



Rho P10 200/250

Service Manual – Maintenance

Edition 03.04.2014

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1 About this document

- ▶ Make sure that this document is accessible at all times.
- ▶ Insert all supplements received from Durst Phototechnik AG into this document.
- ▶ Read and comply with this document and all other documents in the service documentation.

1.1 Purpose and target group

This document is part of the service documentation and contains information on the maintenance of the printer.

This information applies to printers of the Rho P10 200/250 range of Durst Phototechnik AG and should be referred to by the following personnel:





- Durst Phototechnik AG Service Engineers (Service Engineer DV)
- General service technicians (Service Technician GV)
- Customer's technicians trained on site (In-house Technician)

1.2 Revisions

Issue of the document	What is new?
14.02.2014	First edition
03.04.2014	Exchange of UV exhaust air hoses added (maintenance plan)

Tab. 1: Revision index

1.3 Symbols and markers

Symbol	Meaning
✓	Pre-requirement for an action
▶	Request for a single-step action
1.	Step within a request for a multi-step action
↪	Result of an action sequence
	Note for easier or safer work
→	Cross-reference
 DANGER!	Immediately dangerous situation, where disregard of the safety measures will lead to death or serious injury.
 WARNING!	Potentially dangerous situation, where disregard of the safety measures may lead to death or serious injury.
 CAUTION!	Potentially dangerous situation, where disregard of safety measures may lead to minor injury.
NOTE!	Potentially dangerous situation, where disregard of the safety measures may lead to damage to property.

Tab. 2: Symbols and markers

1.3.1 Structure of warnings

Warnings are structured as follows (shown here as an example: the warning level "WARNING"):

 **WARNING! Type and source of the hazard**

Consequences of the hazard.

- ▷ Measures for avoiding the hazard.
- ▶ Read the warning and comply with it.


2 Maintenance plan

2.1 Maintenance intervals for service technicians

When?	What?
Annually	<ul style="list-style-type: none"> ▶ Grease the head media distance rail bearings of the print carriage (→ Chapter 3.4.2, p. 13). ▶ Check the print heads and adjust them if necessary (→ Service Manual – Print head). ▶ Check the compressed air system (→ Service Manual – Settings). ▶ Check and adjust the crash sensor (→ Service Manual – Settings). ▶ Check and adjust the head media distance (→ Service Manual – Settings). ▶ Clean and check the cooling fan on the fusion board. The cooling fan must run smoothly. ▶ Check the cable chain (→ Chapter 3.1.1, p. 9). ▶ Grease the transport belt motor (→ Chapter 3.2.1, p. 10). ▶ Clean the media feed roll unit linear guide (→ Chapter 3.3.1, p. 12). ▶ Grease the rail bearings of the print carriage (→ Chapter 3.4.1, p. 13). ▶ Adjust the media feed roll unit distance (→ Service Manual – Settings).
Every 3 years	<ul style="list-style-type: none"> ▶ Change the lung filter (→ Chapter 3.5.2, p. 15). ▶ Empty and flush the main ink tank. ▶ Change the UV-exhaust air hoses
If necessary	<ul style="list-style-type: none"> ▶ Remove frayed edges of the transport belt (→ Chapter 3.2.2, p. 11). ▶ Check and adjust the tension of the transport belt (→ Service Manual – Settings). ▶ Change the UV quartz filter (→ Service Manual – UV unit). ▶ Change the UV reflector (→ Service Manual – UV unit). ▶ Change the UV lamp (→ Service Manual – UV unit).

Tab. 3: Maintenance intervals for service technicians

2.2 Maintenance intervals for the operating company

 The following maintenance activities must be performed by the operating company (→ operating instructions).

When?	What?
Daily	<ul style="list-style-type: none"> ▶ Perform daily maintenance work on the print head. ▶ Check all warning signs for cleanliness and legibility, and replace them if necessary. ▶ Visually check the printer covers. ▶ Check the transport belt for dirt and damage. Clean it if necessary. ▶ Make sure that all safety equipment is fitted and in good working order. This applies particularly to the following safety equipment: <ul style="list-style-type: none"> – Emergency stop switches – Safety door switches
Every 2 days	<ul style="list-style-type: none"> ▶ Clean the filter of the ink mist collection unit.
Weekly	<ul style="list-style-type: none"> ▶ Wipe the printing plate clean ▶ Visually check the carriage rail bearings for damage, and grease them. ▶ Check the air filter on the vacuum fan. ▶ Clean the ink drain on the purge unit. ▶ Check the suction holes at the edge of the transport belt for blockage. Clean them if necessary. ▶ Check the condition of the encoder ruler and clean it if necessary. ▶ Visually check the print carriage rails for damage, and oil them. ▶ Check the filter for the fusion board cooling and exchange it if necessary.
Every week on Monday	<ul style="list-style-type: none"> ▶ Document the condition of the print heads.
Monthly	<ul style="list-style-type: none"> ▶ Check the air filter for the UV bulb and exchange it if necessary. ▶ Check the lung filter for leaktightness. ▶ Clean the electrodes of the anti-static unit using compressed air. ▶ Clean the air filter on the vacuum fan.
Every 6 months	<ul style="list-style-type: none"> ▶ Create a backup. ▶ Change the lubrication plate for the sledge rail bearings.

When?	What?
Annually	<ul style="list-style-type: none"> ▶ Check the left and right light trap for damage. If necessary paint them with material and temperature-resistant black color. ▶ Grease the spindle system for the head media distance unit. ▶ Change the main ink filter.
If necessary	<ul style="list-style-type: none"> ▶ Clean the printer covers. ▶ Top up the inks. ▶ Clean up any ink that flowed out. ▶ Clean the transport belt. ▶ Empty the waste ink tank. ▶ Check if the table vacuum fans are running. ▶ Clean the encoder ruler. ▶ Change the UV lamp air filter. ▶ Change the UV bulbs. ▶ Change the filter for the fusion board cooling fans. ▶ Change the filter for the ink mist collection unit. ▶ Clean the ink mist collection unit.

Tab. 4: Maintenance intervals for the operating company

3 Maintenance activities

3.1 Cable chain

3.1.1 Checking the cable chain



1. Check the cable chain for damage.
2. Check the cables and leads in the cable chain for damage.
3. If cables or hoses are damaged, contact Durst-Service.

3.1.2 Greasing the cable chain

- ✓ Have the necessary materials to hand:
 - Industrial Vaseline (order number 4235720)
 - Ring brush



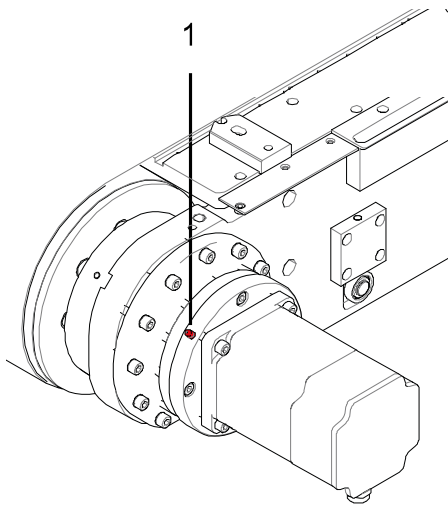
- ▶ Lubricate all cables and leads in the cable chain with Vaseline, where they cross the intermediate bars.

3.2 Transport unit

3.2.1 Greasing the transport belt motor

- ✓ Have the necessary materials to hand:
 - Gearbox lubricating grease for the harmonic drive gearbox (order number 4290026, 2 syringes each 40 ml)

i Included in the operator kit there are also 2 syringes each 40 ml.



1. Remove the grease nipples (1).
2. Inject the grease into the gearbox directly from the syringe (40 ml).
3. Fit the grease nipples (1).

3.2.2 Remove frayed edges of the belt

i Hair must be removed from the edge of the belt because otherwise they would be detected by the media detect sensor. This may possibly lead to loss of registration of the image position on board media or printing on to the transport belt.

✓ The printer software must have been started in service mode

✓ Have the necessary tools to hand:

– Lighter

1. Select the **Communication** tab.

2. Send the serial command `FTT0` to activate manual loading.

3. Send the following serial commands to select the desired media detect sensor:

– `SFS0` for the right hand media detect sensor

– `SFS1` for the left hand media detect sensor

i For printers with 2 media detect sensors (left and right) the complete procedure must be performed successively for each of the two sensors.

4. Send the serial command `MF0` to start the procedure.

NOTE! Naked flames can damage or destroy the transport belt!

▷ Never allow the lighter to remain long at one place.



5. Burn off the hair with a lighter whilst the transport belt is turning.

6. Remove the hair whilst the transport belt performs at least one rotation without stopping.

7. Send the serial command `MF1` to stop the procedure.

3.3 Media feed roll unit

3.3.1 Clean the linear guides

- ✓ The printer software must have been started in service mode

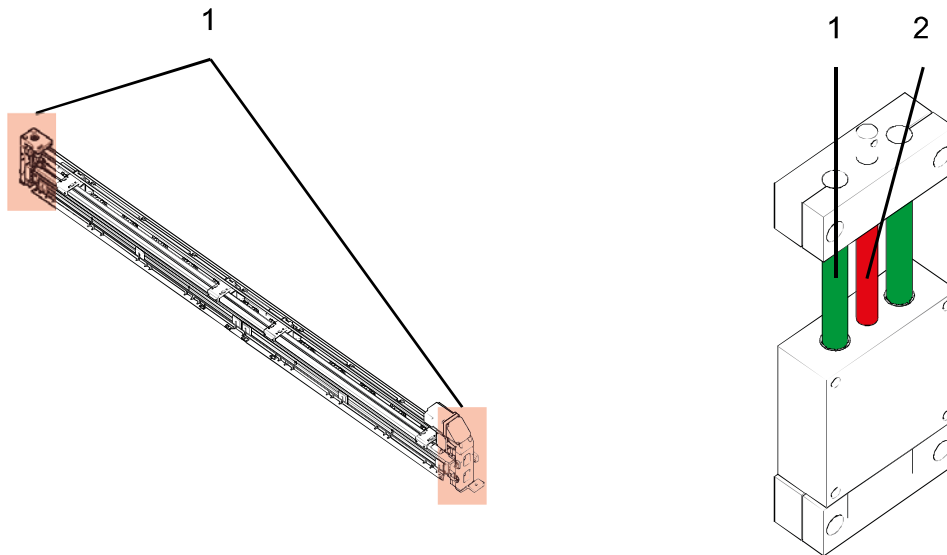


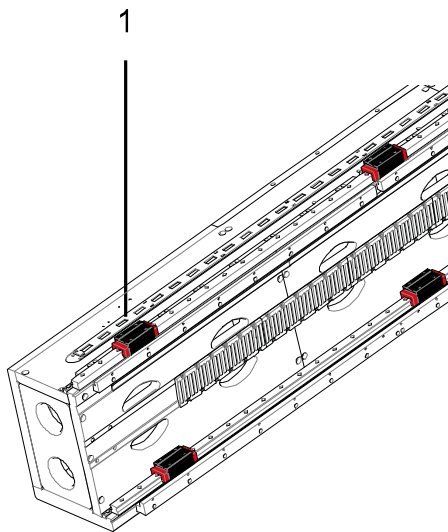
Fig. 1: Linear guides A

1. Select the **Motors** tab.
2. In the **Feed Roll Distance** area, press the **Init** button.
The media feed roll unit moves to the top position.
3. Remove all dirt from the spindles (2) and guides (1) on both sides of the media feed roll unit.

3.4 Print carriage

3.4.1 Grease the rail bearings of the print carriage

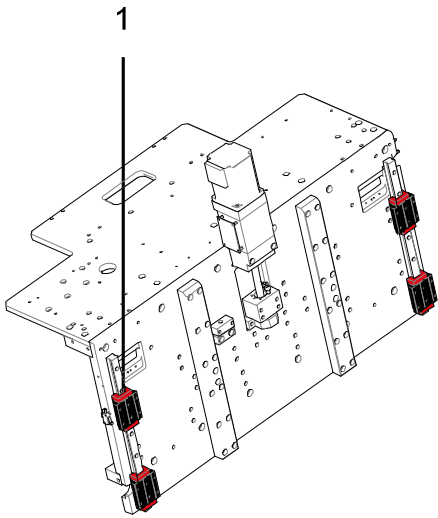
- ✓ The printer software must have been started in service mode
- ✓ Have the necessary materials to hand:
 - Klüber ISOFLEX LDS18 lubricating grease (order number 4201011)
- ✓ Have the necessary tools to hand:
 - Grease gun (order number 4290003)
 - The extension kit for the grease gun (order number LE2099961; contains a flexible hose and a rigid extension)



1. Select the **Motors** tab.
2. In the **Head Media Distance** area, press the **Init** button.
The print carriage moves to the top position.
3. Fit the flexible extension to the grease gun.
4. Use the grease gun to grease all 4 guide trolleys via the grease nipples, each receiving 2 g (0.071 oz.) of grease.

3.4.2 Greasing the rail bearings of the head media distance unit of the print carriage

- ✓ The printer software must have been started in service mode
- ✓ Have the necessary materials to hand:
 - Klüber ISOFLEX LDS18 lubricating grease (order number 4201011)
- ✓ Have the necessary tools to hand:
 - Grease gun (order number 4290003)
 - The extension kit for the grease gun (order number LE2099961; contains a flexible hose and a rigid extension)



1. Select the **Motors** tab.
2. In the **Head Media Distance** area, press the **Init** button.
The print carriage moves to the top position.
3. Fit the flexible extension to the grease gun.
4. Use the grease gun to grease all 4 guide trolleys via the grease nipples, each receiving 2 g (0.071 oz.) of grease.

3.5 Ink circuit

3.5.1 Measuring the ink flow rate

- ✓ Have the necessary tools to hand:
 - New syringe
 - Tube piece
- 1. Select the **Pumps / Valves** tab.
- 2. Switch off the ink level.
- 3. Pull the ink tube for the color to be measured off the ink distribution block and cap it at the print head side.
- 4. Connect the piece of tube to the ink distribution block and connect the open end of the tube to the syringe. When doing this, be sure to push the syringe through its full travel.
- 5. Open the valve on the ink distribution block.
- 6. Select the pump switch off time (10 seconds).
- 7. Switch on the pump for the color to be measured.
The pump will switch off again after 10 s.
- 8. Check how much ink is in the syringe.
- 9. Pull the piece of tube off the ink distribution block and reconnect the ink tube.
- 10. Switch on the ink level.

3.5.2 Changing the lung filter



WARNING! Contact with inks!

Risk to health if inks are allowed to come into contact with skin or eyes or if inks are breathed in.

- ▷ Wear safety gloves.
- ▷ Wear safety glasses.
- ▷ Avoid allowing the ink to come into contact with skin or eyes.

1. Select the **Pumps / Valves** tab.
2. Switch off the ink level.
3. Run the print carriage to the left side.
4. Unscrew the casing cover.
5. Unscrew the cover for the lung unit.

NOTE! Contamination of the lung unit by ink!

Pulling the tubes off allows the ink to run out.

- ▷ Before pulling off the tubes, place cleaning cloths over the lung unit to protect it against contamination.
6. Pull the ink tubes and lung vacuum tube off the lung filter, and cap them.
 7. Remove the lung filter and dispose of it in accordance with the regional regulations.
 8. Fit the new lung filter.
 9. Connect the ink tubes and lung vacuum tube.
 10. Screw on the cover and the casing cover.
 11. Switch on the ink level.

3.6 UV system

3.6.1 Measuring the UV intensity

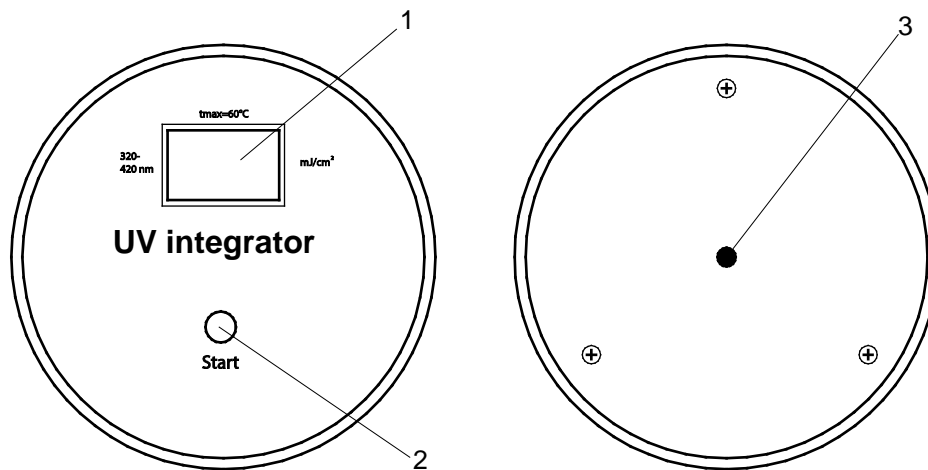


Fig. 2: Overview of the UV integrator

- 1 LCD-Display
- 2 Start button
- 3 UV probe

1. Load the roll medium with the following settings:
 - Thickness = Thickness of UV integrator + 8 mm
 - HMD 2 mm
 - UV intensity 16
2. Mask the media-detect sensor.
3. Start up the UV integrator by pressing the Start button (2).
4. Place the UV integrator on the transport belt with the rear of the device towards the UV bulb 2.
5. Select the **Test pattern** tab.
6. Check and if necessary adjust the following settings:

Area	Settings
Colors and Slots	Deactivate all
Print Quality Mode	Test pattern
Test pattern	Full Pattern
Heads	Deactivate all print head modules
Options	<ul style="list-style-type: none"> ■ High Resolution ■ Bidirectional ■ Check UV Lamps
Num. of Advances	1

Tab. 5: Measure the UV intensity settings

7. Press the **Expose** button.
8. Read the measured value for the UV bulb 2 from the LCD display (1). Repeatedly press the Start button (2) to zero the measured value display.
9. Repeat the procedure for UV bulb 1.