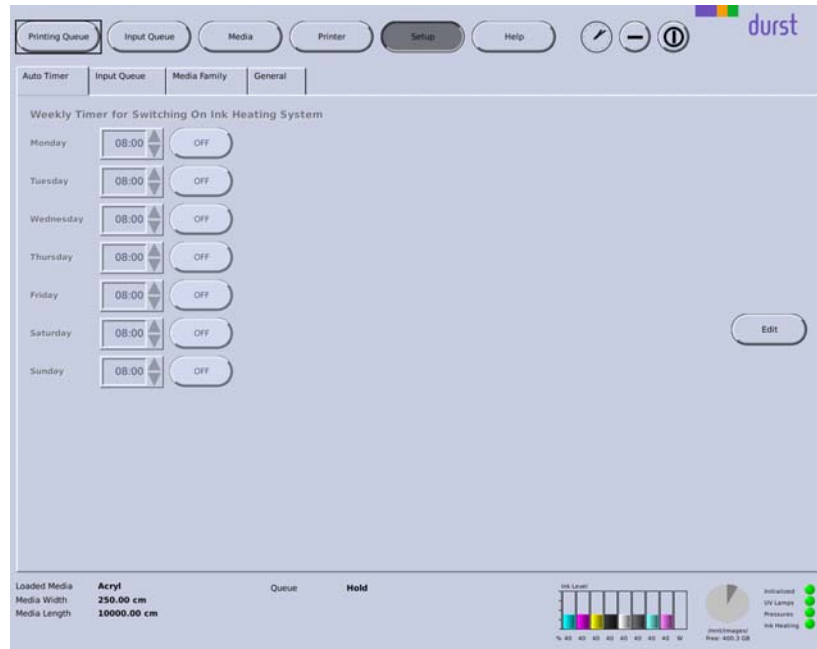


Fig. 18 Auto Timer tab

Using the auto timer saves time, as the required ink temperature has already been reached when work begins.

In order to use the auto timer, the printer must be switched on and initialized. The switch-on times use the system time of the work station for reference.

2.2 Input queue

On the **Input Queue** tab, you can create, rename and delete input queues individually for better clarity.

1 Navigation window

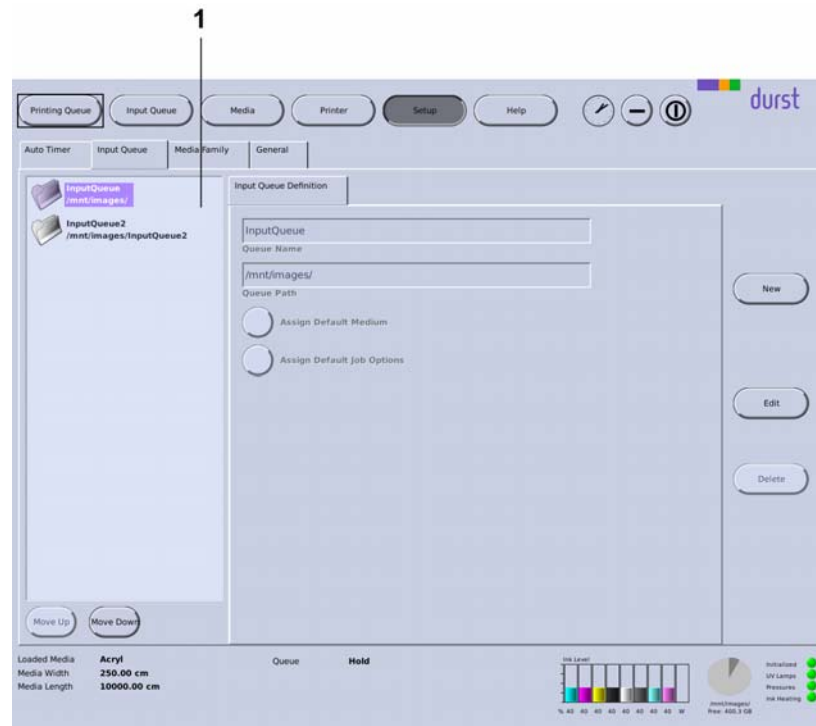


Fig. 19 Input Queue tab

The **Input Queue** is already created by default and cannot be deleted.

New New hotfolders are created with the **New** button.

Edit Parameters of the selected hotfolder are modified with the **Edit** button.

Delete The selected hotfolder is deleted with the **Delete** button.

2.3 Media families

As you must create separate media channels for the different medium thicknesses and blanks for each material, the number of media channels can become unclear very quickly. Therefore you can combine multiple media channels into a media family. Each media family is clearly identified by an ID number (**Family ID**). If a job is transferred from the RIP server to the corresponding input queue of the printer, it provides its ID number right away, thus indicating the media family to which it belongs. If you select the media channel for a job in the input queue, the software only offers you those media channels that are part of the media family of the job for pre-selection.

On the **Media Family** tab, you can create new media families and edit and delete existing media families.

1 Navigation window

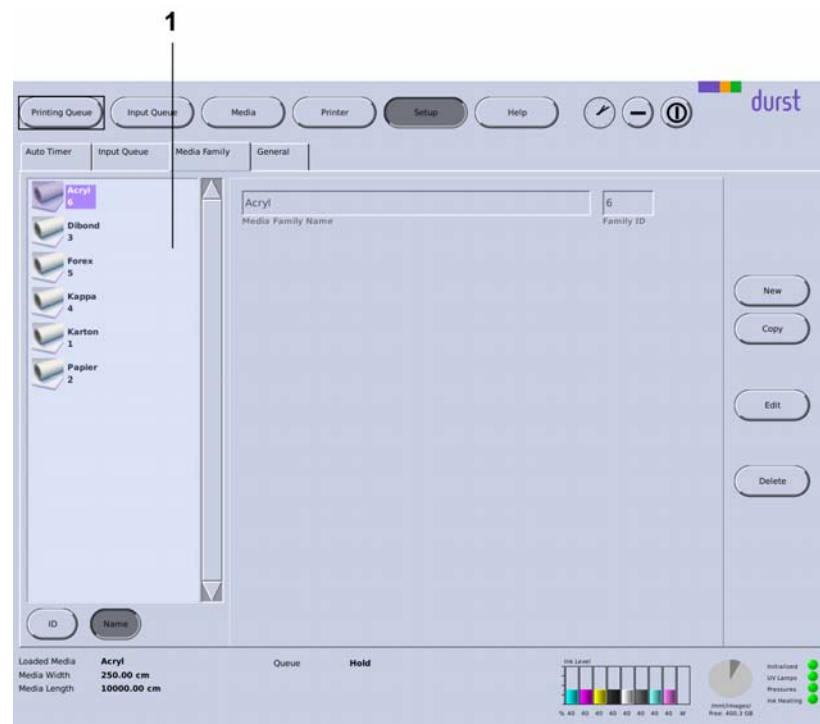


Fig. 20 **Media Family** tab

Navigation window All created media channels are listed in the navigation window (1). You specify the sorting order with the **ID** and **Name** buttons.

2.3.1 Buttons on the right edge of the dialog window

New A new media family is created with the **New** button.

Copy You copy the selected media family and save it with a new name with the **Copy** button.

Edit Parameters of the selected media family are modified with the **Edit** button.

Delete The selected media family is deleted with the **Delete** button.

2.4 General basic setup options

Define the following settings on the **General** tab:

- Language
- Units
- Validation
- Media Transport Options



Fig. 21 General tab

Media Transport Options With **Media Transport Options**, you can enter the global value for **Encoder Offset**. The global value applies for all printing.

You can enter an additional encoder offset value for a special medium in the corresponding medium channel. The encoder offset value in the medium channel is then added to or subtracted from the global encoder offset value of the **General** tab.

Special printing options If the function **Imprinting Settings** is activated, all quality-related printing settings are printed at the lower left-hand border of the image.

This function must be activated if test images are sent to Durst customer service for assessment. Only then are the settings comprehensible.

When the function is activated, a flashing indicator appears on the status bar.

3 Operating printer functions

3.1 Basic functions

On the **Printer** tab, you can operate the following functions, among others:

- Initialization
- Test image
- Movement of the printing table
- Encoder test image
- UV lamp
- Displays the software version
- Ink heating

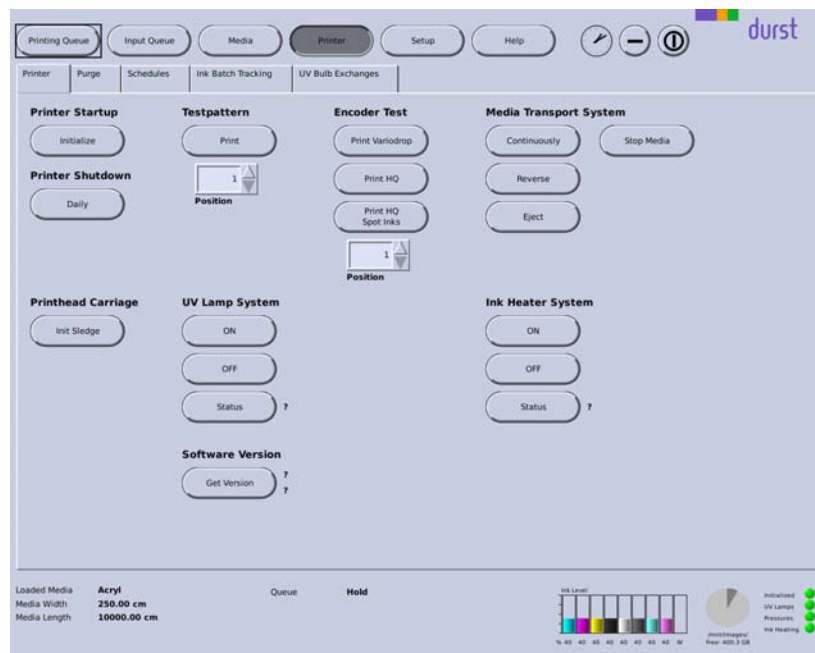


Fig. 22 Printer tab

Printer Startup With the **Initialize** button causes all units of the printer to move to their reference positions. This function must always be activated if the printer was switched on with the main switch.

Printer Shutdown You can turn off the printer for its daily shutdown with the **Daily** button. UV lamp and ink heating are switched off automatically.

Testpattern Print: With the **Print** button initiates printing of a test image.

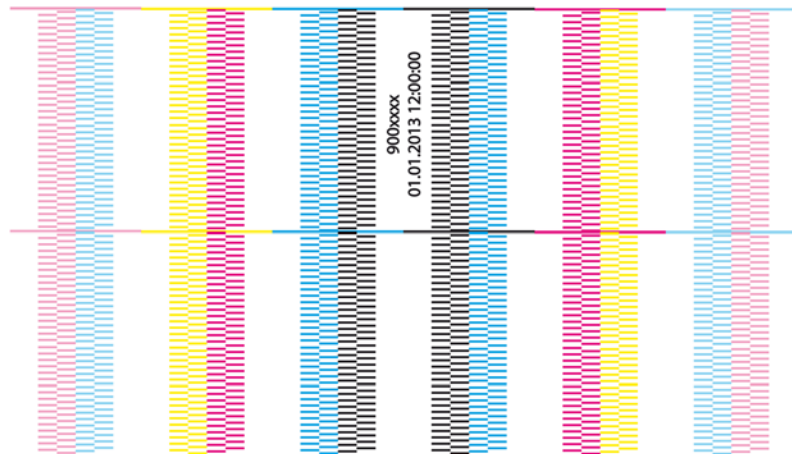


Fig. 23 Test image

The test image is not placed in the **Printing Queue**, rather it is printed immediately.

Position: Media can be printed with test images multiple times. Using the **Position** selection list, you specify the image line on which the respective test image is to be printed by repeatedly loading the medium. The software calculates the required advance automatically.

Encoder Test The buttons under **Encoder Test** enable you to print an encoder test image either at high printing speed (**Print HS**) or in high quality (**Print HQ**).

The encoder test image is printed at the speed set in the media channel (**Media > Default Job Options for Media > Print Options**).

When pressing the corresponding button, the encoder test image is transferred directly to the **Printing Queue**.

Media Transport System You control the manual advance of the medium with this option.

Continuously: The medium is transported further until you press **Stop Media**.

Reverse: The medium is transported backward until you press **Stop Media**.

Stop Media: The feed (**Continuously** or **Reverse**) is stopped.

3.2 Purging functions

You set the purge parameters and initiate the purge cycle on the **Purge** tab.

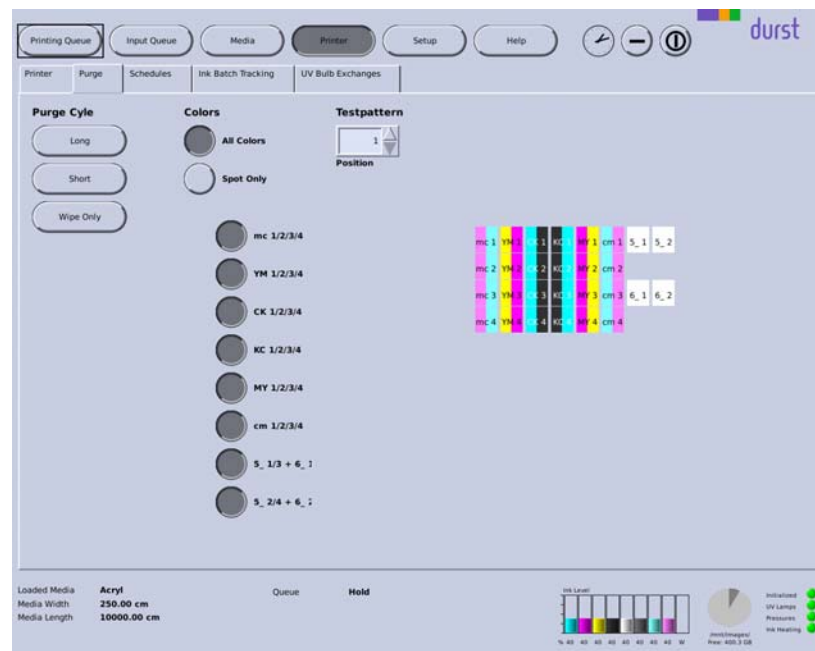


Fig. 24 **Purge** tab

Purge Cycle **Long:** Start purge cycle with a duration of approx. 2 minutes.

Short: Start purge cycle with a duration of approx. 1 minute.

Wipe Only: The print carriage moves to a position in which the print heads can be wiped.

Colors Under **Colors**, you select the print heads to be rinsed during the purge cycle.

3.3 Maintenance

The **Schedules** tab provides an overview of all service activities described in the "Service" chapter (→ Page 75 / Service).



Fig. 25 Schedules tab

Maintenance Reminders Under **Maintenance Reminders**, you can set the time intervals for reminder messages for the following activities:

- Purge Cycle
- Cleaning the printing plate
- Archiving test images

3.4 Ink batch tracking

You can document the refill date, color and batch number of the ink on the **Ink Batch Tracking** tab.

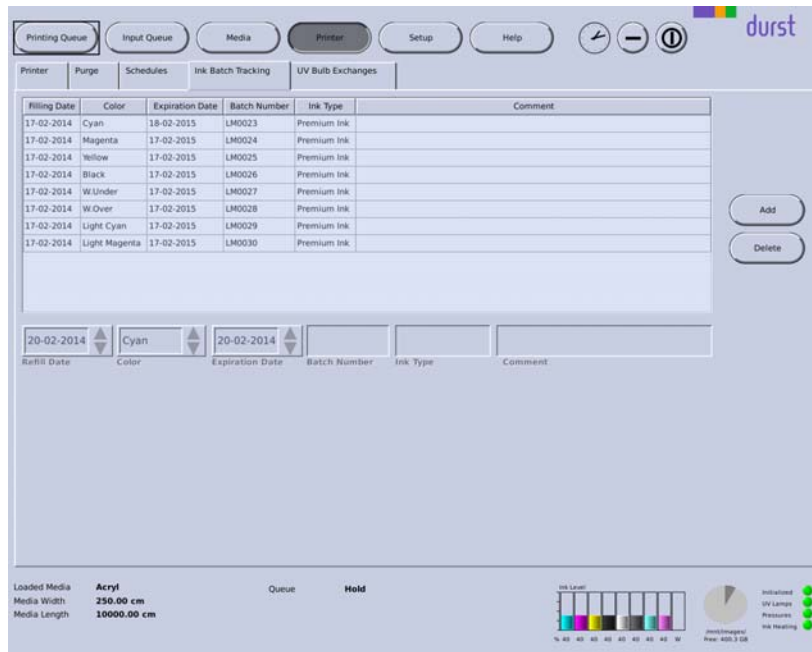


Fig. 26 Ink Batch Tracking tab

3.5 Changing UV lamps

You can document the changing of the UV lamp on the **UV Bulb Exchanges** tab.



Fig. 27 UV Bulb Exchanges tab

4 Managing media channels

You create new media channels and edit or delete existing media channels on the tab under the **Media** button.

1 Navigation window

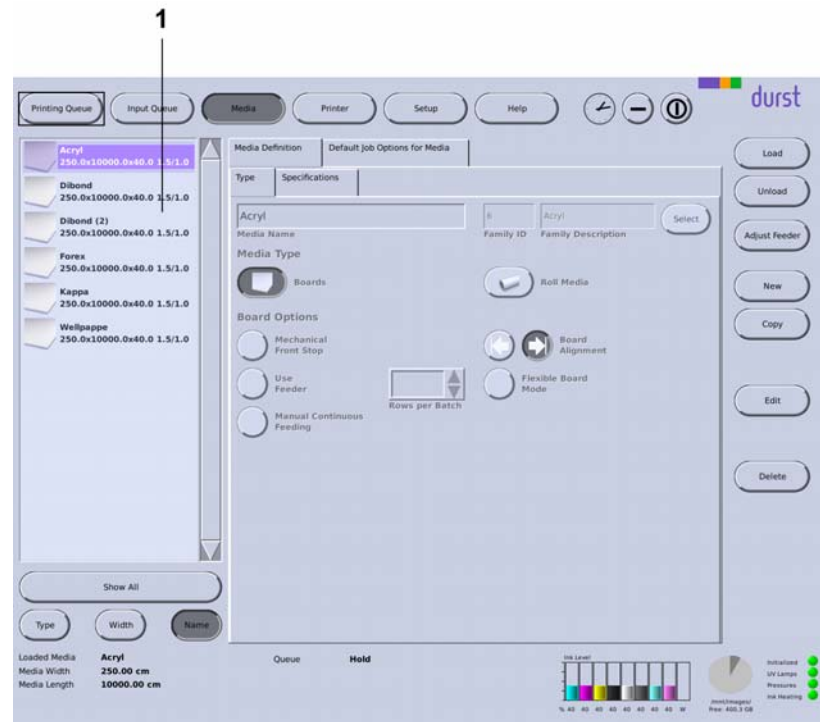


Fig. 28 Tabs under the **Media** button.

All created media channels are listed in the navigation window (1). You specify the sorting order with the **Type**, **Width** and **Name** buttons.

With the **Show All** button, you can cause only those media channels which belong to a certain media family to be listed. This will give you a better overview should you have a large number of media.

4.1 Buttons on the right edge of the dialog window

- Load/Unload** The loading and unloading procedures for changing the media channel are triggered with the **Load** and **Unload** buttons.
- New** A new media channel is created with the **New** button.
- Copy** You copy the selected media channel and save it with a new name with the **Copy** button.
- Edit** Parameters of the selected media channel are modified with the **Edit** button.
- Delete** The selected media channel is deleted with the **Delete** button.

4.2 Medium type

You can define the following parameters on the **Type** sub-tab:

- Name
- Media family

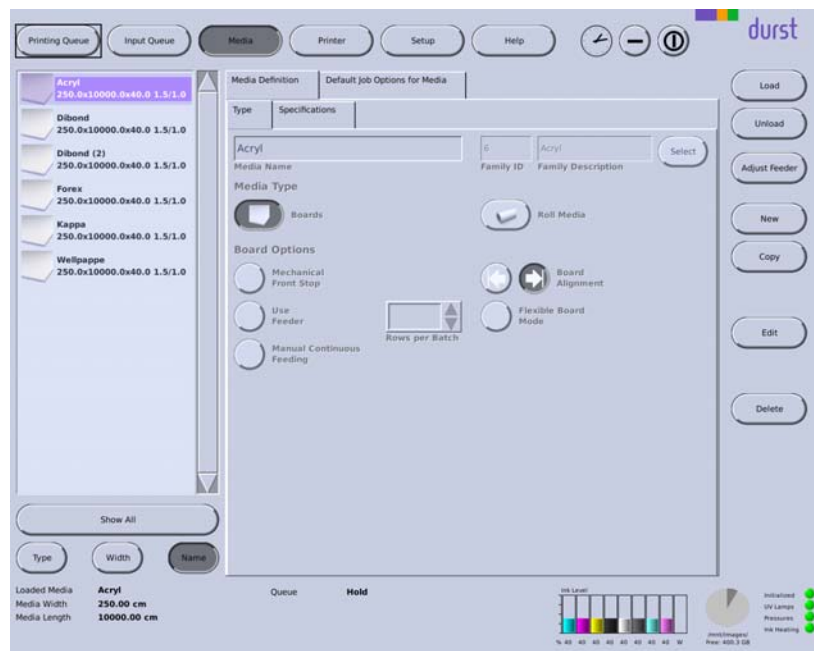


Fig. 29 Type sub-tab

Board Options **Mechanical Front Stop:** The mechanical front stop is used for proper alignment of individual short and wide media.

Manual Continuous Feeding: Press the **Manual Continuous Feeding** button if you are using a roller table and are printing plate media continuously in a serial printing process. This gives you the advantage of being able to feed a new medium while the previous medium is still being printed. If you do not press the button, but still feed a new medium during a printing process, this medium will not be detected by the printer.

Heavy Roll Tool You press the **Heavy Roll Tool** button if you use the Heavy Roll Tool.

Board Alignment: Using the buttons, you specify whether you are feeding the plate medium on the right- or left-hand side. Once the setting is made, the sensor on the left or right is activated.

Flexible Board Mode: There is a risk that thin plate media could experience a rippling effect when being fed to the feed rolls. If you press the **Flexible Board Mode** button, the feed rolls move upward during media feeding. As soon as the plate medium is located under the feed rolls, the feed rolls move downward.

4.3 Media specification

You can define the following parameters on the **Specifications** sub-tab:

- Dimensions
- Distances
- Parameters for media transport
- UV drying

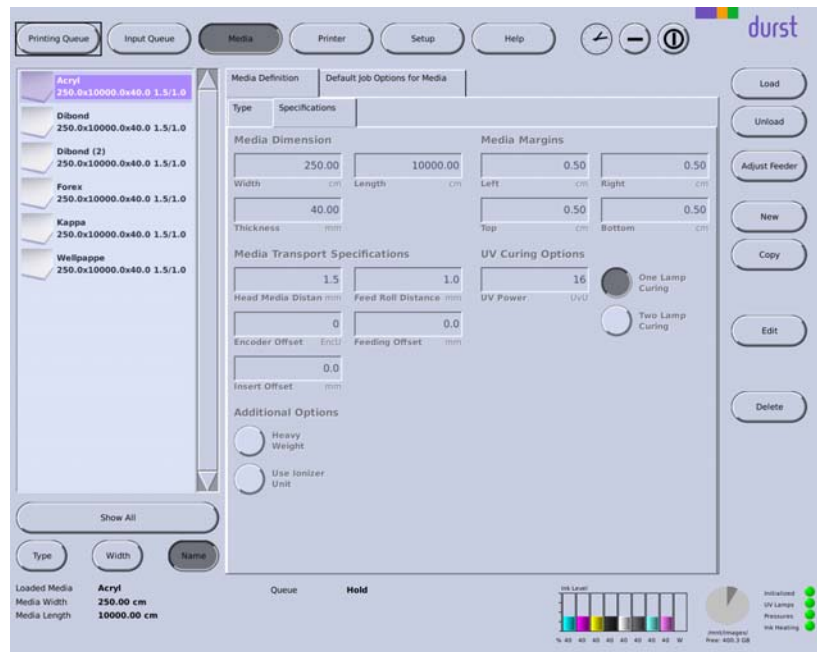


Fig. 30 Specifications sub-tab

Media Margins In the input fields under **Media Margins**, you define the printable area of the medium by entering left, right, top or bottom medium borders (**Left, Right, Top, Bottom**).

Negative values must be entered if you desire borderless printing.

UV Curing Options Under **UV Curing Options**, you set the power of UV lamps for curing the printed medium. Durst recommends setting the power as low as necessary.

If the power level is too high, sensitive media can yellow or stretch. For this reason, it may be necessary to not carry out full curing so as to protect the medium.

Media Transport Specifications **Encoder Offset:** If the advance causes striping during printing, you can enter an encoder offset value. This value is added to or subtracted from the global encoder offset value (**Setup > General** tab).

Feeding Offset: When feeding heavy plate media, an offset can arise if the suction pressure of the plate medium does not hold the plate medium to the conveyor belt sufficiently. This offset can be compensated for by entering a value in the **Feeding Offset** entry box.

Feed Roll Distance: You can change the contact pressure on the medium via the spacing of the transport rollers. With a value of "0", the contact pressure is at its maximum.

Feeding Offset: If you are loading a plate medium with rounded corners, the optical sensor may detect the edge of the medium too late. This will result in a printing offset. You can compensate for this offset by entering a correction value.

Additional Options Heavy Weight: When printing heavy media, striping may occur due to slippage between the medium and the conveyor belt. You can minimize slippage with the **Heavy Weight** button.

4.4 Standard settings for jobs

You can predefine default settings for jobs on the **Print Options** and **Borders/Alignment** sub-tabs.

The default settings of the currently loaded medium are automatically assigned for the first time to the encoder test images and all images which appear in an input queue.

The default settings can be edited for every image, except for the encoder test images, in the input queue, however.

The **Print Options** and **Borders/Alignment** tabs correspond to the sub-tabs of the respective input queue under **Input Queue** (→ Page 63 / Input queue).

4.5 Creating, editing and deleting media channels

4.5.1 Creating new media channel

1. Press **Media**.
2. To create a media channel with completely new data, carry out the following steps:
 - Press **New**.
 - Select **Media Definition** tab.
 - Select **Type** sub-tab.
 - Enter a name in the **Media Name** input field.
 - Press **Select**.
 - Select media family.
 - Edit other media parameters.
3. To create a new media channel based on an existing media channel, carry out the following steps:
 - Select desired existing media channel in the navigation window.
 - Press **Copy**.
 - Modify desired parameters.
 - Rename media channel if necessary.
 - Edit other media parameters.
4. Press **Save**.

4.5.2 Editing existing media channel

i Not all parameters of existing media channels can be edited. The entry boxes for parameters which cannot be edited are deactivated. To edit these parameters, you must create a new media channel.

1. Press **Media**.

2. Select desired media channel in the navigation window.
3. Select desired tab or sub-tab.
4. Press **Edit**.
5. Edit desired parameters.
6. Press **Save**.

4.5.3 Deleting media channel

The media channel for the currently loaded medium cannot be deleted.

1. Press **Media**.
2. Select desired media channel in the navigation window.
3. Press **Delete**.

4.5.4 Loading/unloading media channel

✓ The media channel is created

1. Press **Media**.
2. Select desired media channel in the navigation window.
3. Press **Load/Unload**.

5 Printing

Once the job has been prepared on the RIP server and transferred to the workstation of the printer, printing occurs in the following steps:

- Prepare job in the input queue (→ Page 63 / Input queue)
- Transfer job to the printing queue (→ Page 63 / Input queue).
- Initiate printing process in the printing queue (→ Page 71 / Printing Queue).

5.1 Input queue

You prepare jobs for printing in the input queue under the **Input Queue** button. As soon as a job is transferred from the RIP server to the workstation, it appears in one of the corresponding input queues.

You define the printing parameters on the **Basics**, **Print Options**, **Borders/Alignment** and **Size** sub-tabs.

On the **Print Options** and **Borders/Alignment** tabs, you can edit the default settings from the media channel individually for each job. The default settings in the media channel are not affected by this editing.

1 Navigation window

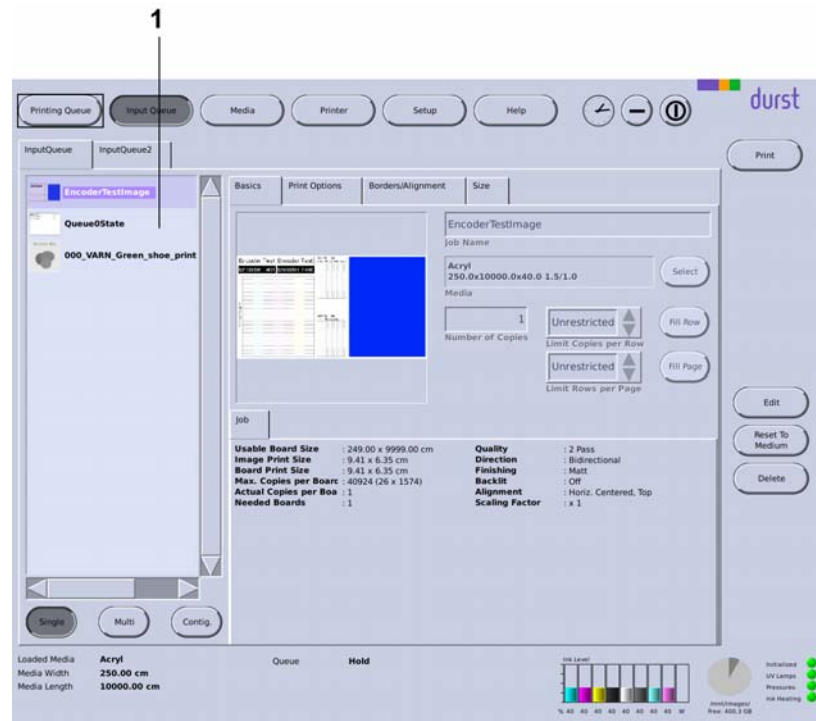


Fig. 31 Input queue

Navigation window Jobs intended for preparation are displayed in the navigation window (1).

Sub-tabs The **Print Options** and **Borders/Alignment** sub-tabs correspond to the sub-tabs on the **Media** tab (→ Page 59 / Managing media channels). You can modify the preset parameters for a job separately under **Media** on this sub-tab.

5.1.1 Basic setup options

Define the following basic settings on the **Basics** sub-tab:

- Job name
- Media channel
- Number of copies
- Maximum number of images in a row and rows per page

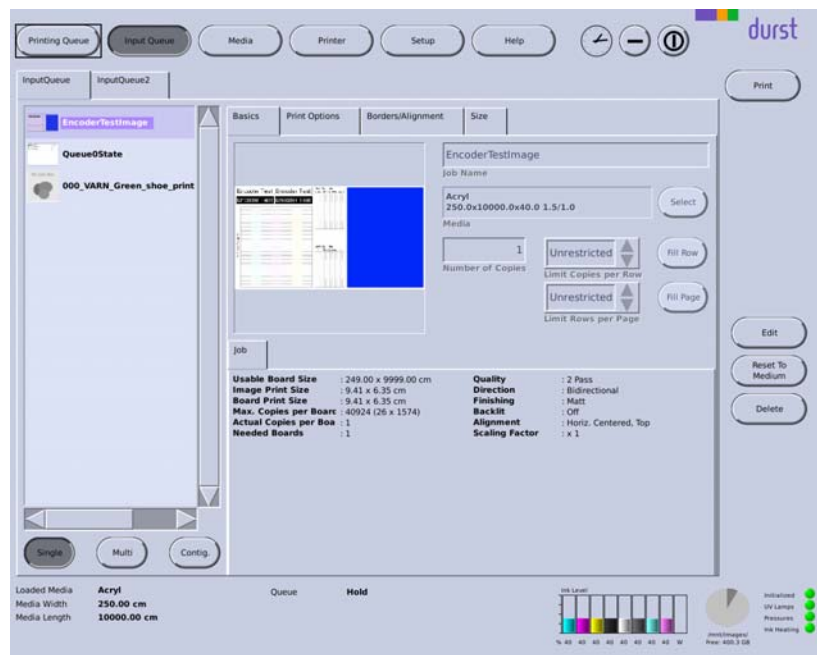


Fig. 32 Basics sub-tab

If you want to select a media channel (**Media** list field), the software only offers you those media channels which are part of the media family of the job for pre-selection.

5.1.2 Print options

You can define the following parameters, among others, on the **Print Options** sub-tab:

- Quality level
- Print Direction
- Surface
- Print refinement and special effects

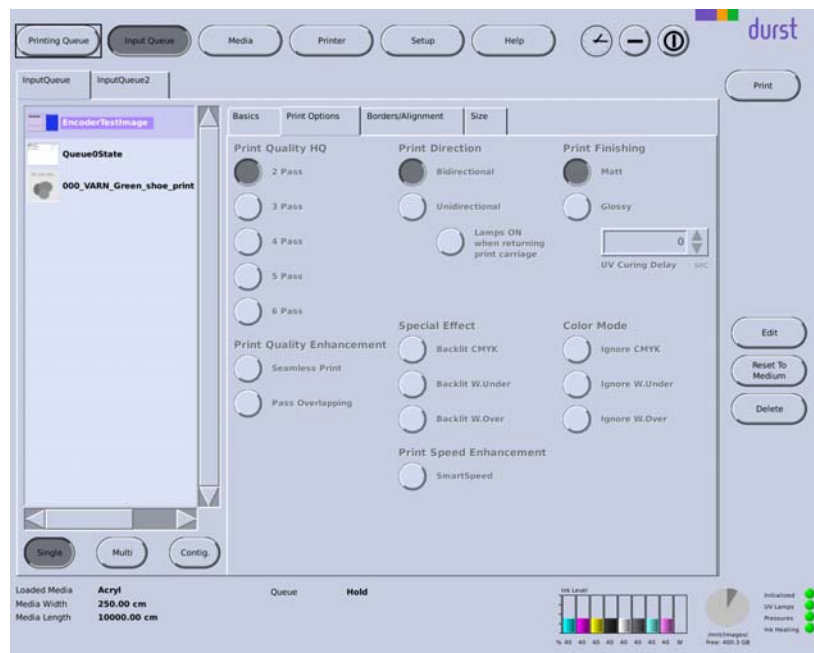


Fig. 33 **Print Options** sub-tab

Print Direction Bidirectional: The ink is applied in both directions when the print carriage moves. This increases print speed.

Unidirectional: The ink is only applied by the print carriage upon its outward traversal.

If the spot color white or an opaque ink for a shiny surface was created as its own channel during image processing, you can control the processing of the spot color individually.

Lamps ON when returning print carriage: This function improves curing of the ink. The temperature effect on the material is also increased, however.

Durst recommends this function if you have selected **Unidirectional**.

5.1.3 Image border and alignment

You can define the following parameters, among others, on the **Borders/Alignment** sub-tab:

- Border distances
- Alignment
- Oversize

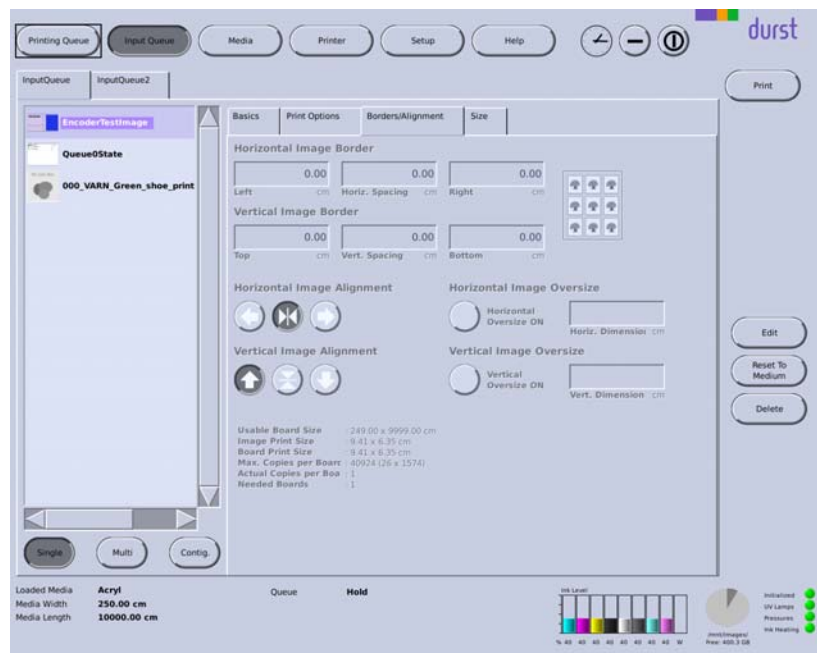


Fig. 34 Borders/Alignment sub-tab

Horizontal Image Border/Vertical Image Border

Under **Horizontal Image Border** and **Vertical Image Border**, you can enter an image spacing between the individual images and to the left or right border of the printable area.

In the input fields **Left**, **Right**, **Top** and **Bottom**, you enter the respective image borders to the left, right, top and bottom borders of the printable area. The printable area is defined by the media margins you entered on the **Specifications** sub-tab under **Media Margins**.

The total spacing of the image, for example to the left media edge, is the sum of the left media margin (**Left from Media Margins**) and the left image border (**Left from Horizontal Image Border**).

- 1 Left image border
- 2 Medium border
- 3 Image

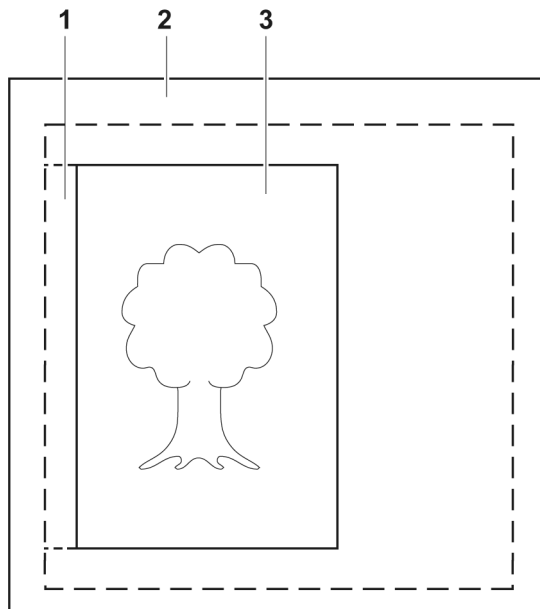


Fig. 35 Borders (schematic example)

In the **Horiz. Spacing**, **Vert. Spacing** input fields, always enter the horizontal or vertical spacing between the images.

Horizontal Image Alignment/Vertical Image Alignment

Using the buttons under **Horizontal Image Alignment** and **Vertical Image Alignment**, you can align the image on the medium vertically (top, bottom, centered) and horizontally (left, right, centered). Here, the image and its defined image border (**Horizontal Image Border** or **Vertical Image Border**) are considered to be a unit and are aligned as one.

- 1 Medium
- 2 Top image border
- 3 Image
- 4 Image and image border unit
- 5 Vertical centering axis

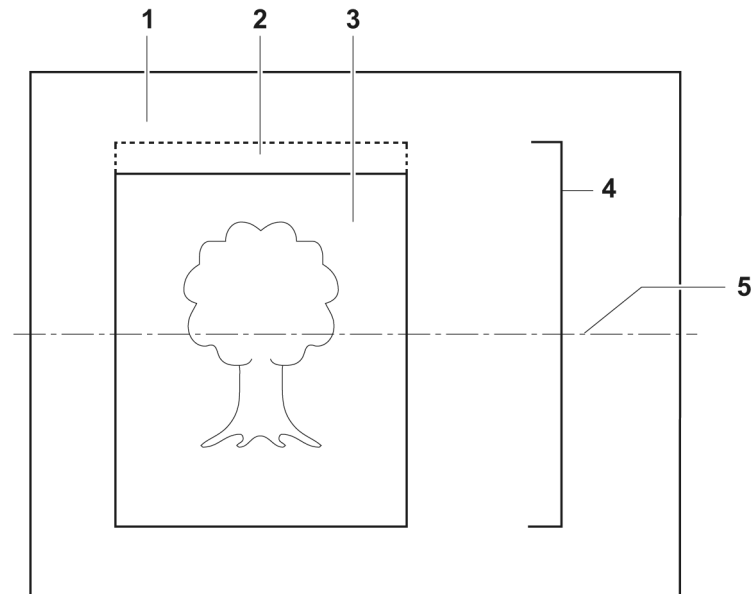


Fig. 36 Alignment of image with image border (schematic example for centered alignment)

Horizontal Image Oversize/Vertical Image Oversize

For **Horizontal Image Oversize** and **Vertical Image Oversize**, you can enter the oversize for overprinting. The software then clones the pixels at the image border and inserts them at the image border according to the oversize. Printing then occurs in the image border, image spacing or medium border by the oversize value.

This function can be edited to print with no border. However, negative media edges must be defined in the media channel for this purpose to ensure that printing up to the border occurs.

- 1 Oversize
- 2 Medium border
- 3 Image
- 4 Image spacing

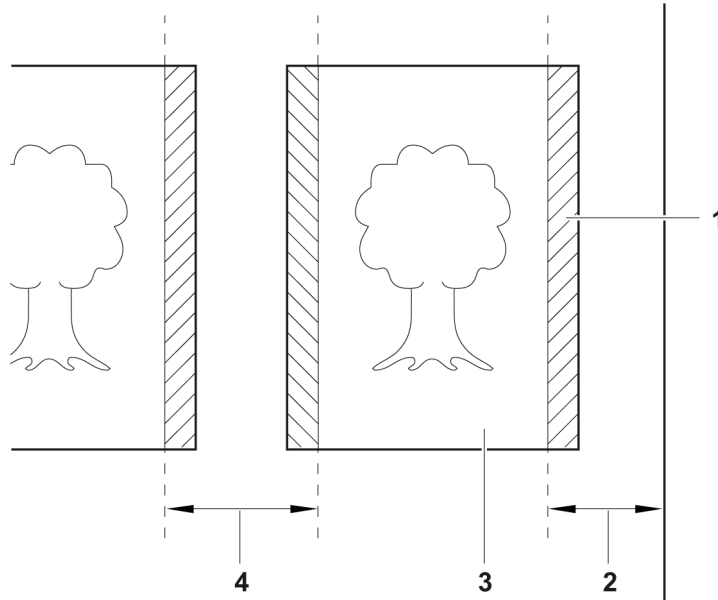


Fig. 37 Overprinting with images with borders (schematic example)

5.1.4 Image section

You can change the image crop of the ripped image on the **Size** sub-tab.

- 1 Slider

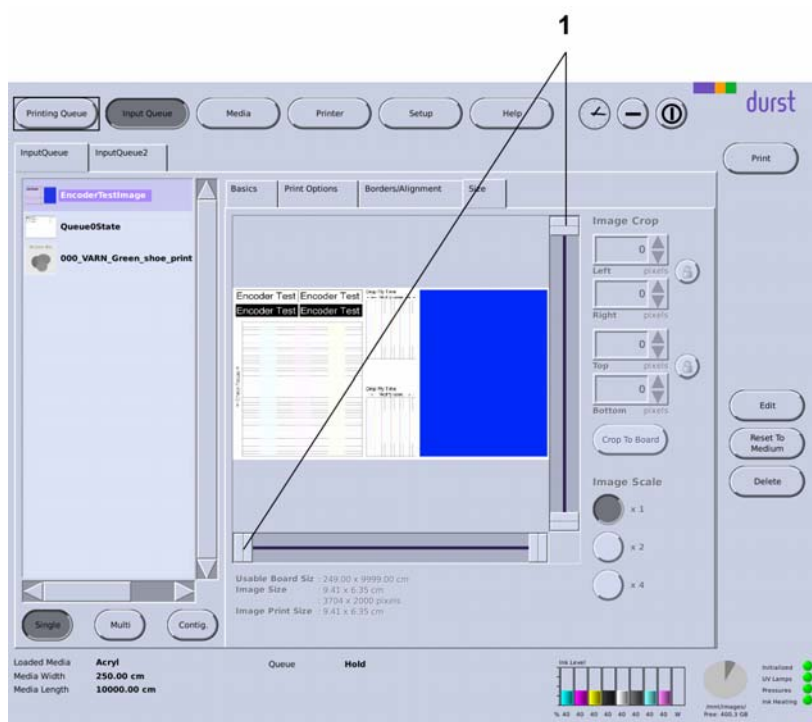


Fig. 38 Size sub-tab

To select an image crop, you can define how much is to be cut away from the respective image border. You have the following options here:

- Enter the desired number of pixels or select it with the arrow keys under **Image Crop** in the respective input fields **Left**, **Right**, **Top** and **Bottom**.
- Select the crop with the sliders (1).

If you want to move a selected image crop while maintaining the height/width,



you can lock the height/width with the button.

Crop To Board With the **Crop To Board** button, you crop an image starting from the top-left corner automatically and precisely to the size of the plate medium. The requirement here is that the image is larger than the plate medium.

Image Scale You scale the image with the buttons under **Image Scale**.

5.1.5 Preparing job and transferring it to Printing Queue

Preparing a job

1. Press **Input Queue**.
2. Select desired input queue.
3. Select desired job in the navigation window.
4. Select desired sub-tab **Basics**, **Print Options**, **Borders/Alignment** or **Size**.
5. Modify desired parameters.
6. Press **Save**.

Transferring jobs to Printing Queue

- ✓ The job is prepared
- 1. Select job in the navigation window.
- 2. Press **Print**.
- ↳ The job appears in the **Printing Queue**.

5.2 Printing Queue

The **Printing Queue** dialog window shows all the jobs which have been transferred from the input queue for printing. You can change the order of jobs in the queue, delete jobs from the queue and initiate the printing process here.

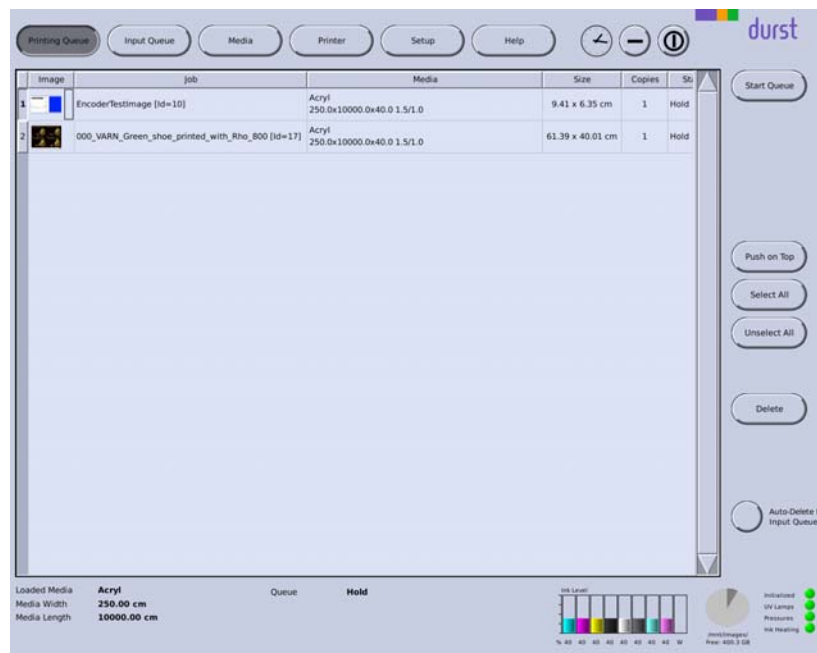


Fig. 39 Printing Queue dialog window

Start Queue The printing process is started for the selected job with the **Start Queue** button.

Push on Top The selected job is moved to the front of the queue with the **Push on Top** button.

5.2.1 Initiate printing process in the printing queue

✓ If printing occurs over the edge of the medium, the conveyor belt is taped at the edges of the medium.

1. Press **Printing Queue**.
 - ↳ The **Printing Queue** dialog window appears.
 - ↳ All jobs in line for printing are displayed in the queue.
2. To print a job, carry out the following steps:
 - Select desired job.
 - Press **Start Queue**.
 - ↳ The current print status is displayed on the status bar.

5.2.2 Stopping print queue

- ✓ A printing process is running.
- ▶ To stop the printing process immediately (last copy not finished printing): Press **Stop**.
- ▶ To stop the printing process after completion of the current job: Press **Stop Queue**.

5.3 Borderless printing

There are two options for borderless printing:

- Rip image to the dimensions of the printing table and enlarge by an oversize with **Horizontal Image Oversize** or **Vertical Image Oversize**(→ Page 69 / **Horizontal Image Oversize/Vertical Image Oversize**).
- Rip image larger than the dimensions of the printing table and cut to size in input queue on the **Size** sub-tab with **Crop To Board**(→ Page 70 / Image section).

In both cases, negative media borders must be set in the media channel to ensure that the medium is printed up to the border.

The first option (define oversize) has the following disadvantage: If an error was made when preparing the image and the last few pixels at the image border are white, white pixels are cloned. There is no visible effect in this case.

The second option (rip image larger and cut to size) is less susceptible to error for this reason.

G Faults

Faults are indicated by a message in the software.

H Service

1 Service intervals of the owner

The following service activities must be carried out by the owner.

i Warranty and guarantee claims can only be made if the test images have been retained.

When?	What?
Daily	<ul style="list-style-type: none"> ▶ Carry out the work of daily print head maintenance (→ Page 102 / Print head maintenance). ▶ Check all warning signs for cleanliness and readability and replace if necessary. ▶ Check housing covers visually. ▶ Check conveyor belt for damage and soiling. Clean if necessary (→ Page 81 / Cleaning conveyor belt). ▶ Ensure that all protective equipment is attached and in proper working order. This includes the following protective equipment (in particular): <ul style="list-style-type: none"> – Protective switches – Housing covers – UV lamp protection
Every 2 days	<ul style="list-style-type: none"> ▶ Clean air filter of the aerosol extractor (→ Page 87 / Cleaning aerosol extractor).

When?	What?
Weekly	<ul style="list-style-type: none"> ▶ Wipe printing plate (→ Page 112 / Cleaning the printing plate). ▶ Check carriage guide visually for damage and lubricate (→ Page 82 / Lubricating carriage guide). ▶ Check air filter at vacuum ventilator (→ Page 89 / Cleaning the vacuum ventilator air filter). ▶ Clean outlet hole of the purge unit (→ Page 97 / Cleaning outlet hole of purge unit). ▶ Check suction holes at the edge of the conveyor belt for soiling. Clean if necessary (→ Page 99 / Cleaning suction holes). ▶ Check condition of the encoder ruler and clean if necessary (→ Page 97 / Cleaning encoder ruler). ▶ Check print carriage bearings visually for damage. ▶ Check filter for fusion board cooling and change if necessary (→ Page 90 / Changing the air filter for fusion board cooling).
Weekly (at beginning of week)	<ul style="list-style-type: none"> ▶ Document condition of the print heads (→ Page 112 / Documentation of the print head state).
Monthly	<ul style="list-style-type: none"> ▶ Check air filter of the UV lamp and change if necessary (→ Page 85 / Checking and changing air filter of UV lamp). ▶ Check lung filter for proper seal (→ Page 100 / Checking lung filter for proper seal). ▶ Clean electrodes of the anti-static unit with compressed air (→ Page 99 / Cleaning electrodes of the anti-static unit). ▶ Clean air filter at vacuum ventilator (→ Page 89 / Cleaning the vacuum ventilator air filter).
Every 6 months	<ul style="list-style-type: none"> ▶ Create a backup (→ Page 78 / Creating a backup). ▶ Change lubricating plates (→ Page 83 / Changing lubrication plates).

When?	What?
Annually	<ul style="list-style-type: none"> ▶ Check right- and left-hand light trap carriers for damage. If necessary, paint with dull, temperature-resistant black paint. ▶ Lubricate print head height adjustment spindle system (→ Page 85 / Lubricating print head height adjustment spindle system). ▶ Change main ink filters (→ Page 91 / Changing main ink filter)
Every 1000 operating hours	<ul style="list-style-type: none"> ▶ Replace UV lamp (→ Page 94 / Changing UV lamp).
When necessary	<ul style="list-style-type: none"> ▶ Clean housing of the printer. ▶ Refilling ink (→ Page 79 / Refilling ink) ▶ Remove leaked ink. ▶ Clean conveyor belt (→ Page 81 / Cleaning conveyor belt). ▶ Empty catch tank (→ Page 82 / Emptying catch tank). ▶ Have conveyor belt tension checked and adjusted by Durst customer service. ▶ Check suction pressure of the conveyor belt (→ Page 100 / Checking suction pressure of the conveyor belt). ▶ Clean encoder ruler (→ Page 97 / Cleaning encoder ruler). ▶ Change air filter of the UV lamp (→ Page 85 / Checking and changing air filter of UV lamp). ▶ Have Durst customer service change UV lamp head. ▶ Change filter for fusion board cooling (→ Page 90 / Changing the air filter for fusion board cooling). ▶ Change air filter of the aerosol extractor (→ Page 87 / Cleaning aerosol extractor). ▶ Clean ventilator of the aerosol extractor (→ Page 87 / Cleaning aerosol extractor).
In case of fault or defect	<ul style="list-style-type: none"> ▶ Check fuses and, if necessary, have replaced by Durst customer service.

2 Service intervals of Durst customer service

i The following service activities must be carried out by Durst customer service.

When?	What?
Annually	<ul style="list-style-type: none"> ▶ Have height adjustment of the print carriage lubricated. ▶ Have print heads checked and, if necessary, adjusted. ▶ Have pneumatic circuits checked. ▶ Have encoder values checked. ▶ Have crash sensor checked and set. ▶ Have print head distance checked and set. ▶ Have cooling ventilator of the fusion board cleaned and checked. The cooling ventilators must run smoothly. ▶ Have cable chain checked. ▶ Have motor of the conveyor belt lubricated. ▶ Have linear guide of the press-on carrier cleaned. ▶ Have print carriage bearings lubricated. ▶ Have lubricating plates changed. ▶ Have distance of the press-on carrier set.
Every 3 years	<ul style="list-style-type: none"> ▶ Have lung filter changed. ▶ Have ink tank emptied and rinsed.
When necessary	<ul style="list-style-type: none"> ▶ Have small hairs removed from the edge of the conveyor belt. ▶ Have conveyor belt tension checked and adjusted. ▶ Have print heads adjusted. ▶ Have UV quartz filter changed. ▶ Have UV reflector changed. ▶ Have UV lamp head changed.

3 Creating a backup

Durst recommends backing up the following files on a regular basis:

- `DurstPrinter.setup`: Contains all printer-specific parameters
- `durst.db`: Contains all setting data (e.g. media channels, media transport settings, software validation)

- ✓ Operating system and software are installed

NOTICE

Accidental modification of system files!

Reduced functionality

- ▶ Do not change entries in the file `DurstPrinter.setup`.

- ▶ Back up the following files in the file system at the workstation:
 - `/usr/local/printsw/DurstPrinter.setup`
 - `/usr/local/printsw/database/durst.db`

4 Refilling ink

Refilling involves the following procedure:

- Placing cubitainer into the loading compartment
- Starting refilling procedure

⚠ WARNING

Contact with ink!

Contact with skin or breathing in fumes poses health risk

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.
- ▶ Do not use inks containing solvents.

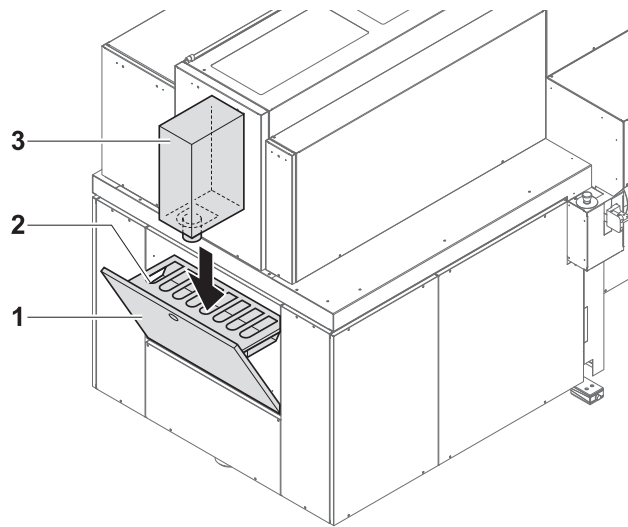
NOTICE

Unsuitable ink!

Damage to the print heads

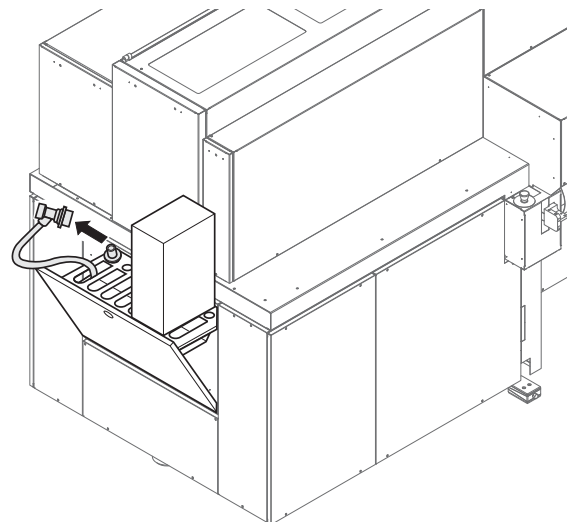
- ▶ Use only Durst ink.

Placing cubitainer into the loading compartment

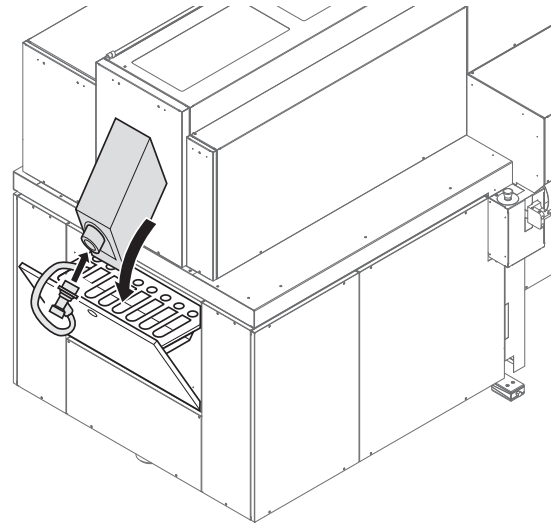


1. Pull out cover (1) of the loading compartment (2).
2. Prepare cubitainer (3) for the desired color.
3. Shake cubitainer.
4. Place cubitainer with the connection piece downwards in the loading compartment.

Starting refilling procedure ✓ The cubitainers are located in the loading compartment



5. Once the ink has been identified correctly, remove the respective fill hose from the park position.



6. Attach the quick connector of the fill hose to the connection piece of the cubitainer by pulling back the coupling.
7. Release coupling.
8. Remove coupling by pulling it back.
9. Return refill hose to the park position.
10. Remove empty cubitainer.

5 Cleaning conveyor belt

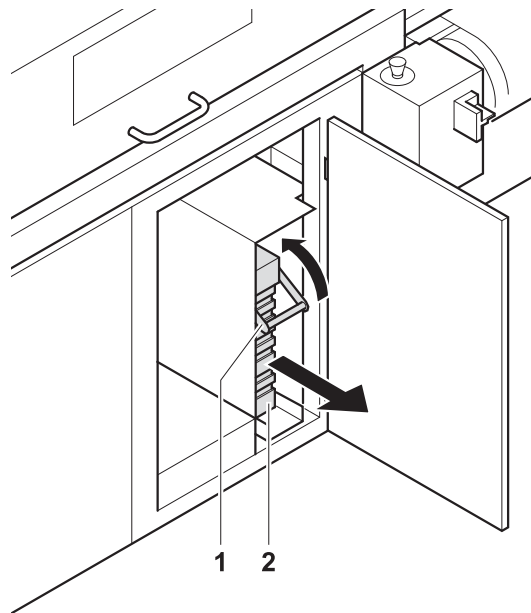
NOTICE

Cleaning the conveyor belt with unsuitable aids!

Damage to the conveyor belt

- ▶ Do not clean the conveyor belt with aggressive cleaning fluids.
 - ▶ Remove soiling from the conveyor belt only by means of adhesive tape.
- ▶ Remove soiling from the conveyor belt by means of adhesive tape.

6 Emptying catch tank



⚠ WARNING

Contact with ink!

Contact with skin or breathing in fumes poses health risk

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.
- ▶ Do not use inks containing solvents.

1. Open door.
2. Slide connection piece upwards using the grip (1).
3. Pull out catch tank (2).
4. Remove and empty catch tank.
5. Replace empty catch tank in its original position.
6. Slide connection piece downwards using the grip.
7. Close door.

7 Lubricating carriage guide

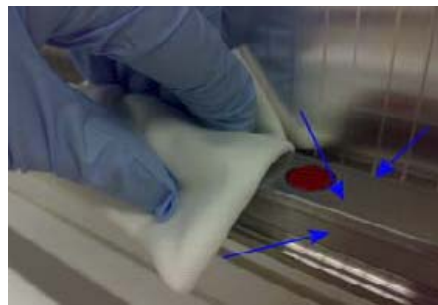
Tools/Accessories:

- Lubricating oil Klüber LAMORA D220
- Specified cleaning cloth

1. Move the print carriage to the left.
2. Switch off printer.



3. Clean all accessible rail surfaces of soiling and oil accumulations using a fresh cleaning cloth of the type specified.
4. Saturate cleaning cloth with the lubricating oil.

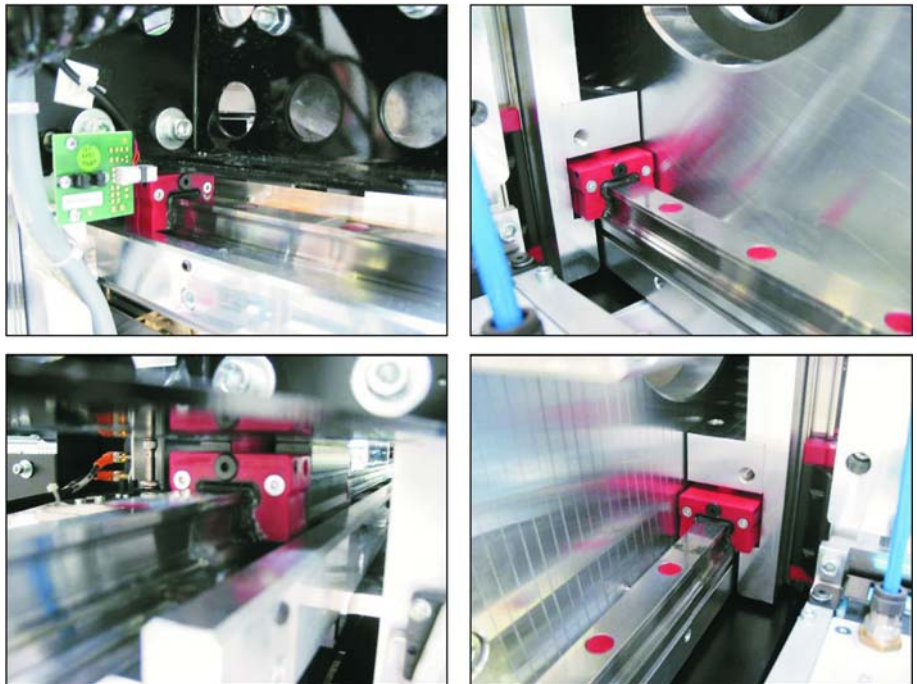


5. Wipe top (1) and bottom (2) rails in such a way that all rail surfaces are fully coated with a thin film of oil.
6. Manually move print carriage to the right.
7. Clean and lubricate the remaining areas of the rails in the same manner.

8 Changing lubrication plates

Tools/Accessories:

- Specified cleaning cloth
- Specified oil
- 4 lubricating plates



NOTICE

Encoder ruler could be scratched!

Reduced functionality of the printer

- ▶ Do not touch the encoder ruler with hard objects.

1. Switch off printer.



2. Loosen screws at the 4 lubricating plates (2 lubricating plates on each side of the print carriage).
3. Slide lubricating plates to the ends of the guide rails and remove them.
4. Clean guide rails with specified cleaning cloth.
5. Place new lubricating plates on the ends of the guide rails and move them to the print carriage.
6. Tighten screws on the lubricating plates.

- Lubricate guide rails with the specified oil.

9 Lubricating print head height adjustment spindle system

Tools/Accessories:

- Grease gun
- Lubricant Klüber ISOFLEX LDS18

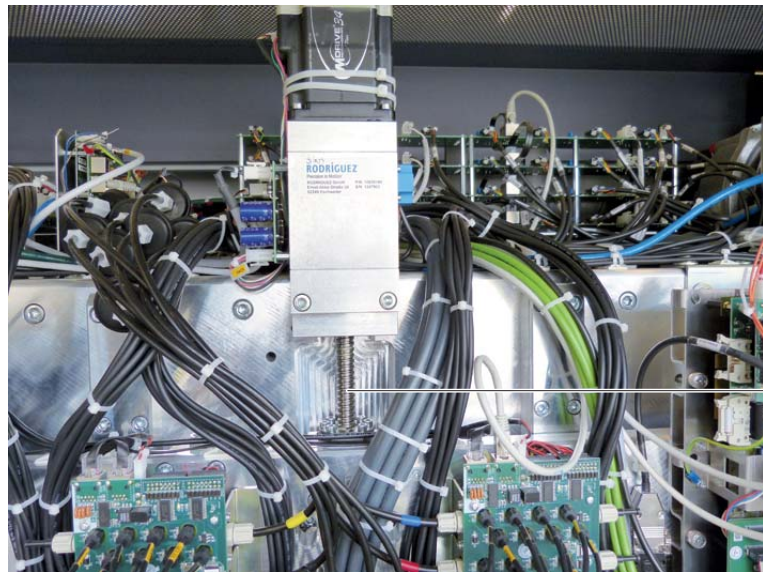
NOTICE

Encoder ruler could be scratched!

Reduced functionality of the printer

- ▶ Do not touch the encoder ruler with hard objects.

- Switch off printer.



- Lubricate spindle (1).

10 Checking and changing air filter of UV lamp

Both air filters are checked and changed in the same way:

⚠ WARNING

Energized components, even when the printer has been switched off!

Risk of death via electric shock

- ▶ Switch off printer with the main switch.

⚠ WARNING

Hot surfaces!

Risk of burns

- ▶ Wait at least half an hour after switching off until the UV lamp has cooled down before attempting replacement.

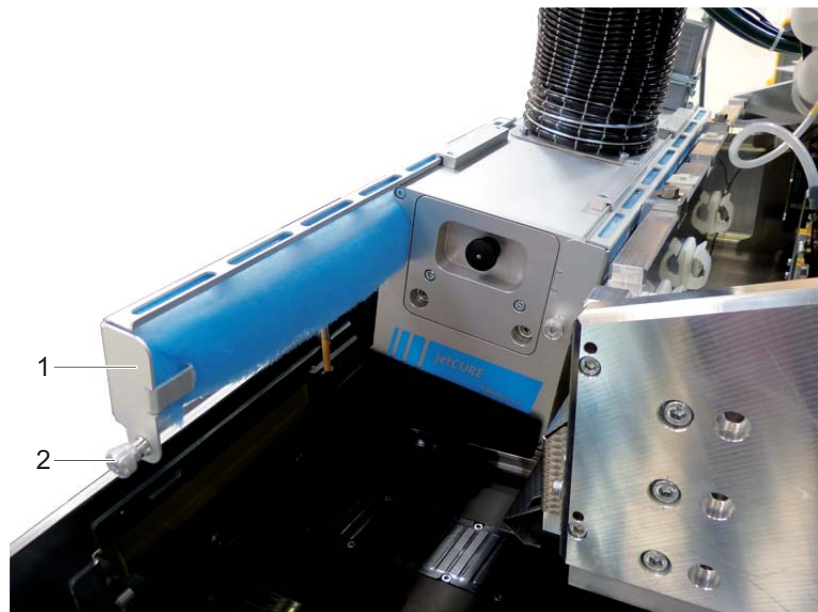
⚠ WARNING

Contact with ink!

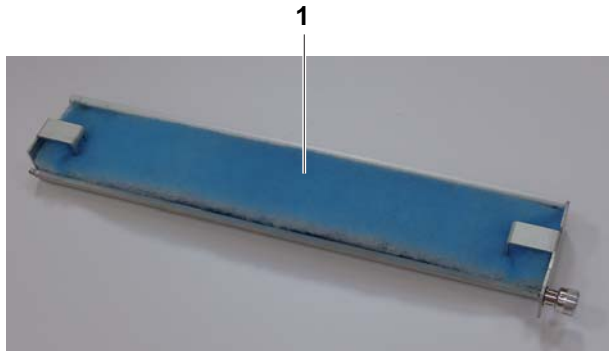
Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

1. Switch off printer with the main switch.
2. Allow UV lamp to cool down for half an hour.
3. Open left-hand flip door on the unloading side.
4. Push print head carriage to a suitable position.



5. Loosen fastening screw (1) at the air filter holder (2).
6. Pull out air filter holder.
7. Check air filter for soiling.



8. If the air filter (1) is black, replace it.
9. Push air filter holder in.
10. Tighten fastening screw.
11. Close door.
12. Switch on printer with the main switch.

11 Cleaning aerosol extractor

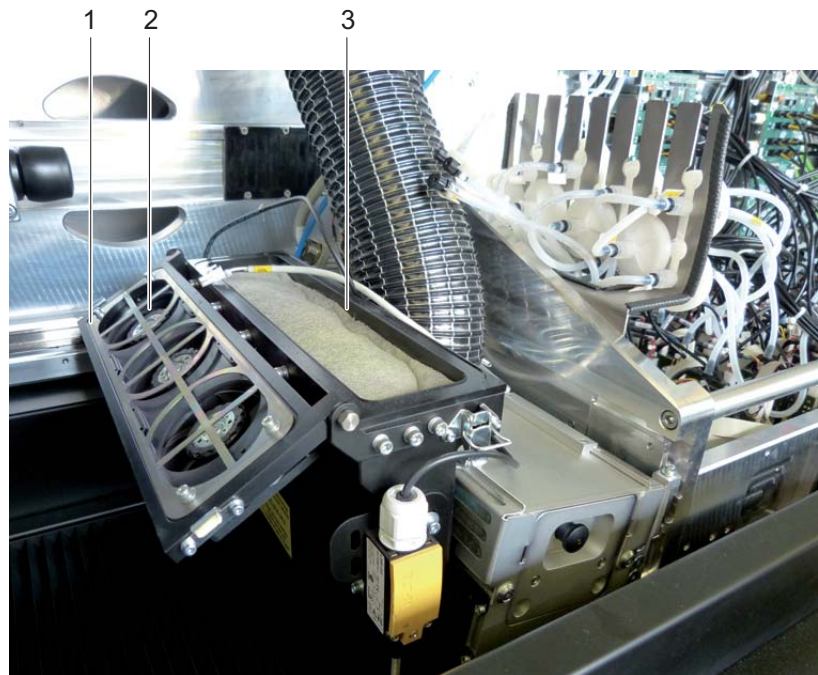
⚠ WARNING

Contact with ink!

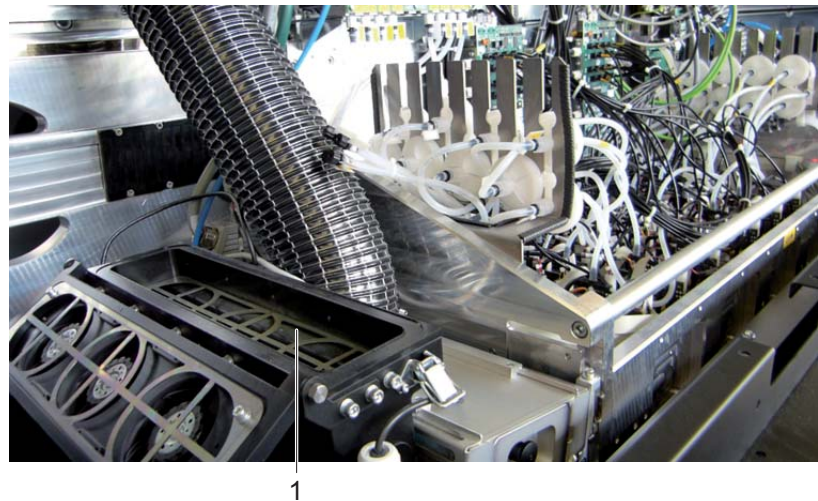
Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

1. Initialize printer.
 - ↳ Print carriage moves upward.
2. Switch off printer.



3. Open cover (1) on aerosol extractor.
4. Check ventilator (2) and clean if necessary.
5. Remove air filter (3).
6. Clean air filter with water or change if heavily soiled.



7. Remove retaining plate (1).
8. Clean retaining plate.

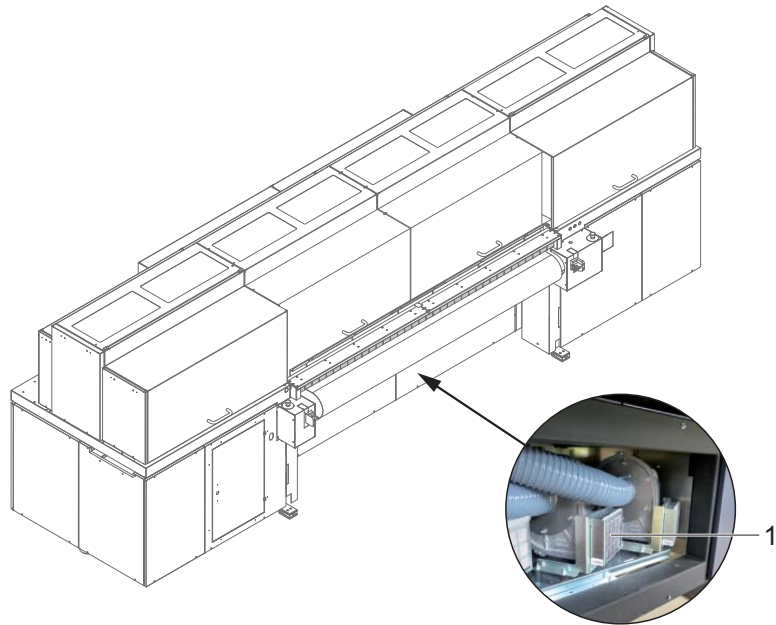


9. Clean extraction shaft (1) as follows:
 - Brush off ink dust with a brush from above.
 - Vacuum off extraction shaft with a vacuum cleaner from below (accessed below the extraction shaft via the cleaning access point).
10. Insert retaining plate.
11. Insert air filter.
12. Close cover.

12 Cleaning the vacuum ventilator air filter

⚠ WARNING
<p>Contact with ink! Health hazard</p> <ul style="list-style-type: none"> ▶ Wear protective gloves. ▶ Wear safety goggles. ▶ Avoid allowing ink to come into contact with skin and eyes.

1. Switch off printer.

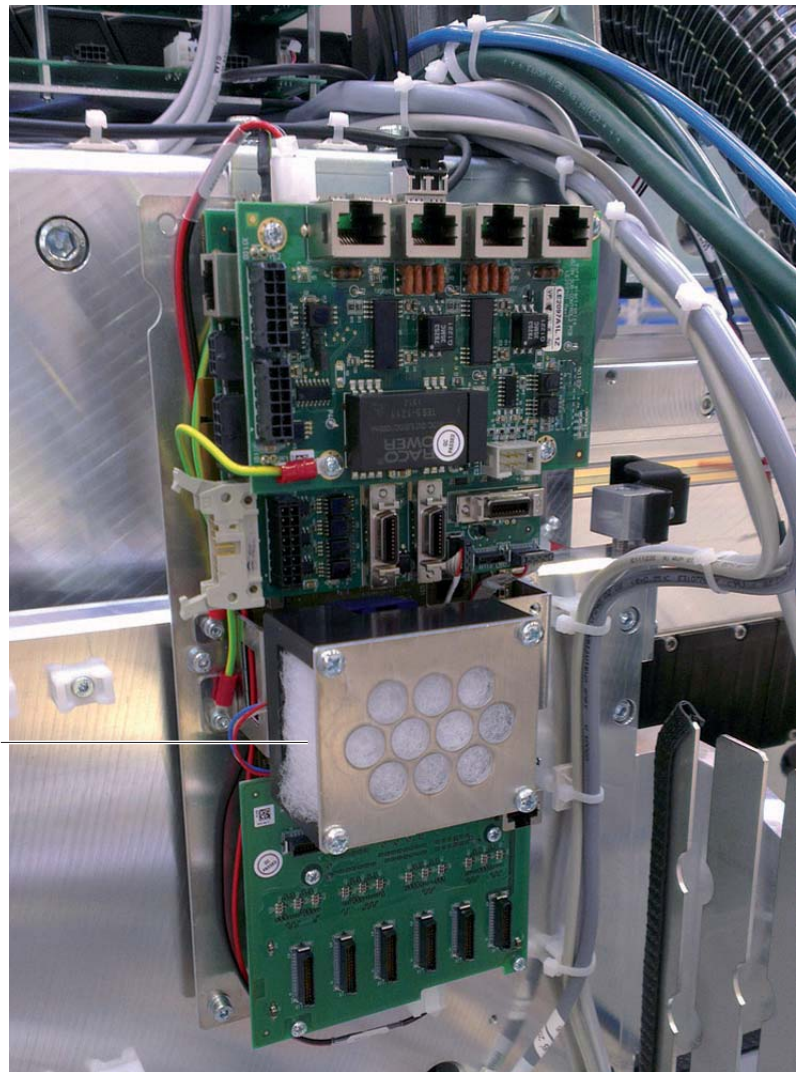


2. Remove cover below on the unloading side.
3. Remove air filters (1) from all 4 vacuum ventilators.
4. Clean air filter with water or change if heavily soiled.
5. Insert air filter.

13 Changing the air filter for fusion board cooling

⚠ WARNING
Contact with ink! Health hazard <ul style="list-style-type: none">▶ Wear protective gloves.▶ Wear safety goggles.▶ Avoid allowing ink to come into contact with skin and eyes.

1. Switch off printer.



-
2. Check filter (1) and change if necessary. When inserting the new filter, ensure that the finely woven side faces the ventilator.

14 Changing main ink filter

The main ink filters prevent the print heads from being damaged by soiled inks.

Tools/Accessories:

- Protective gloves
- Protective goggles
- Specified cleaning cloth
- Specified ink filters

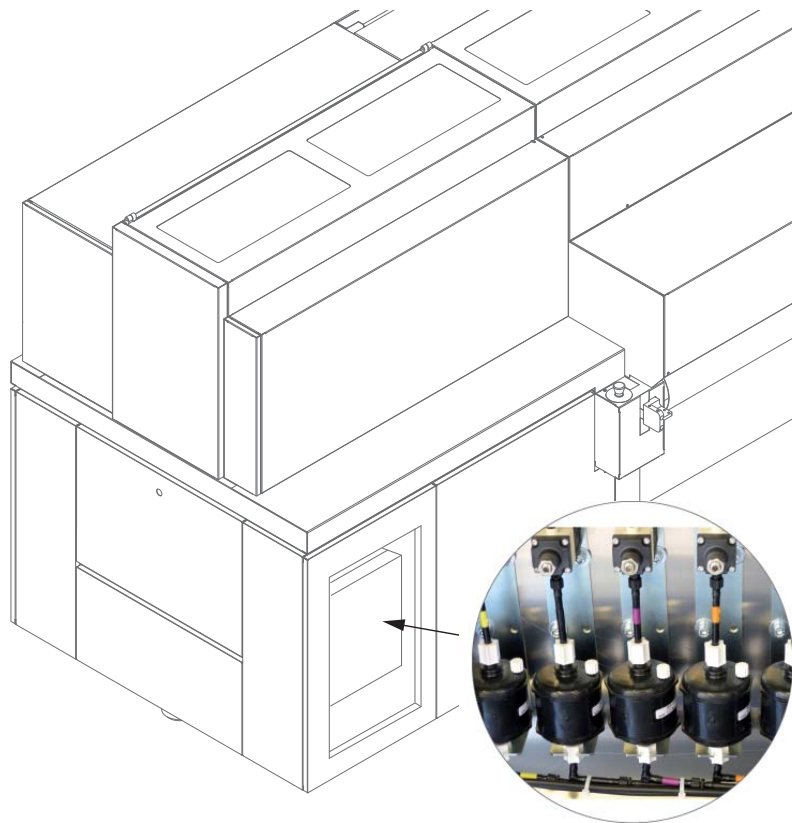


Fig. 40 Location of the main ink filters

▲ WARNING

Squirting ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.
- ▶ Before opening, wrap cleaning cloth around connection.

1. Switch off printer.
2. Screw off cover plate.



3. Screw off fitting of top connection and detach hose of the ink filter.



4. Close ink filter with fitting.
5. To prevent ink from flowing from the ink filter when removing ink, swivel ink filter with the top down.

i When screwing off the bottom fitting, ink may flow from the bottom connection line.

6. Screw off fitting on the bottom connection and carefully remove ink filter.



7. Connect new ink filter at bottom and top connections.
8. Screw on cover plate.
9. Dispose of used ink filters according to local regulations.

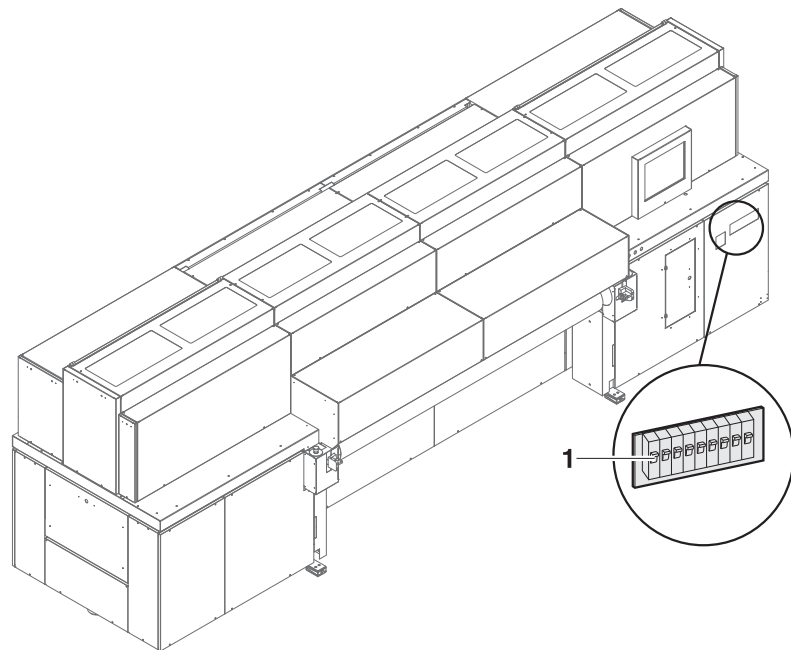
15 Checking fuses

NOTICE

Wrong fuses!

Damage to the printer

- ▶ Allow only Durst service technicians to change fuses.



1. Check whether fuses (1) are switched off.
2. Switch on fuse if necessary.
3. If fuses switch off again, notify Durst customer service.

16 Changing UV lamp

Removing UV lamp holder

⚠ WARNING

Energized components, even when the printer has been switched off!

Risk of death via electric shock

- ▶ Switch off printer with the main switch.

⚠ WARNING

Hot surfaces!

Risk of burns

- ▶ Wait at least half an hour after switching off until the UV lamps have cooled down before attempting replacement.

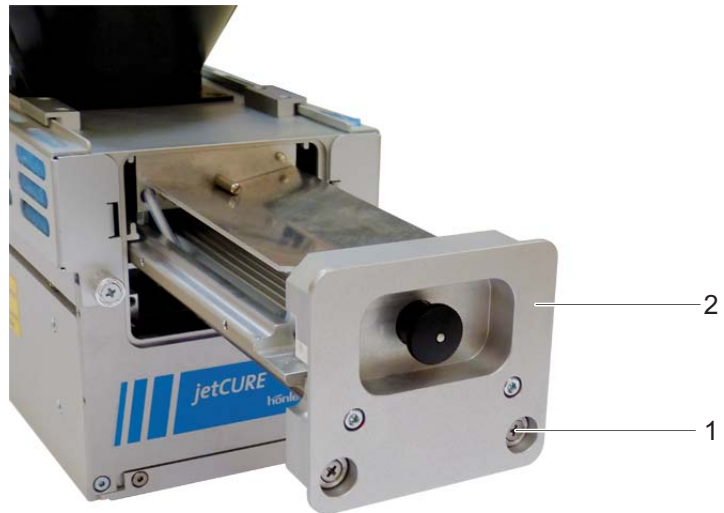
⚠ WARNING

Contact with ink!

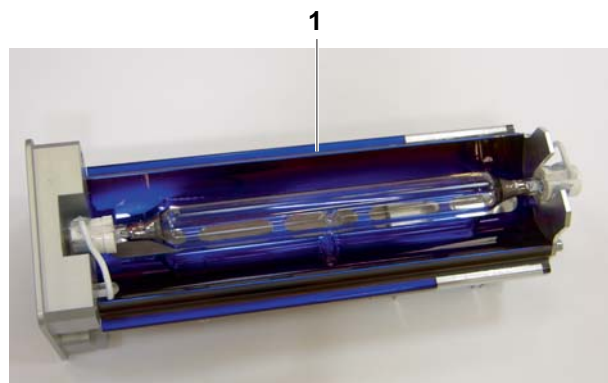
Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

1. Switch off printer with the main switch.
2. Allow UV lamp to cool down for half an hour.
3. Open left-hand flip door on the unloading side.
4. Push print head carriage to a suitable position.

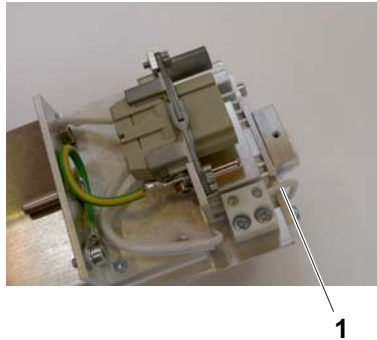


5. Unscrew fastening screws (1) on the cover of the UV lamp holder (2).
6. Pull out UV lamp holder.



7. Set UV lamp holder (1) down on a surface.

Replacing UV lamps



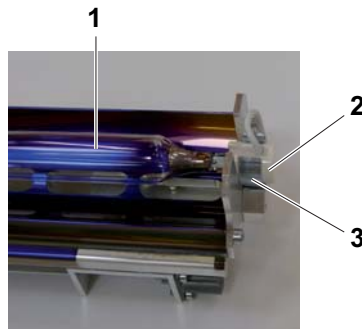
8. Detach the connection cables (1) from the luster terminals on the bottom of the UV lamp holder on both ends of the UV lamp.

NOTICE

Improper removal of the UV lamp!

Breakage of the UV lamp

- ▶ Do not grip UV lamp by the glass body, but rather at the bases on the ends.



9. Remove UV lamp together with the bases as follows:
- Spread retaining brackets (3) apart slightly at one end.
 - Carefully lever out base (2).
 - Pull UV lamp (1) out of the retaining brackets on the opposite end.

NOTICE

Soiling can burn into the glass tube!

Reduced output of the UV lamp

- ▶ Do not touch glass body of new lamp with bare hands.

10. Place new UV lamp with sockets into the retaining brackets.

11. Connect cables to the luster terminals.

Installing UV lamp holder

12. Push UV lamp holder into the UV lamp head.

13. Insert fastening screws and tighten.

14. Close door.
15. Switch on printer with the main switch.

17 Cleaning outlet hole of purge unit

⚠ WARNING

Contact with ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

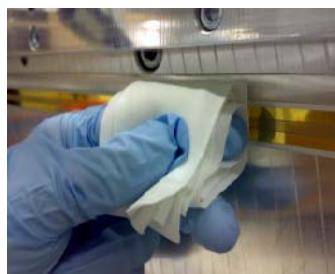


- ▶ Clean outlet hole (1) on the purge tray and ensure that the ink can drain.

18 Cleaning encoder ruler

Tools/Accessories:

- Protective gloves
- Protective goggles
- Specified cleaning cloth
- Isopropyl alcohol



WARNING

Contact with ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

NOTICE

Encoder ruler could be scratched!

Reduced functionality of the printer

- ▶ Do not touch the encoder ruler with hard objects.
- ▶ Clean encoder ruler with the specified cleaning cloths only.

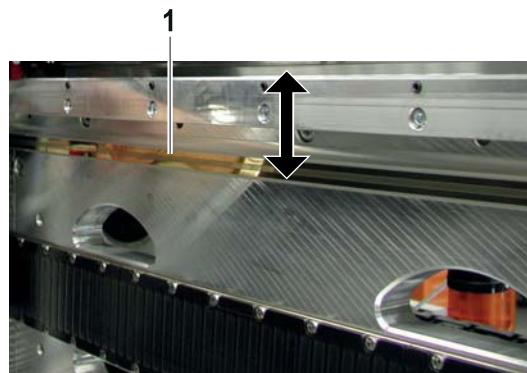
1. Move the print carriage to the left.
2. Switch off printer.
3. Saturate a fresh cleaning cloth of the type specified with isopropyl alcohol.

NOTICE

Wipe off dirt particles horizontally!

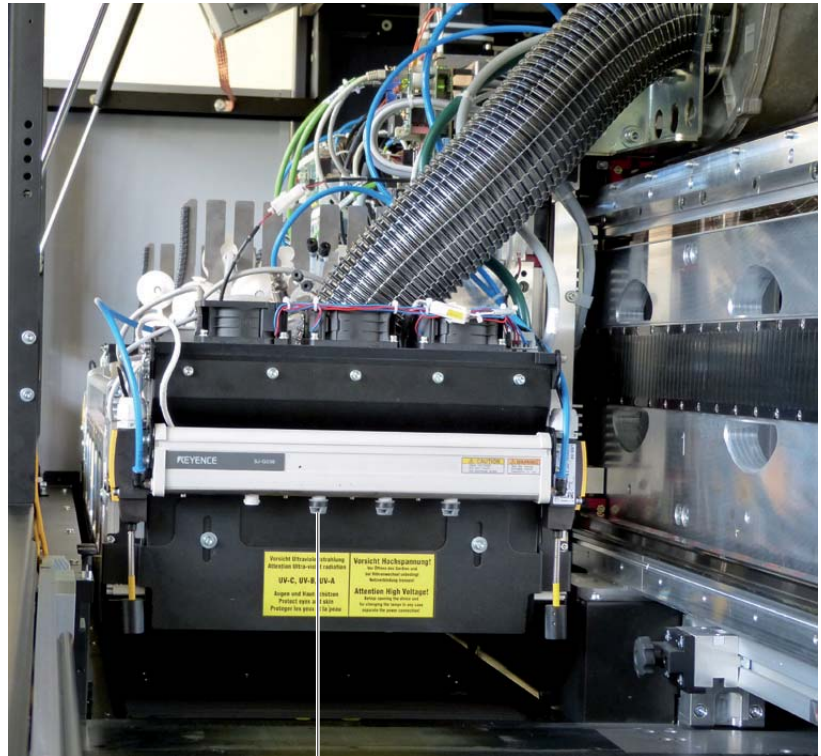
Scratching of large areas of the encoder ruler

- ▶ Wipe encoder ruler vertically only.



4. Carefully wipe encoder ruler (1) with the cleaning cloth in the vertical direction.
5. Move print carriage to the right manually.
6. Clean the rest of the encoder ruler in the same way.

19 Cleaning electrodes of the anti-static unit



1

1. Remove the electrodes (1) from the anti-static unit.
2. Blow out electrodes with compressed air.
3. Insert electrodes.

20 Cleaning suction holes

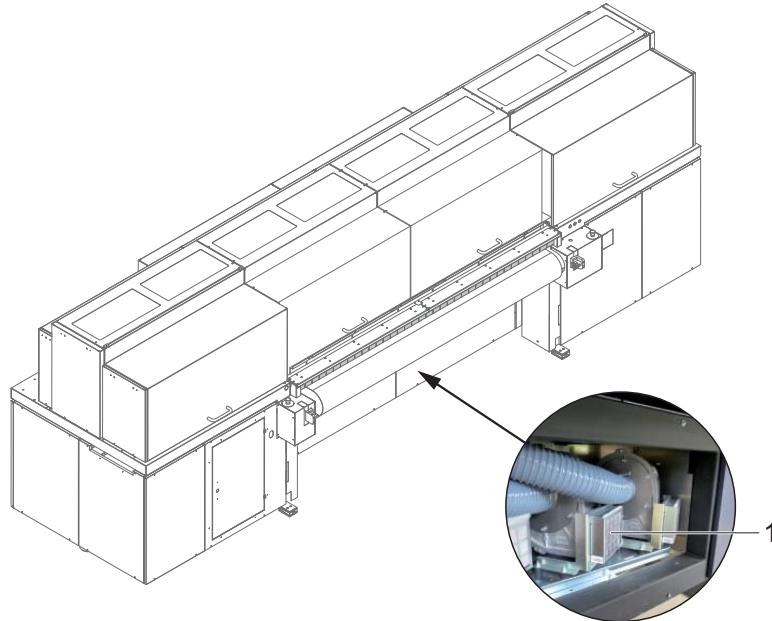


1

1. Clean ink residue from suction holes (1) on both sides of the conveyor belt with a knife.
2. Pierce through suction holes with a thin tool to open them up.

21 Checking suction pressure of the conveyor belt

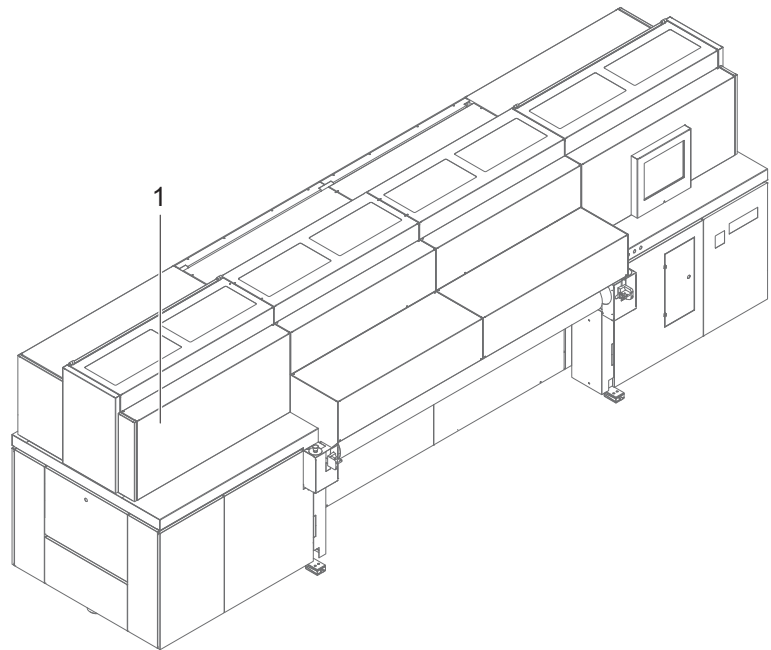
1. Start print queue.



2. Ensure that the vacuum ventilators (1) are turning.

22 Checking lung filter for proper seal

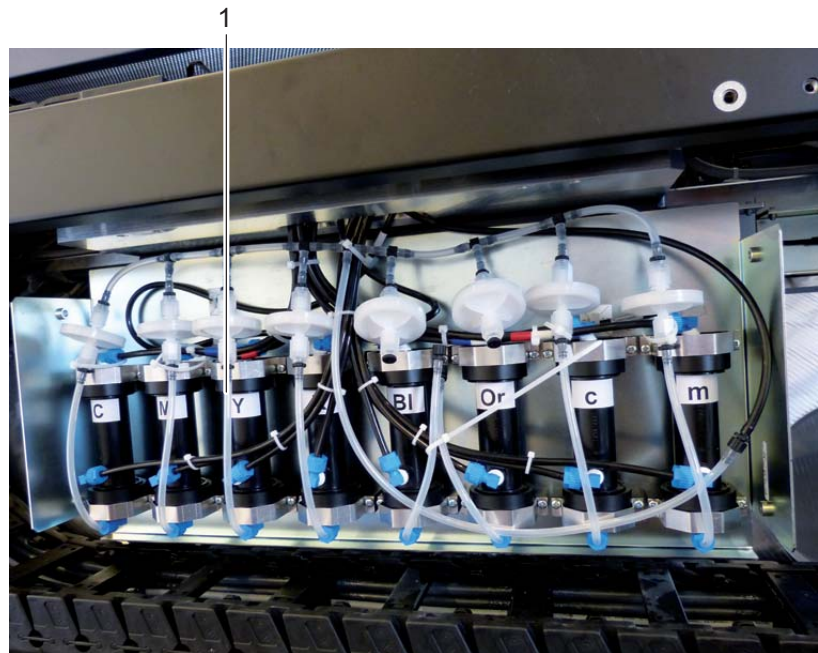
1. Initialize printer.
↳ Print carriage moves upward.
2. Switch off printer.
3. Move print carriage on unloading side to the right.



4. Screw off left-hand housing cover (1) on the loading side.



5. Screw off cover (1).



6. Check filter visually: If there is fluid in the hoses (1), notify Durst customer service.

23 Print head maintenance

23.1 Required tools/accessories

- Protective gloves
- Protective goggles
- Cleaning cloths (WW3009)
- Cleaning solution (Rho Faceplate Solution 1)
- New silicone tube from closed package

23.2 Daily print head maintenance

23.2.1 Beginning of shift

Nozzles can fail due to soiled media or longer downtimes. The following work has to be carried out daily before starting work (once every 24 hours in case of 24-hour operation) and, if necessary, during the shift:

1. Carry out the following cleaning/purging:
 - Long purge cycle
 - Wipe print heads wet (→ Page 105 / Wiping print heads with wet cloth).
2. Print a test image.
3. If several nozzles have failed and angled jets are evident:
 - Repeat long purge cycle two times.
 - Print out a test image and check it.
 - If the quality issues have not been remedied: Notify Durst customer service.

- Warranty and guarantee claims can only be made if the test images have been retained.

4. Archive test image (→ Page 112 / Documentation of the print head state).

23.3 Preparation and completion of cleaning

23.3.1 Preparing for cleaning

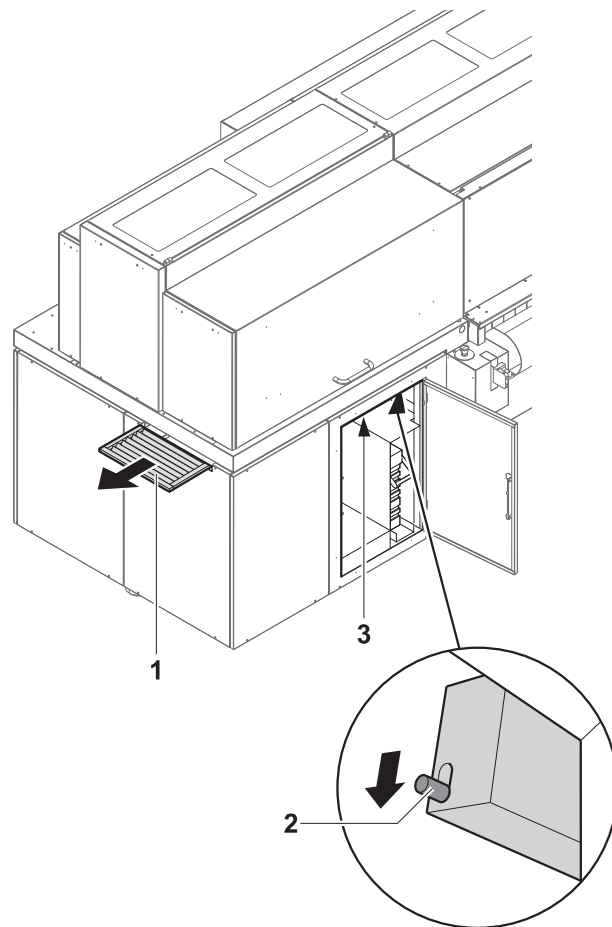


Contact with ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

1. Press **Printer > Purge** in the software.
2. Under **Purge Cycle**, press **Long**, **Short** or **Wipe Only** as required.
 - ↳ The UV lamps are switched off automatically.



3. When prompted to do so by the software, pull out light trap carrier (1) to the first stop.
4. Confirm that you pulled out the light trap carrier in the software.
 - ↳ If either the **Long** or **Short** option was selected, a purge cycle is executed and the ink is caught in the catch tank.
5. When prompted to do so by the software, push unlocking device (2) downward.
6. Pull out light trap carrier to the second stop.
7. Dry or vacuum off print heads (3) or wipe them with a wet cloth as required (→ Page 105 / Wiping the print heads), (→ Page 107 / Suction-cleaning soiled nozzles).

23.3.2 Completing cleaning procedure

- ✓ Wiping or suction cleaning has been carried out.
1. Push in light trap carrier.
 2. In the software dialog window, choose whether a test image is to be printed or the cleaning process is to be completed without a test image.

23.4 Wiping the print heads

23.4.1 Wiping print heads with dry cloth

- ✓ Cleaning has been prepared for (longer or shorter purge cycle)

⚠ WARNING

Contact with ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.



1. Depending on the requirements, wipe the YM and MY print heads or all the print heads wet along the slot once from back to front until all remaining color residues or coatings have been removed. The print head surface must be bare.
2. Print to stabilize the nozzles.

23.4.2 Wiping print heads with wet cloth

- ✓ Cleaning has been prepared for (longer or shorter purge cycle)

⚠ WARNING

Contact with ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

NOTICE

Cleaning with unsuitable cleaning tools!

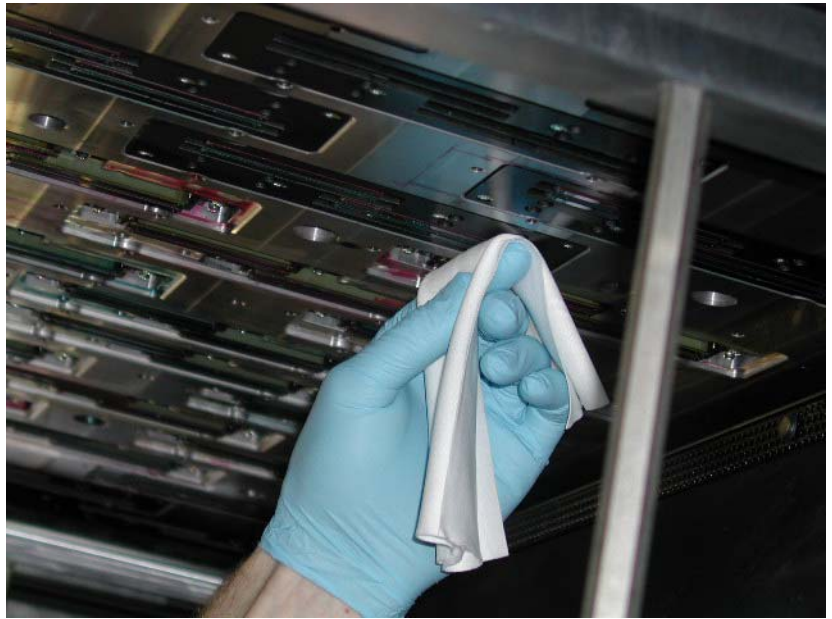
Damage to the print heads

- ▶ Clean print heads with the specified cleaning cloths and cleaning solution only.

1. Pour cleaning solution into dispenser bottle.



2. Saturate cleaning cloth with cleaning solution.

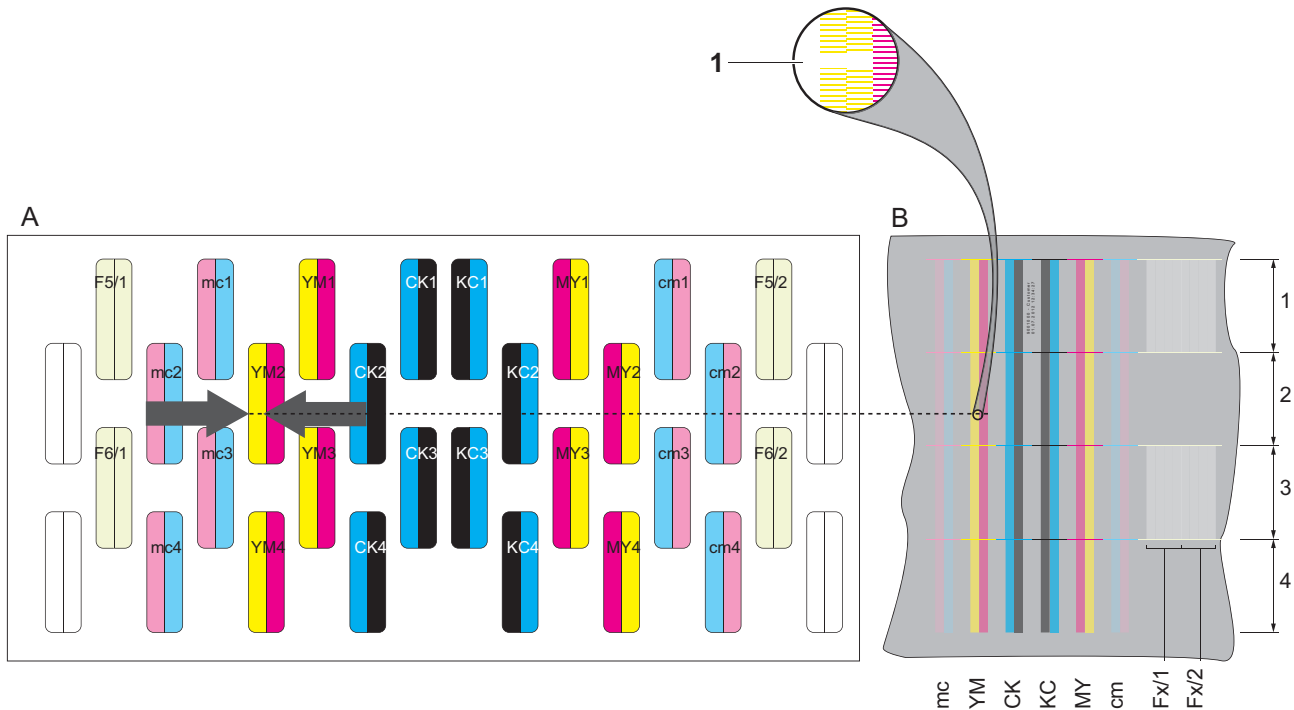


3. Wipe print heads with a wet cloth once along the slot from back to front until all remaining color residue or coatings have been removed. The print head surface must be bare.
4. Print to stabilize the nozzles.

23.5 Suction-cleaning soiled nozzles

Soiled nozzles can be vacuumed out either with the integrated vacuum system or a syringe.

23.5.1 Identifying position



A Print carriage from above
 B Test image from above

1 Position of the soiled nozzle

- ▶ Identify position of the soiled nozzles with the test image.

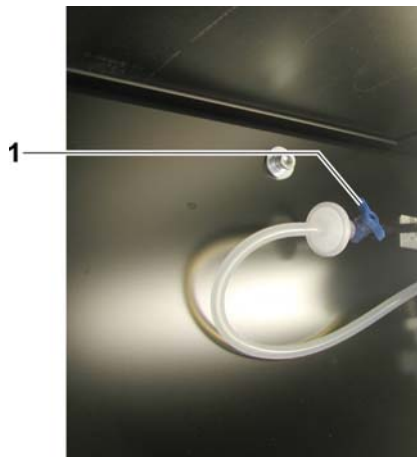
23.5.2 Vacuuming out print heads with vacuum system

- ✓ The cleaning is prepared (software: **Wipe Only**)

WARNING
<p>Contact with ink! Health hazard</p> <ul style="list-style-type: none"> ▶ Wear protective gloves. ▶ Wear safety goggles. ▶ Avoid allowing ink to come into contact with skin and eyes.



1. Place a new silicone tube on the vacuum hose.



2. Open valve (1).



3. Vacuum off print head at the location of the dirty nozzles with the vacuum hose. When doing so, move vacuum hose back and forth approx. 2 cm several times.
 4. Empty the catch glass when it is half full.
- i** If the valve is not closed after vacuuming, the vacuum for degassing the ink drops off. This could cause nozzles to fail during printing.
5. Close valve.

23.5.3 Vacuuming out print heads with syringe

- ✓ The cleaning is prepared (software: **Wipe Only**)

⚠ WARNING

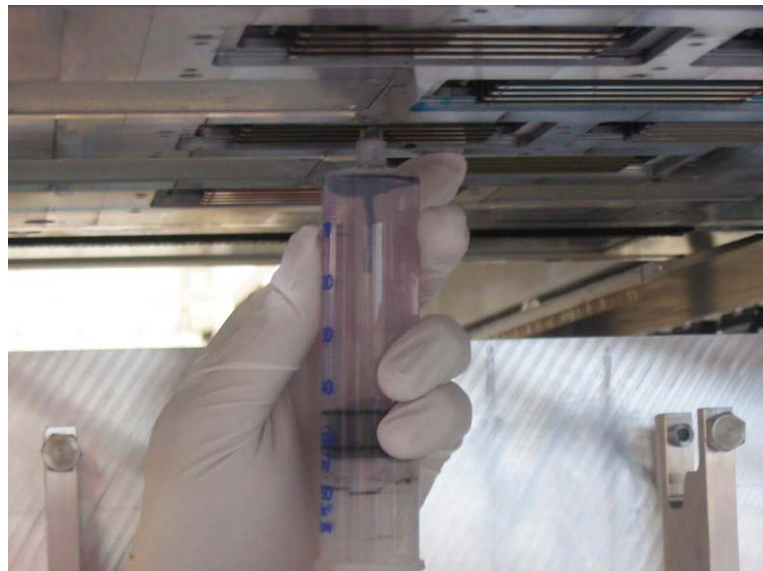
Contact with ink!

Health hazard

- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.



1. Place a new, clean silicone tube (1) on the tip of the syringe.



2. Vacuum off print head at the location of the dirty nozzles by drawing out the syringe piston. When doing so, move syringe back and forth approx. 2 cm several times.

23.6 Cleaning the printing plate

23.6.1 Wiping printing plate

- ✓ The cleaning is prepared (software: **Wipe Only**)

⚠ WARNING

Contact with ink!

Health hazard

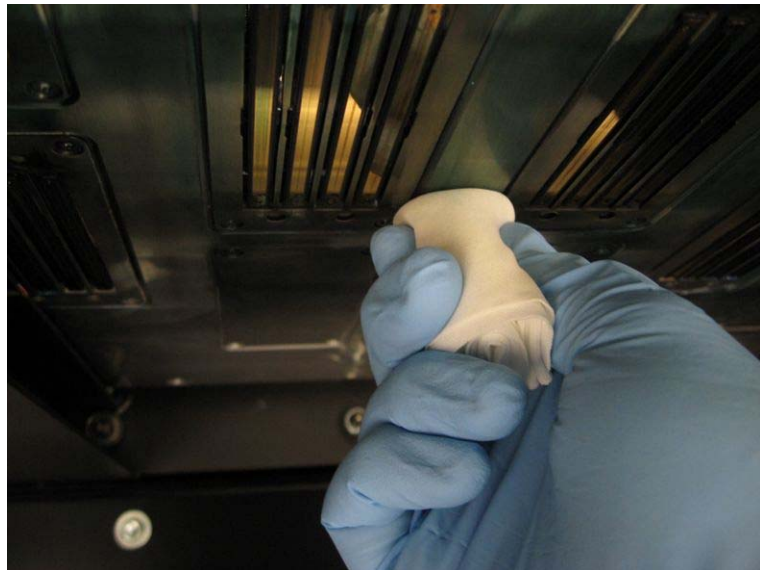
- ▶ Wear protective gloves.
- ▶ Wear safety goggles.
- ▶ Avoid allowing ink to come into contact with skin and eyes.

NOTICE

Improper wiping!

Penetration of dirt into the print heads

- ▶ Wipe printing plate dry only.
- ▶ Do not touch print heads with cleaning cloth.



- ▶ Carefully wipe printing plate around the print heads.

23.7 Documentation of the print head state

23.7.1 Documenting the state of the print heads

1. Create a test image with the date and serial number of the printer.

i Warranty and guarantee claims can only be made if the test images have been retained.

2. Archive test image.

24 Disposal

24.1 Disposing of ink, cleaning cloths and refill tanks

- ▶ Dispose of ink, cleaning cloths and air filters in an environmentally friendly way according to local regulations.

I Decommissioning and disassembly

Decommissioning and disassembly are performed by service technicians authorized by Durst Phototechnik AG.

J Appendix

1 Technical data

1.1 General specifications

Parameter		Value
Power supply	Europe	17 KVA 50 Hz max. 32 A per phase
	US	17 KVA 60 Hz max. 125 A per phase
Max. current consumption	Europe	32 A
	US	48 A
Compressed-air input		Max. 6 to 8 bar with 5 L/min (70 psi at 1.3 gal/min) (dry air only)
Compressed-air connection on printer		Coupling standard MIGNON Interior diameter of line: min. 8 mm (315 mill)
Fuses		Fuse type F374-63/0.5 (500 mA)
Dimensions	Width	approx. 540 cm
	Length	<ul style="list-style-type: none"> ■ With roller tables: 455 cm ■ Without roller table: 173 cm
	Height	<ul style="list-style-type: none"> ■ With closed doors: 195 cm ■ With opened doors: 230 cm
Space requirement	Area	8 x 6 m (26,2 x 20 ft)
	Required room height	260 cm (103 in)
Weight		<ul style="list-style-type: none"> ■ With roller tables: 4000 kg ■ Without roller tables: 3450 kg
Safety standards		Pursuant to applicable guidelines
Emission sound pressure level at the workplace		<78 dB(A)

1.2 Print specifications

Parameter		Value
Printing mode	DraftMode	205 m ² /h
	HighSpeed	110 m ² /h
	2 passes	60 m ² /h
	3 passes	40 m ² /h
	4 passes	30 m ² /h

Parameter		Value
Colors	Standard	CMYK
	Optional	CMYKW and 1 spot color
		CMYK and 2 light and 2 spot (white/white or white/varnish)
		CMYKcm (c = light cyan, m = light magenta)
	Process Color Addition (combination of 2 colors): Orange + Blue or Orange + Green	
Ink supply unit		<ul style="list-style-type: none"> ■ Continuous ink feed with 10 L (2.19 gal) ink tanks per color ■ Color can be refilled during operation ■ Refill ink comes in 5 L (1.09 gal) cubitainers; can be disposed of while assembled
RIP	Software	Caldera Grand RIP+ with the Durst Rho printer driver for Linux and Macintosh operating systems
	RIP input file formats	All formats supported by Caldera®

1.3 Media specifications

Parameter	Value
Rigid media	Uncoated and coated plate media: <ul style="list-style-type: none"> ■ Rigid-foam plates ■ Flexible-foam plates ■ Aluminum ■ Acrylic glass ■ Polycarbonate ■ etc.
Maximum printing width	205 cm
Maximum printing length	Limited only by medium length
Maximum medium thickness	<ul style="list-style-type: none"> ■ Standard: 40 mm ■ Industrial model: 70 mm
Minimum plate size	DIN-A3 (297 mm x 420 mm)

1.4 Workstation

Parameter	Value
Type	HP workstation
RAM	2 GB
Hard disks	<ul style="list-style-type: none"> ■ Separate hard disks for system and image data ■ At least 146 GB for image data

Parameter	Value
Drives	DVD/CD-ROM
Operating system	Red Hat Enterprise Linux WS EM64T
Monitor	Integrated 19" touch-screen monitor
Keyboard	Keyboard with trackball
Connections	<ul style="list-style-type: none"> ■ USB ■ Ethernet: 100/1000 Mbps

1.5 Requirements of location

Parameter	Value
Maximum altitude	2400 m (8000 ft) above sea level
Temperature range	+20 °C to +30 °C
Relative humidity	25 to 80%, non-condensing
Hot air output/feed	4500 m ³ /h (158900 cu.ft./h)
Compressed-air connection	6 to 8 bar with 5 L/min (70 psi at 1.3 gal/min) (dry air only)

2 Accessories and spare parts

Accessory/Spare part	Description	Order code
Rho Operator Kit	<ul style="list-style-type: none"> ■ 100 protective gloves ■ 1 pair safety goggles ■ 1 package cleaning cloths ■ 2 l purging solution ■ 2 syringes 	ZW24010
UV lamp	Average service life: 1000 h	LC2099042
Air filter for the UV lamp heads	–	LB2099041
Adjusted print head	Fully pre-adjusted print head with distributor tank, mounting structure and electronics	LC2021400
Hardware service contract	–	Rho Hardware Contract

3 CE Declaration of Conformity

The CE Declaration of Conformity is attached to the User Manual as an appendix.

Index

ENGLISH TERMS

- Aerosol extractor
 - cleaning air filter 87
- Aerosol extractor air filter
 - cleaning 87
- Alignment
 - image alignment 66
- Anti-static unit
 - cleaning 99
- Auto timer
 - setting 51
- Backup
 - creating 78
- Basic setup options
 - general 53
 - in the input queue 64
- Bidirectional
 - overview 65
- Border
 - image border 66
- Buttons
 - main operating elements 31
- Carriage guide
 - lubricating 82
- Catch tank
 - emptying 82
- Cleaning
 - aerosol extractor air filter 87
 - anti-static unit 99
 - conveyor belt 81
 - encoder ruler 97
 - outlet hole of purge unit 97
 - print heads 102
 - suction holes 99
- Cleaning cloth
 - specification 117
- Cleaning solution
 - specification 117
- Colors
 - technical data 115
- Components
 - of the printer 22
- Compressed air
 - technical data 115
- Conveyor belt
 - cleaning 81
- Description
 - components 22
 - main operating elements 31
- Emergency
 - behavior in 19
- Emergency-stop
 - overview 19
- Encoder offset
 - global value 53
 - specifically for a medium 60
- Encoder ruler
 - cleaning 97
- Encoder test image
 - settings 54
- Family ID
 - overview 52
- Feeding offset
 - setting 60
- Filters
 - changing filters of UV lamp 85
 - changing main ink filter 91
 - cleaning aerosol air filter 87
- Front stop
 - loading wide media 36
- Function
 - of the printer 22
- Fuses
 - checking 93
- Heavy Roll Tool 30
 - operation 33
- Image
 - alignment 66
 - border 66
 - setting image section 70
- Ink
 - Ink Batch Tracking 57
 - refilling 79
 - technical data 115
- Ink filters
 - changing main ink filter 91
- Ink heating
 - ein-/ausschalten 54
 - setting the auto timer 51
- Input printing queue
 - creating 52
- Input queue
 - creating input queue 52
 - preparing jobs 63
- Intended use
 - description 10
- Job
 - preparing for printing 63
- Language
 - setting 53
- License
 - entering code 49
- Loading
 - medium 35

- Location
 - requirements 117
- Lubricating
 - carriage guide 82
- Lubrication
 - changing lubrication plates 83
 - print head height adjustment spindle 85
- Lubrication plates
 - changing 83
- Lung
 - checking lung filter 100
- Main ink filter
 - changing 91
- Main switch
 - main operating elements 31
- Maintenance
 - see Service 75
- Media family
 - overview 52
- Medium
 - loading 35
 - loading process in software 59
 - managing media channels 59
 - permissible media 116
- Offset
 - encoder offset; global value 53
 - encoder offset; specifically for a medium 60
 - feeding offset 60
- Operating mode
 - main operating elements 31
- Oversize
 - for image 66
- Plate media
 - loading with roller table 35
 - roller table 35
- Power supply
 - technical data 115
- Pressure
 - checking suction pressure 100
- Print
 - borderless printing 72
 - print options 65
 - software 63
 - transferring job to the print queue 71
- Print head height adjustment spindle
 - lubricating 85
- Print heads
 - cleaning 102
- Printing plate
 - cleaning 102
- Printing Queue
 - overview 71
- Protective equipment
 - overview 11, 18
- Purge cycle
 - carrying out 102
 - tab Purge 56
- Purge unit
 - cleaning outlet hole 97
- Purging cycle
 - tab Purging 56
- Quality
 - print quality 65
- Residual risks
 - overview 15
- Resolution
 - technical data 115
- Roll media
 - Heavy Roll Tool 30 33
 - loading with Heavy Roll Tool 30 38
 - loading with Light Roll Tool 45
- Roller table
 - docking 35
- Safety equipment
 - overview 11
- Safety signs
 - overview 11
- Service
 - setting maintenance reminder 56
- Size
 - setting image size 70
- Spare parts
 - specification 117
- Suction holes
 - cleaning 99
- Suction pressure
 - checking 100
- Suction-cleaning
 - print heads; manual 107
- Switches
 - main operating elements 31
- Switching off
 - in the evening 30
 - ink heating 51
 - shutting down printer 54
- Switching on
 - in the morning 30
 - ink heating 51
 - starting up printer 54
- Test image
 - printing; software 54
- Timer
 - setting the auto timer 51
- Types of danger
 - overview 15
- Unidirectional
 - overview 65
- Units
 - setting 53
- UV lamp
 - changing 94
 - changing filter 85

- documenting change 58
- setting power 60
- switching on/off 54
- Validation
 - entering code 49
- Warning signs
 - overview 11
- Warnings
 - overview 8
 - Wiping
 - print heads 105
 - Wiping with dry cloth
 - print heads 105
 - Wiping with wet cloth
 - print heads 105



Durst Phototechnik
Digital Technology GmbH
Julius-Durst-Straße 11
A-9900 Lienz, Austria
Phone +43/4852/7 17 77
Fax +43/4852/7 17 77 50
www.durst-online.com
info@durst-online.at

The latest technical developments are constantly being incorporated into Durst products. Illustrations and descriptions are therefore subject to modification. All rights reserved on images and illustrations.

© Durst Phototechnik AG
Durst Rho P10 200, Edition 10/2013