5   Print Head Adjustments

5.1 Introduction

5.1.1 Info

The proportions of the test images in this document may differ from the real test prints since the images in the document are for illustration purpose only!

5.1.2 Tools

Hex-nut spinner short version **4mm** for mechanical head movement
We use: *hoffmann-group.com* no: 622300

Optical Camera Measuring System
LH2099350

5.1.3 Print Head

Print Head: Top view

Y-Adjustment Screw

Fixing Screws

X-Adjustment Screws

Slot 1
Slot 3
Slot 2
Slot 4

1

2

3
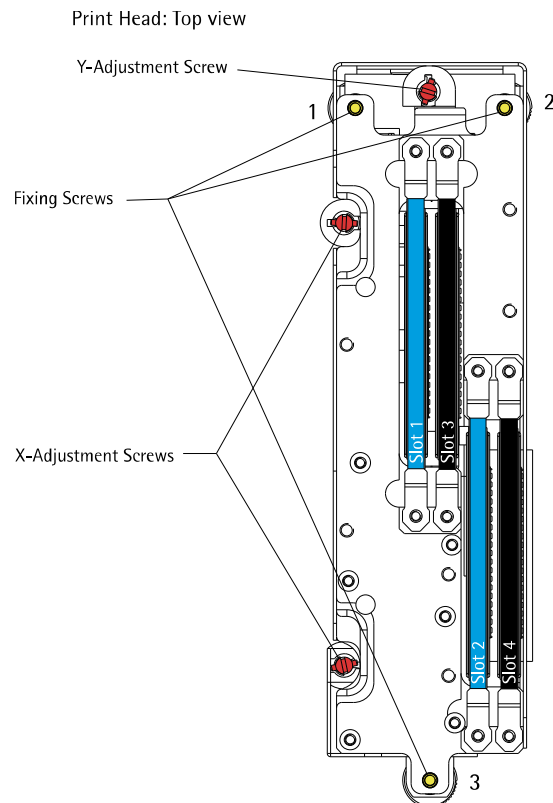
- The fixing screws must be loosen for any mechanical head adjustment
- By turning the adjustment screws CW the head will move away from the screw
- By turning the adjustment screws CCW only the head will not move to the screws, in this way additional the head has to be pushed with a little force by hand
- At the Y-Adjustment screw 1 rotation means approx. 1 Pixel
- Do not forget to close the fixing screws (order: 3, 2, 1) after the mechanical adjustment!

5.1.4 Slot Geometry

1 Slot 256 nozzles
1 Head 1024 nozzles
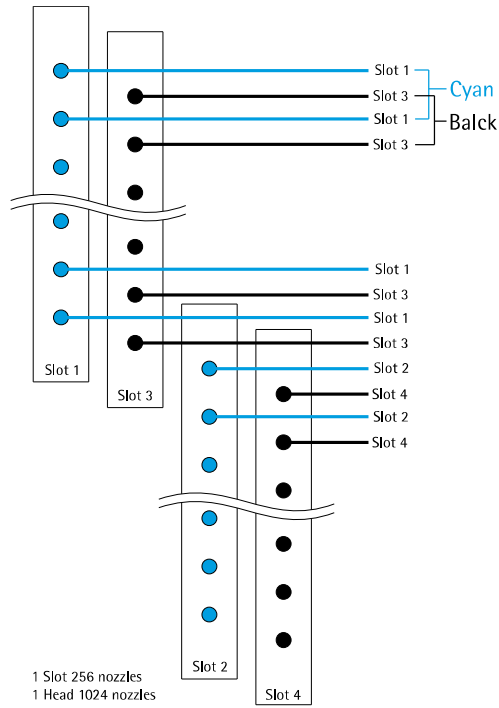
5.1.5 Print Head Arrangement

(Seen from printers output side)

CMYKBOcm

5.2 Mechanical Adjustment

5.2.1 Overview

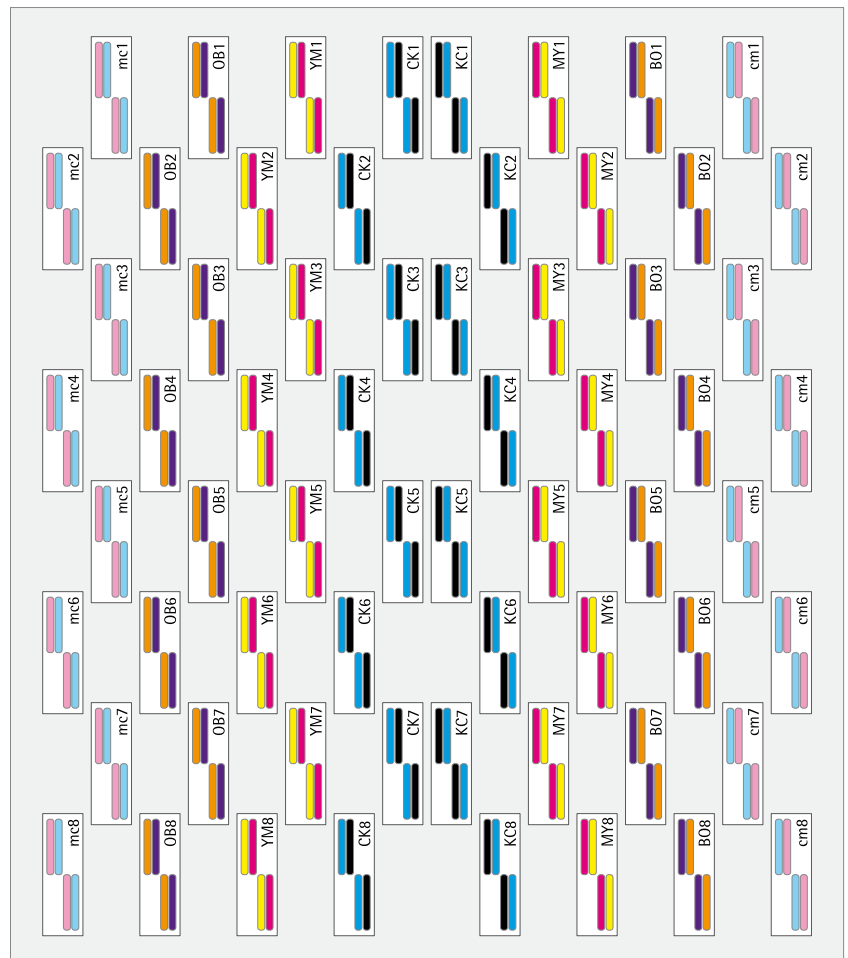|	Print Image	Description	Comment	Step
X Direction	X Rotation	Brings the heads in the right angle		1
Y Direction	Y Distance	Aligns the reference heads (CK) to each other	½ Rotation ≙ 1 Pixel	2
	Y Align	Aligns all other heads to the reference heads (CK)		3

5.2.2 Y Offset

For a complete head alignment procedure (all print heads) it is needed to put all print heads to an offset in y-direction:
- Loosen all adjustment screws
- Push all heads to the upper left corner
- (Tighten all fixing screws)
- Turn all adjustment screws CW until they are touching the heads frame (resistance is tangible)
- (Loosen all fixing screws a few rotations)
- Turn all Y-adjustment screws 1.5 rotations CW to get the offset

5.2.3 Printing Method
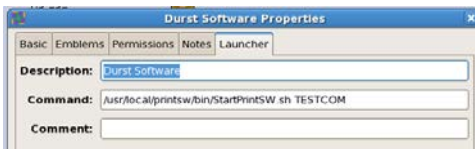
- To **activate Production mode** in the *Durst Print Software* right click the icon on the Desktop
- Go to *Properties – Launcher*
- Change *Command* to: /usr/local/printsw/bin/StartPrintSW.sh PRODUCTION
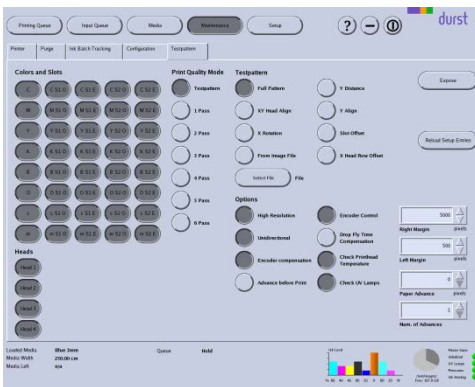
- All the pattern are printed in the *Durst Print Software* on the *Printer-Service-Testpattern* page
- For the following images activate the following options: *High Res., Unidir., Check PH Temp.* and *Check UV*

- For an automatic media advance select the *Advance before Print* option and enter 16400 in the *Paper Advance* field.

5.2.4   X Rotation
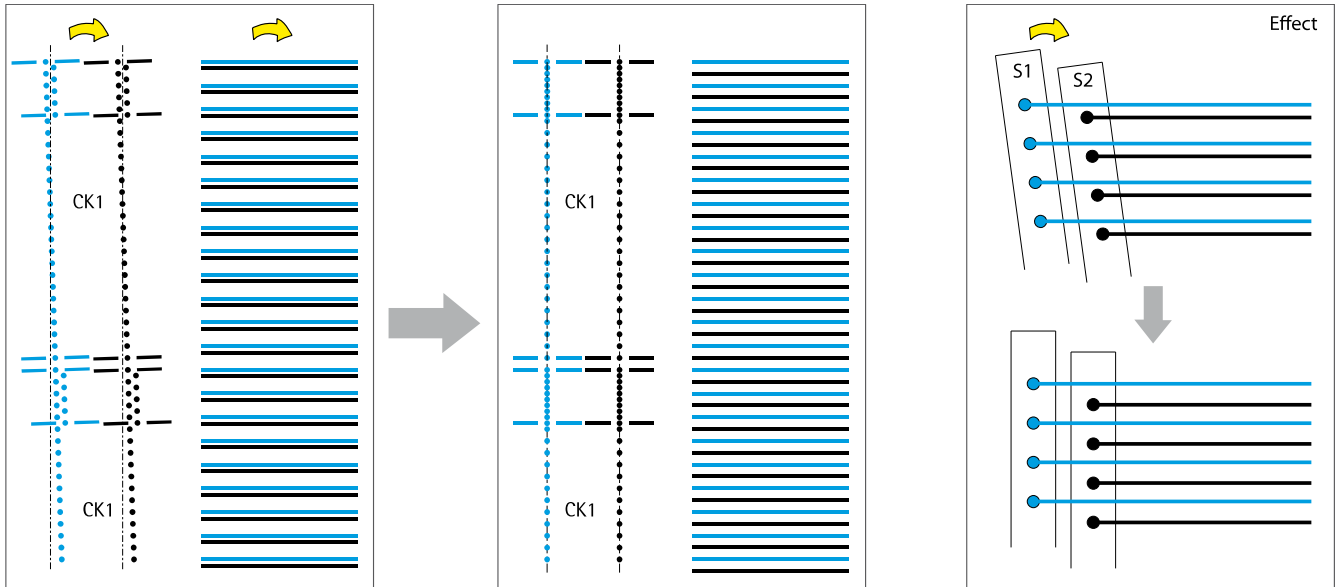
Fig: Rotation on CK heads

- Print *XRotation*
- The image is printed in two steps and showing the lineup of the *top and bottom area within each head (slot) and a "fullpatern"*
- The lines in the *fullpattern* need to have equal distances
- On the vertical dotted lines the areas on top need to aligning
- The heads can be straightened by using the X-Adjustment screws
- **The *fullpatern* has the higher priority**

- In this sample a CW rotation of the headCK1 would be needed (turn CW on upper X-Adjustment screw, or turn CCW on lower screw)
- The adjustment can be done at all heads at the same time

5.2.5 CK – Y Alignment

🔲 Adjustment area
🔲 Reference area
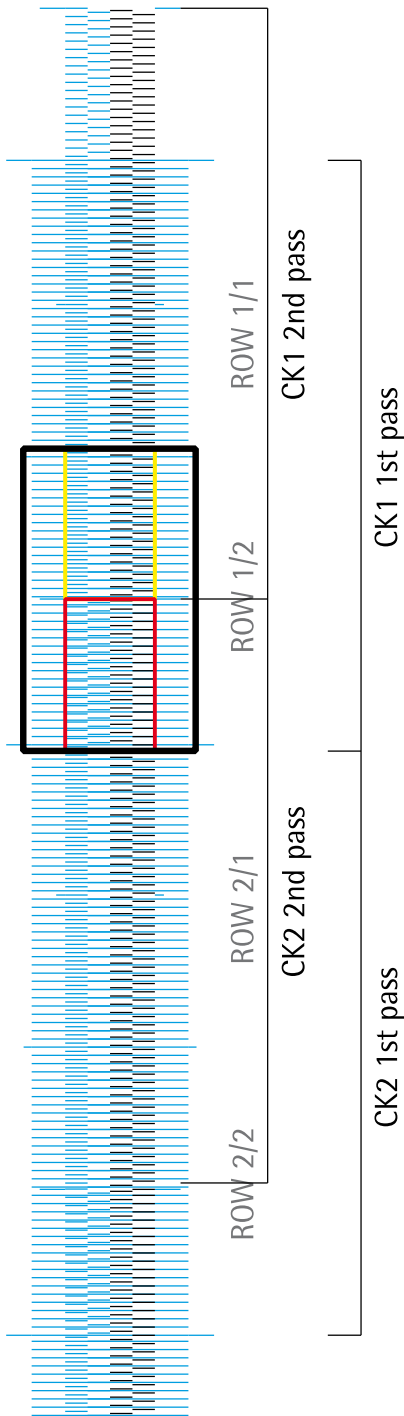
- Print *YDistance*

Colors and Slots:	C, M, Y, K
Print Quality Mode:	Testpattern
Testpattern:	Y Distance
Heads:	all Heads
Paper Advance:	512
Num. of Advances	1

Options:

☒ High Resolution	☒ Encoder Control
☒ Unidirectional	☐ DFT Compensation
☒ Encoder comp.	☒ Check PH Temp.
☒ Advance before Print	☒ Check UV Lamps
☐ Smart Speed	☐ Use Slot mask

- The Y-Distance adjustment is done on the CK heads only since CK are the reference heads in each level
- This adjustment must be done Level by Level (CK1 to CK2, CK2 to CK3, ...) and carefully as this **will affect the following steps**!
- Check the pattern in the *Reference area*
- Make the **pattern in the *Adjustment area* equal to the pattern in the *Reference area*** by moving the CK2 head up or down
- It is not required to get the short lines in the center of the long ones, but equal in both areas
- Take care of the border between the areas since there may not be a gap or overlapping of two nozzles, in this case a head could be shifted for a complete *pixel*

- In this sample it would be necessary to move the lower head down
- Then repeat the procedure step by step to all other CK heads
- The first rough adjustment can/should be done with the naked eye, if the pattern looks exactly the same all over (no color or brightness difference), proceed with the magnifier
- Now the CK heads are not to be touched any more (except fixing)

- Proof the adjustment by printing a *Fullpatern* with following settings
  Activated Slots: *CS1E, KS2E*
  Activated Heads: *All*
  Print Quality and Testpattern: *Fullpattern*
  Paper Advance: *512*
  Num. of Advances: *2*
  Options: *High Resolution, Unidirectional, Enc. Comp., Advance before Print, Encoder Control, Check PHs, Check UV*
- All the "head overlapping areas" should look equal

5.2.6 KC – Y Alignment
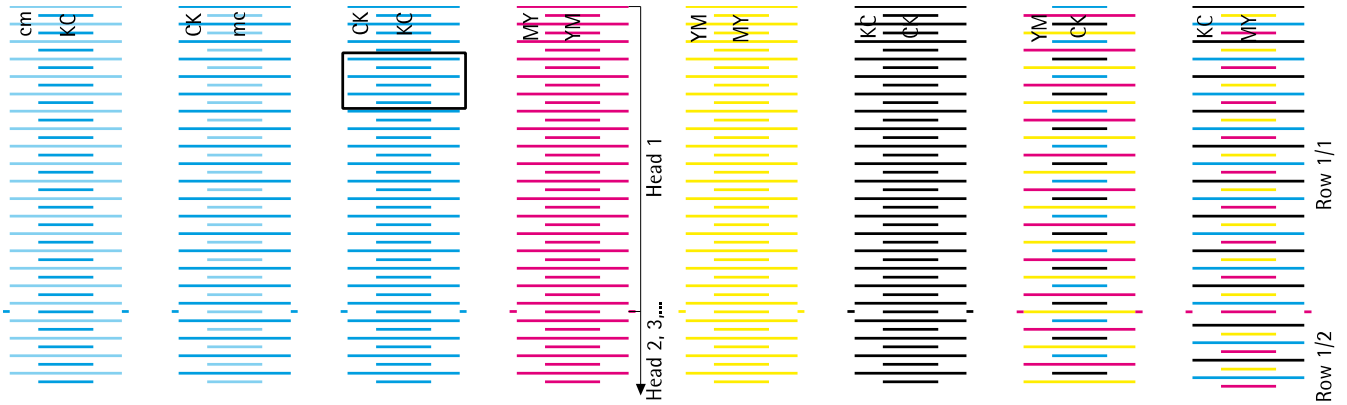
Only the **YM/CK pattern** starts with a **short line on top** and ends with a **long line at bottom** all others start with long lines and end with short lines
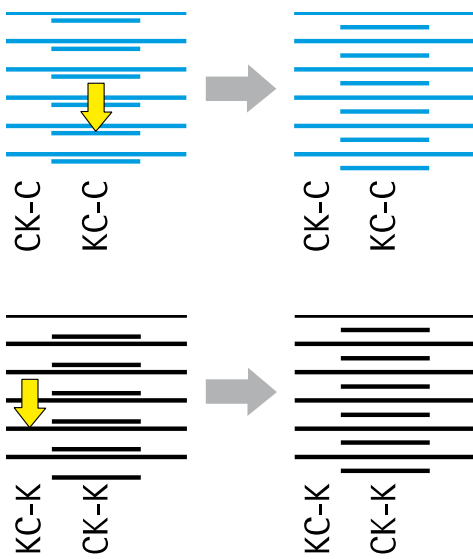
- Print *YAlign*

Colors and Slots:	C, M, Y, K
Print Quality Mode:	Testpattern
Testpattern:	Y Align
Heads:	all Heads

Options:

☒ High Resolution	☒ Encoder Control
☒ Unidirectional	☐ DFT Compensation
☒ Encoder comp.	☒ Check PH Temp.
☐ Advance before Print	☒ Check UV Lamps
☐ Smart Speed	☐ Use Slot mask

- This pattern shows the alignment of all heads to the CK reference heads

- Analyze the Cyan (and Black) pattern
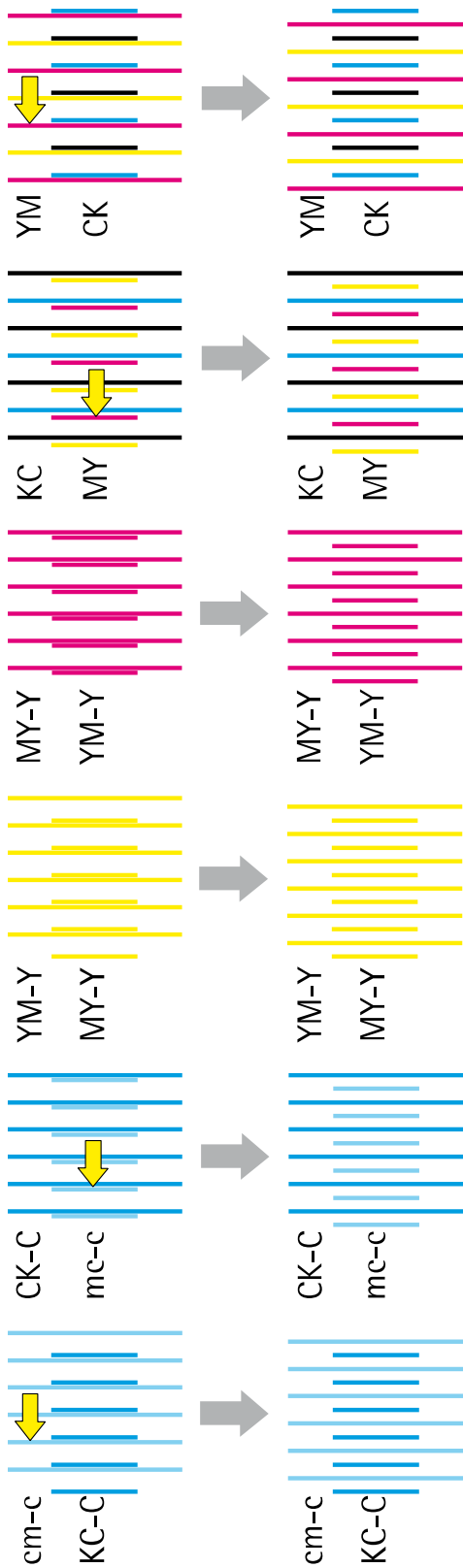- The **short lines** need to be exactly in the **center of the long lines**
- This can be adjusted by moving the KC heads up or down
- Can be done with all KC heads at the same time

- In this sample the KC head needs to be shifted down
- As result also the Black pattern should get equal distances

5.2.7 Y Alignment YM, MY, cm, mc, BO, OB

- Print *YAlign*

Colors and Slots:	C, M, Y, K, c, m, B, O
Print Quality Mode:	Testpattern
Testpattern:	Y Align
Heads:	all Heads

Options:

☒ High Resolution   ☒ Encoder Control
☒ Unidirectional   ☐ DFT Compensation
☒ Encoder comp.   ☒ Check PH Temp.
☐ Advance before Print   ☒ Check UV Lamps
☐ Smart Speed   ☐ Use Slot mask

- The pattern shows the alignment to the CK (KC) reference heads

- Take the images on the left side to find out if the pattern should start/end with a long or a short line.

- MY/YM pattern:
  Take the YM/CK and KC/MY pattern to figure out if the MY heads has to go up or the YM head has to go down

- Anyway the **short lines** need to be exactly in the **center of the long lines of all pattern**

5.2.8 Spot and Extra Colors Adjustments

Color	1. Rotation	2. Y – Adjustment to		
White	X Rotation	Y_Align Spot		
Bule, Orange, Green, …	X Rotation	Y_Align Extra		
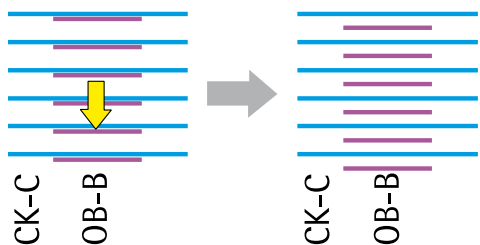
Repeat the above described steps with the combinations above
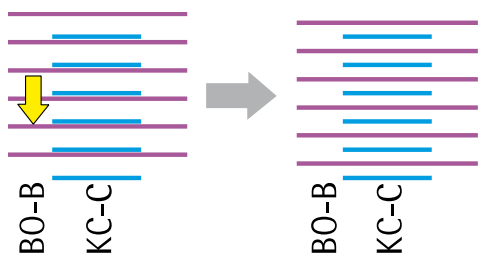
5.3   Density Compensation between head rows

5.3.1   Parameters and Basics

Parameter	Par. Description		Range	Effect/Description	Standard Value	Unit
RhoHead**aab**S**c**Voltage *e.g. RhoHeadCK1S1Voltage*	aa b c	Color Group Head Number Slot Number	–10 /+10 (practical) (Values above 50 will be rated as absolute voltages)	Increasing gives darker passes, decreasing lighter passes	0	%

All corrections are done in the file *DurstPrinter.setup* (path: /usr/local/printsw/)
The pattern is printed with a HMD of 2.0mm
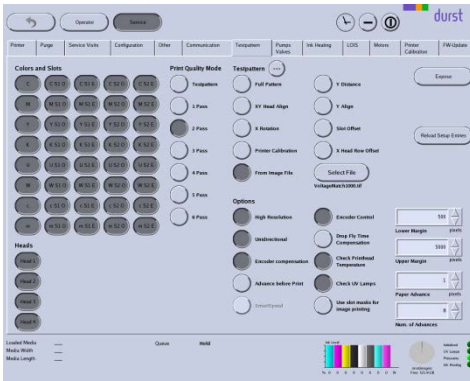
Print VoltageMatch600.tif

Colors and Slots:	C, M, Y, K, c, m, B, O
Print Quality Mode:	2 Pass
Testpattern:	From Image File (VoltageMatch600.tif)
Heads:	all Heads
Paper Advance:	1
Num. of Advances:	4 (for Rho1000, 1030) 6 (for Rho1012)

Options:
☒ High Resolution   ☒ Encoder Control
☒ Unidirectional   ☒ DFT Compensation
☒ Encoder comp.   ☒ Check PH Temp.
☐ Advance before Print   ☒ Check UV Lamps
☐ Smart Speed   ☐ Use Slot mask

5.3.2 Procedure

⚠️ The encoder value has to be calibrated for the density compensation. Adjust the encoder value according to chapter 5.7 Encoder Calibration.

- Print the Pattern with the above listed settings

- Adjust the density of each slot (field in the pattern) by changing the *RhoHeadVoltage* parameters in the Setup file.
- Save the file and Reload and Set the Head Voltage
- Print the Pattern again

- Compare the before and after print
- Repeat changing the values in the Setup file until all fields look equal
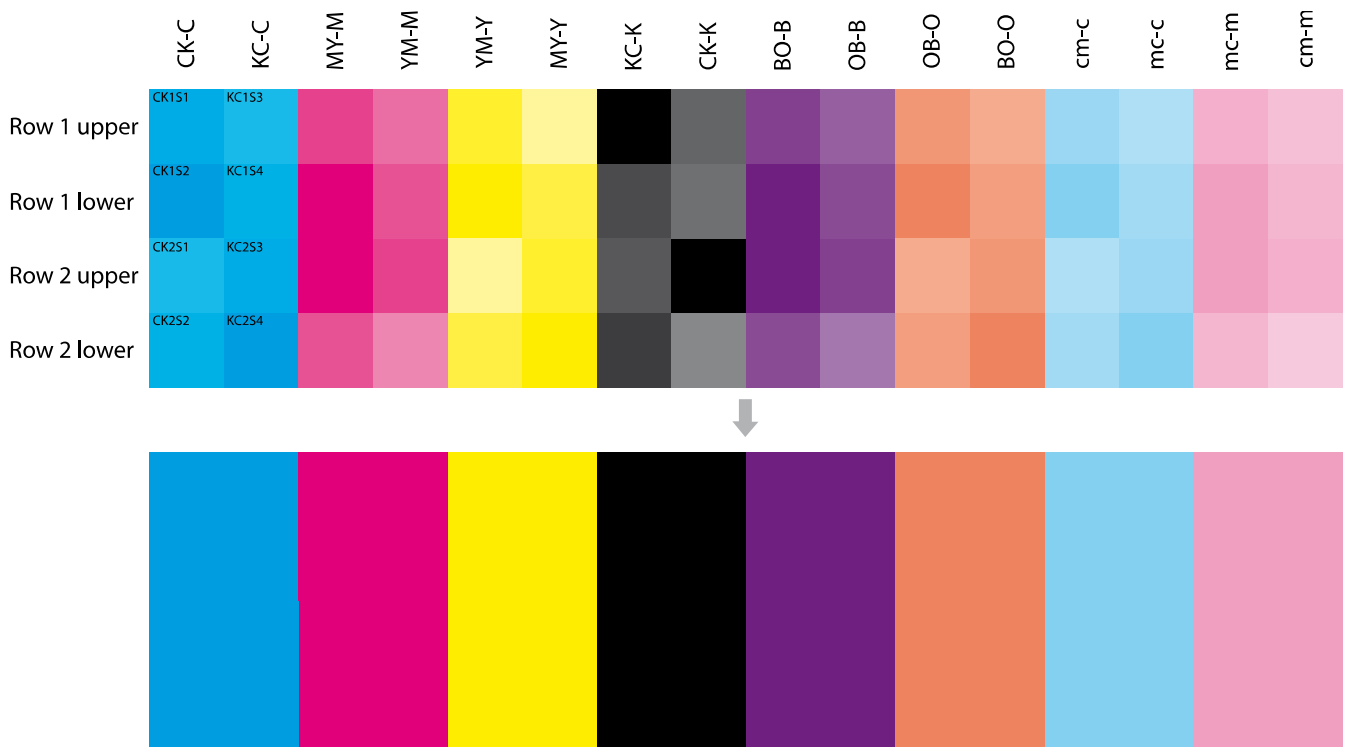
5.4 Camera Adjustment (Automatic Slot Offset Adj.)

5.4.1 Requirements, Safety

⚠️ *Tip:* Watch the video "Printer Calibration" for a detailed explanation. The video is in the *Help – Service Instructions* tap on the Workstation.
The automatic Slot Offset Adjustment does only work for CMYKcmBO.

- Operate the camera with 24V DC only
- The lens/optics is locked! Do not try to make manual/mechanical adjustments.
- Never switch to AF (AutoFocus)
- Do not disassemble the unit for any reason.

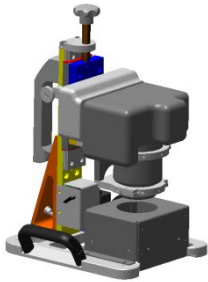- Mechanical head adjustment and density compensation (HeadVoltage Adjustments / Voltage Match) has to be completed before this procedure
- Always use the latest PrintSW version!

5.4.2 Preparation, Warm up, Media settings

⚠️ For a new machine setup the Drop Fly Time has to be adjusted before the camera calibration can be done.
The whole camera calibration must be done on a HMD of 2mm.

KC1S1L   KC1S1R
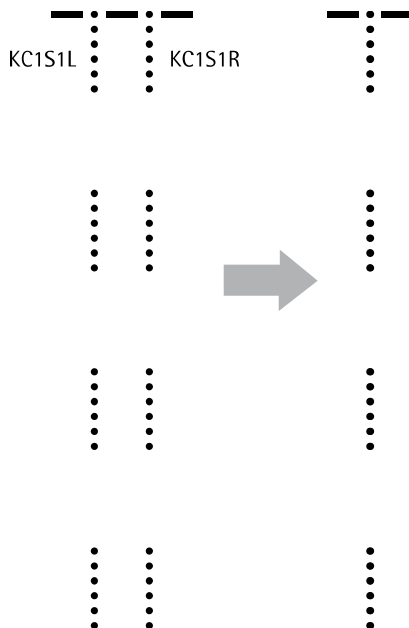
- Print *Slot Offset*

Colors and Slots:	KS1O, KS1E
Print Quality Mode:	Testpattern
Testpattern:	Slot Offset
Heads:	1

Options:
☒ High Resolution	☒ Encoder Control
☐ Unidirectional	☐ DFT Compensation
☒ Encoder comp.	☒ Check PH Temp.
☐ Advance before Print	☒ Check UV Lamps

- Adjust the Parameter RhoDFTCDataDistance for the selected Head Media Distance that the drops are printing on top of each other. (A detailed parameter description can be found in chapter 5.6 Drop Fly Time Compensation)

- It's important to warm up the slots by printing images in the Queue
  - Image, colors: All colors except white and varnish
  - Quality/Direction/Finishing: 4 Pass/Bidirectional/Matt
  - Special Effect: Backlit CMYKcmBO
  - Width: Full width
  - Duration: 30min

- Media type and settings for calibration
  - Recommended type: 3M IJ-40 (white adhesive)
  - HMD: 2mm
  - UV Power: +4
  - Vacuum: 50%

5.4.3   Procedure

(selection wheel)

(camera rear view)

- Print a few Encoder Test images directly before printing the pattern
- Print *PrinterCalibration* (do not modify default settings)
- Cut one of the patterns with enough margin (min. 10cm)

- Make sure that the DurstPrinter.setup file is closed
- Plug in the USB dongle

- *Maintenance - Printer Calibration - X Align*
- Select image transfer option (LAN, Manual)
- *Start*

- Switch the camera on
- Turn camera program selection wheel to C1
- (To reload the C1 settings turn the wheel to a different mode and than back to C1)
- Shoot all photos in the correct order

- Wait till all indicators get green
- Reshoot photos where the indicator does not get green (order!)
- *Exit*

- Turn off camera by the following way: *Camera power switch*, *main power switch*

(Workstation rear view)

⚠ The LAN mode is just working on network adapter **"eth1"**!!!
Don't change any network/IP setting on the workstation or the camera, this is automatically done by the software!

Manual Mode:

In manual mode you have to copy the photos (*.CR2 files) into the following path: */mnt/images/calibration*

If the Software doesn't detect the image files (Image Files: 0) then make sure that the ending "CR2" of the filename is written in capital letters!

Switching between WIFI and cable mode on camera:

Navigate over the *MENU* button to: *Settings1* *> WFT Settings > Set up > LAN settings*
Set 2 = LAN cable mode
Set 1 = WIFI mode

5.4.4   Camera Troubleshooting

Different time settings on camera and computer may cause problems as well. Photos taken "in the future" may probably not be detected by the software. This can be fixed with these terminal commands:
```
cd /mnt/images/calibration
touch *.CR2
```

⚠ Connection can be proofed by pinging camera
Default ip address camera: 192.168.1.2

ℹ
- To get a result that is more precise it is recommended to do the whole procedure twice.
- Print for 15 minutes before you start the second time (another warm up)
- Repeat the calibration

5.5 Manual Slot Offset Adjustment

5.5.1 Parameters and Basics

| Parameter	Par. Description	Range	Effect/Description	Standard Value	Unit
RhoSlotOffset**aab**S**cd** _e.g. RhoSlotOffsetCK1S1L_	aa Color Group b Head Number c Slot Number d Direction e Odd or Even f Head Row (Level)	–10 /+10	Increasing moves to the right (seen from machines output side)	0	Pixel
RhoSlotOffsetRow**f** _e.g. RhoSlotOffsetRow1_		–10 /+10	Increasing moves to the right (seen from machines output side)	0	Pixel
RhoHeadVoltageMultiplier			Sets the relation factor between Spectra voltages and printing voltages	0.88	%
RhoHeadVoltageMultiplierVarioDrop				0.75	%
RhoDFTCDataHMD		0.150 – 0.500	Head Media Distance steps for Drop Fly Time Calculation	0.150 0.200 0.350	cm
RhoDFTCDataDistance**E** _e.g. RhoDFTCDataDistance400_ _RhoDFTCDataDistance600X_	E Resolution	practical: –0.300 to –0.100	Measured distance according to RhoDFTCDataHMD	_No standard, e.g._ –0.104 –0.124 –0.172	cm

All corrections are done in the file _DurstPrinter.setup_
(path: /usr/local/printsw/)

5.5.2 Value Setting
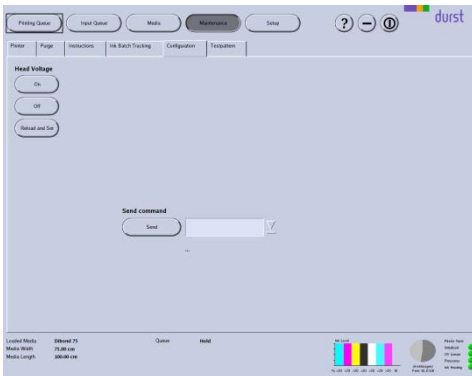
- For a value change in the DurstPrinter.setup file it is not needed to exit the Print SW
- Open the file, modify the values and safe it (exit not needed)
- To activate new Head Voltage values: Press the _Reload and Set_ button on the _Configuration_ tab in _Maintenance_ window
- To activate Slot Offsets: Press the _Reload Setup Entries_ button on the _Testpattern_ tab in _Maintenance_ window
- Print _bidirectional_

5.5.3 Slot Offset Color Internally
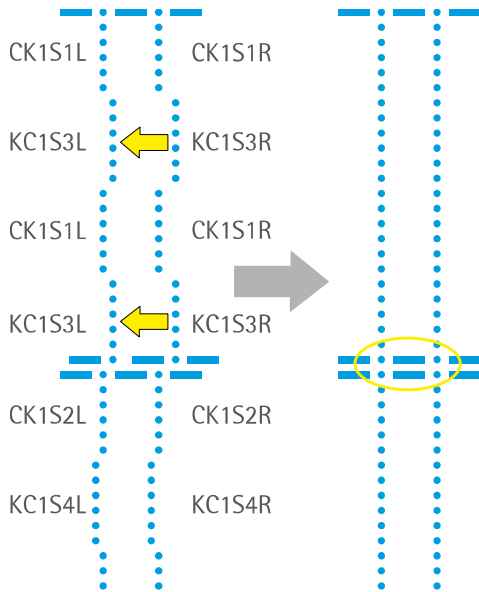
- To be printed with Head Media Distance 2mm (since this is the most common printing distance)
- There are individual parameters for both directions (left and right)

- Print *SlotOffset*

|	
Colors and Slots:	C, M, Y, K, c, m, B, O
Print Quality Mode:	Testpattern
Testpattern:	Slot Offset
Heads:	all heads

Options:
☒ High Resolution ☒ Encoder Control
☐ Unidirectional ☐ DFT Compensation
☒ Encoder comp. ☒ Check PH Temp.
☐ Advance before Print ☒ Check UV Lamps

- Move the left and the right line of all 4 sections within one head length to get two straight lines
- Parameter: *RhoSlotOffset*
- Adjust the distance between all lines to the same value (the experience has shown values between 1.2 and 1.4 mm)
- This alignment can be done with all heads of all colors at the same time
- Also pay attention to the alignment between Row 1 and 2 of each head (especially on black)
- The alignment between the heads is not important now

- In that sample the KC1S3L and KC1S3R needs to be moved to the left (decrease the values) whereas the KC1S2R might need a bigger shift

5.5.4 Slot Offset to Black
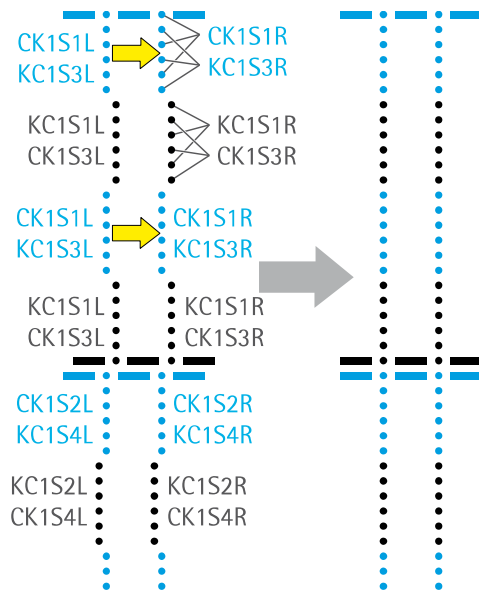
- Print *SlotOffset* (same settings as above)
- Move the left and the right line of the colored (non black) sections within one head length to get two straight lines
- Parameter: *RhoSlotOffset*
- Pay attention to keep the same distance between all the lines
- To move one block it is necessary to change 4 parameters!

- This alignment can be done with all heads of all colors at the same time
- Avoid from moving the black lines
- The vertical alignment between the heads is still not important

- In that sample the CK1S1L, KC1S2L, CK1S1R and KC1S2R need to be moved to the right (increase the values)

5.5.5   Slot Offset between Rows (Levels)

Row 1/1

Part of
Row 8/1??

Row 1/2

Part of
Row 8/2???

Row 2/1
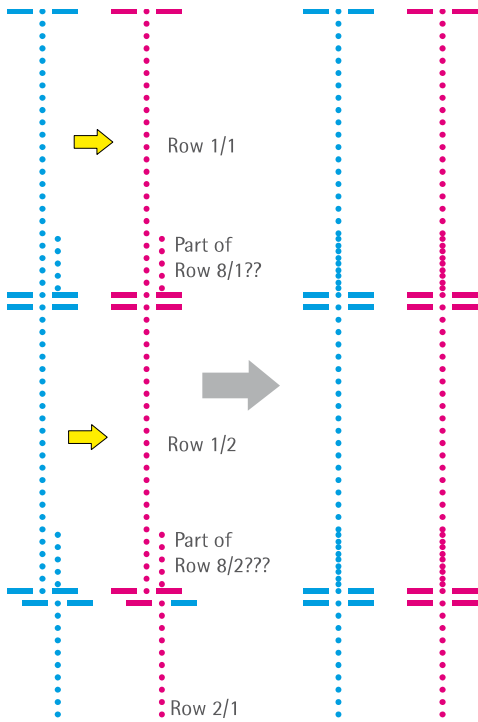
- Printmode: *Unidirectional*
- Print X*HeadRowOffset*
- The image is showing position of row 1, 2 and 3 in relation to row 4
- Move the rows 1/1 – 7/2 to line up at the bottom area with the dots from row 8/1 and 8/2
- Parameter: *RhoSlotOffsetRow*

- This alignment is done for all colors at the same time in one step

- In that sample the Row1/1 and 1/2 need to be moved to the right (increase the values)
- Row 1/1 and 1/2 belongs to the parameter for Row 1

Attention: Carriage is moving 8 times in both directions!

5.6 Drop Fly Time Compensation

5.6.1 Parameters

| Parameter	Standard Values	Effect/Description	Unit
RhoDFTCDataHMD	0.150 0.200 0.300 0.400 0.500	Head Media Distance steps for Drop Fly Time Calculation. 3 measurements – division by space	cm
		The following parameters define the drop fly time in different resolutions and for different settings (smart speed, fine text, ...)	
RhoDFTCDataDistance400	*No standard, e.g.* -0.151 -0.189 -0.297 -0.320 -0-360	Rho1000 – Print High Speed	cm
RhoDFTCDataDistance600X		Rho1000 – Print High Resolution	
RhoDFTCDataDistance600F		Rho1000 – Print High Resolution (Smart Speed enabled in media channel)	
RhoDFTCDataDistance600X	*No standard, e.g.* -0.151 -0.189 -0.297 -0.320 -0-360	Rho1012 – Print High Resolution (600x600) (Machine configured as Variodrop)	cm
RhoDFTCDataDistance800F		Rho1012 – Print High Resolution (800x600) (Fine Text enabled in media channel)	
RhoDFTCDataDistance800		Rho1012 –Print High Resolution (800x600)	
RhoDFTCDataDistance1000		Rho1012 – Print High Speed	
RhoDFTCDataDistance600X	*No standard, e.g.* -0.151 -0.189 -0.297 -0.320 -0-360	Rho1030 – Print High Resolution	cm
RhoDFTCDataDistance600F		Rho1030 – Print High Resolution (Fine Text enabled in media channel)	
RhoDFTCDataDistance800		Rho1030 – Print High Speed	

5.6.2 Adjustment

Distance d
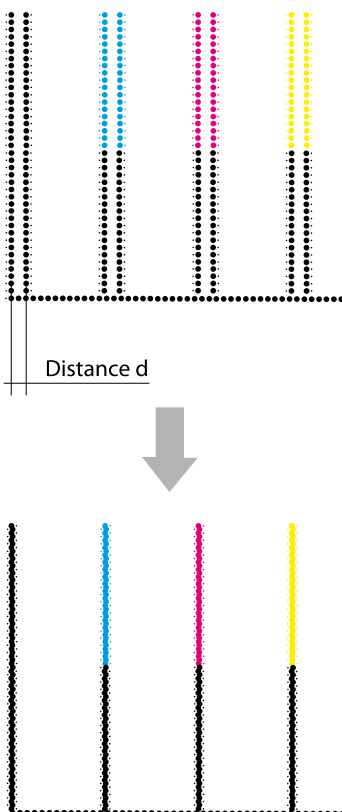
1. For an easier adjustment make a safety copy of the setup file and then set the compensation values to 0 in the original file.
2. Flip to Printer-Operator-Printer-Encoder Test
   The different resolutions can be printed with the buttons "Print High Speed" and "Print High Resolution". Additional options are selected in the media channel (Default Job Options for Media – Print Options). Depending on the Machine configuration (Rho1000, 1012 or 1030, Vario Drop, ...) the machine will print the image in different modes. Take the Table above to print the image with the correct settings.
3. Measure the *Distances d* at all print outs
4. Close the DurstPrinter Software
5. Enter the compensations values *d* in the file DurstPrinter.setup
6. Save and close the file and do the prints again
7. Make the fine tuning now, to get the lines perfect covered

5.7   Encoder Calibration

5.7.1   Adjustment

1. Print *Encodertestimage* (Print High Quality)
2. Analyze the *Encodertestimage* according to the illustrations below
3. Change the *Encoder Basic Calibration* Value
4. Redo this procedure with lower and higher values and compare them to get the perfect encoder calibration value
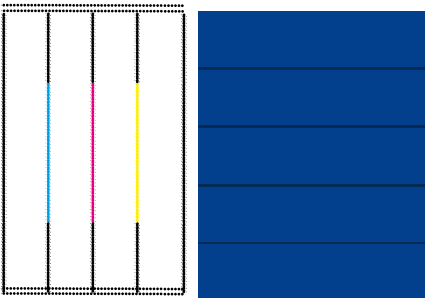
For the rough adjustment make changes in steps of tens or more to get a visible difference!
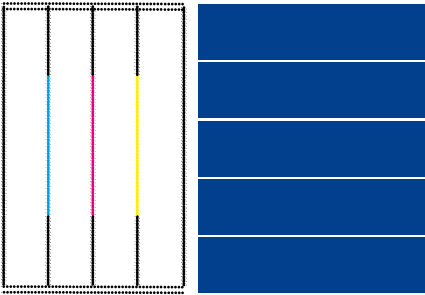
- Double lines in horizontal direction
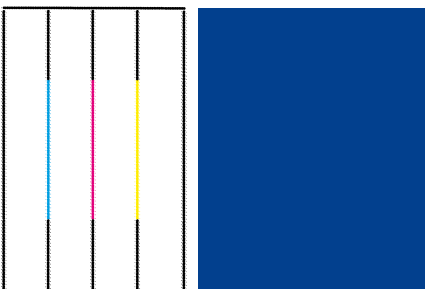- White gaps in the color field

Solution:
- Lower the Encoder Offset Value

- Double lines in horizontal direction
- Dark overlaps in the color field

Solution:
- Enhance the Encoder Offset Value

- Encoder Offset perfect adjusted!

5.8 Print Position Offsets

5.8.1 Parameters

Parameter	Requirement	Effect/Description	Unit
RhoRefPosCarriage	3 digits e.g. -43 043	The parameter defines the right image border for board alignment right. Image border grows by decreasing the value	1/10mm (only R1000)
RhoStopSensorOffset		The parameters define the top (front) image border Image border grows by increasing the value	1/10mm
RhoLeftStopSensorOffset			1/10mm
RhoLeftEdgeGuidePositionCM	e.g.: 253.9	The parameter defines the left image border for board alignment left. Image border grows by increasing the value	cm
RhoMeasureToStopSensorRightDistanceMM	e.g.: 120.00	Dual Tracking: The parameter defines the distance between Media Detect and Media Length sensor. Image border grows by increasing the parameter	mm
RhoMeasureToStopSensorLeftDistanceMM	e.g.: 120.00		mm
RhoBoardMeasurementCalibrationFactor	e.g.: 0.99736310	Parameter to keep the front image border constant for continuous printing on boards. Image boarder grows by increasing the value	

5.8.2 Image border for board alignment "right"
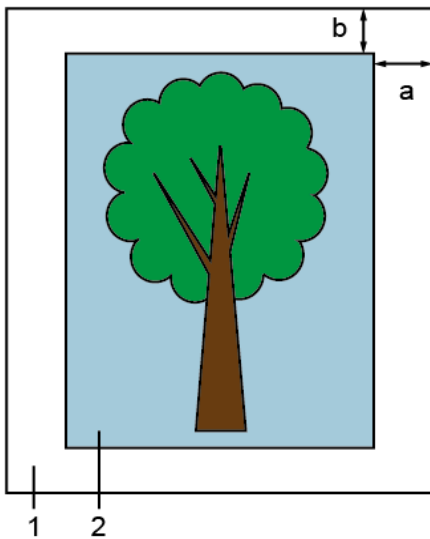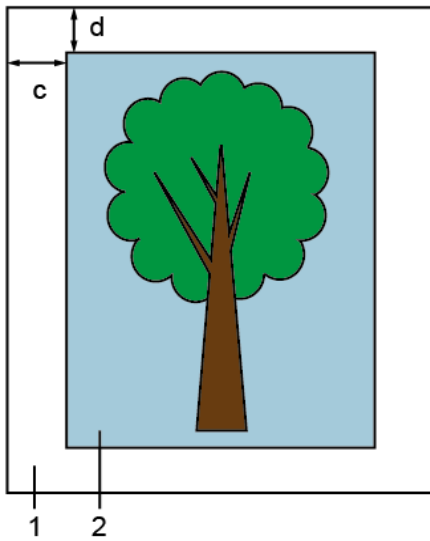

1 – board
2 – image
a – right image border
b – front image border

- Take a well cut board (straight edges, right angles)
- Create a Media Channel with the following settings:
  Board alignment: right
  Boarders: 0mm (for all)
- Print an image (ideally a plain color field) with the following settings:
  Image alignment: right, top
  Top and right image boarder: 10mm (recommended)

- Measure the right image border (a) on the front/right edge of the board
- Adjust the value of the parameter *RhoRefPosCarriage* in the DurstPrinter.setup file

- Measure the front image border (b) on the front/right edge of the board
- Adjust the value of the parameter *RhoStoppSensorOffset* in the DurstPrinter.setup file

- Save the file
- Restart the Software
- Flip to Printer-Service-Configuration
- Send the Configuration Data

i The sledge must be initialized to activate changes of the parameter *RhoRefPosCarriage*!

5.8.3 Image border for board alignment "left"

1 – board
2 – image
c – left image border
d – front image border

- Take a well cut board (straight edges, right angles)
- Create a Media Channel with the following settings:
  Board alignment: left
  Boarders: 0mm (for all)
- Print an image (ideally a plain color field) with the following settings:
  Image alignment: left, top
  Top and left image boarder: 10mm (recommended)

- Measure the left image border (c) on the front/left edge of the board
- Adjust the value of the parameter *RhoLeftEdgeGuidePositionCM* in the DurstPrinter.setup file

- Measure the front image border (d) on the front/left edge of the board
- Adjust the value of the parameter *RhoLeftStoppSensorOffset* in the DurstPrinter.setup file

- Save the file
- Restart the Software
- Flip to Printer-Service-Configuration
- Send the Configuration Data

5.8.4 Dual Tracking

Requirements (mentioned or higher)
- ✓ Printer software version 1.2 Rev 08
- ✓ Firmware LH2051P1_4Z_SVN2642
- ✓ Lenze Servo controller application program LH3020P1_1Z
- ✓ Beckhoff application program LH2023P.9Z
- ✓ ACS controller application program
  Rho1000: LH2017P1.1Z
 Rho1012/1030: LH3017P1.3Z

ℹ The Parameters *RhoStopSensorOffset* and *RhoLeftStopSensorOffset* must be adjusted before!
The Parameters *RhoMeasureToStopSensorRightDistanceMM* and *RhoMeasureToStopSensorLeftDistanceMM* depend on *RhoStopSensorOffset* and *RhoLeftStopSensorOffset*.
That means by adjusting the *RhoStopSensorOffset* the Position of the Right track will also change when printing 2 tracks.

- Take a well cut board(straight edges, right angles)
- Create a Media Channel with the following settings:
  Continuous Feeding, 2 tracks
  Board alignment: left and right
  Borders: 0mm (for all)
- Print an image (ideally a plain color field) with the following settings:
  Number of copies: 2
  Image alignment: top
  Top image boarder: 10mm (recommended)

- Measure the front image border on the left (f) and right (e) track.
- Compensate the difference between the entered and the real image border by changing the values of the parameters
  RhoMeasureToStopSensorRightDistanceMM
  RhoMeasureToStopSensorLeftDistanceMM
  in the DurstPrinter.setup. file individually for the left and the right track.
- Safe the file
- Press the *Reload and Send* button
- Repeat the procedure and check the boarder of the 2 tracks
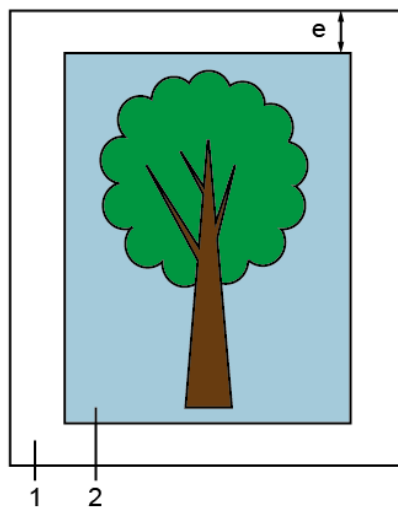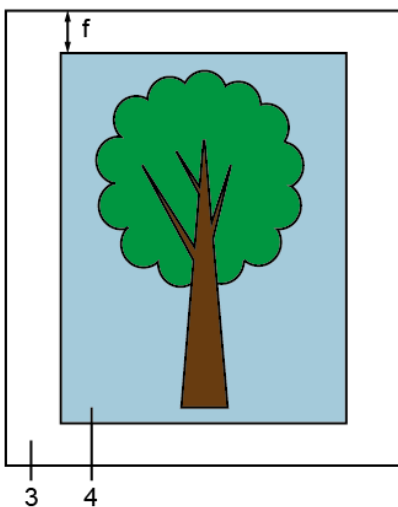
1 – right board
2 – 1st copy of the image
3 – left board
4 – 2nd copy of the image
e – front border of right board
f – front border of left board

5.8.5 Length calibration (RhoBoardMeasurementCalibrationFactor)
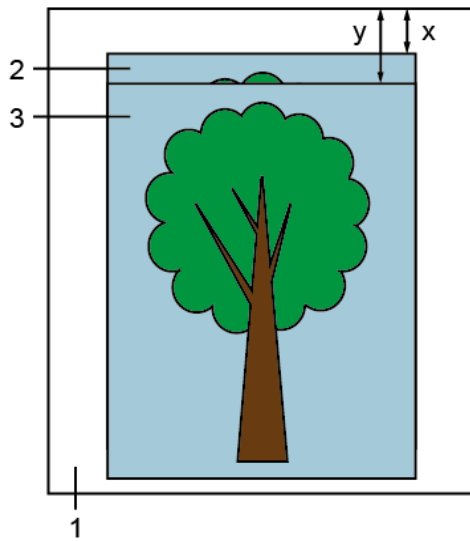
1 – board
2 – 1st copy of image
3 – 2nd copy of image
x – border of 1st copy
y – border of 2nd copy

Requirements:
- ✓ RhoBoardMeasurementCalibrationEncoderOffset = Encoder Offset (both values can be found in DurstPrinter.setup file)

- Set the value for *RhoBoardMeasurementCalibrationFactor* to 1
- Take a well cut and accurate board
- Create Media channel with the following settings:
  Manual Continous Printing
  Board alignment: right
  Encoder Offset = 0
- Print an image (ideally a plain color field) with the following settings:
  Number of copies: 2
  Limit Copies per Row: 1
  Limit Rows per Page: 1
  Print Quality: 2 Pass
  Print Quality Enhancement: all off
  Image alignment: top
  Top image boarder: 10mm (recommended)

- Start Queue
- Print the first copy on the board
- Wait for at least 15min (the printer continues with the advance steps)
- Print the second copy on the same board (same orientation!)
- Stop Queue

- Send serial command QGFV to get the whole advance length
- Note the response in. E.g.: Response: 850773
  a = 8507.73mm
- Measure the start point difference (y-x) between the 2 copies.
- Calculate the value for the parameter RhoBoardMeasurementCalibrationFactor with the following formula:

$$Value_{new} = Value_{old} * \frac{a}{a + (y - x)}$$

- Enter the new value in the DurstPrinter.setup file (8 decimal places are useful)
- Safe the file
- Restart software

ℹ By repeating the steps above or waiting for a longer time in between the 2 copies of the result gets more accurate.