Quick Guide

MiniKey

MKHP

Version 1.3

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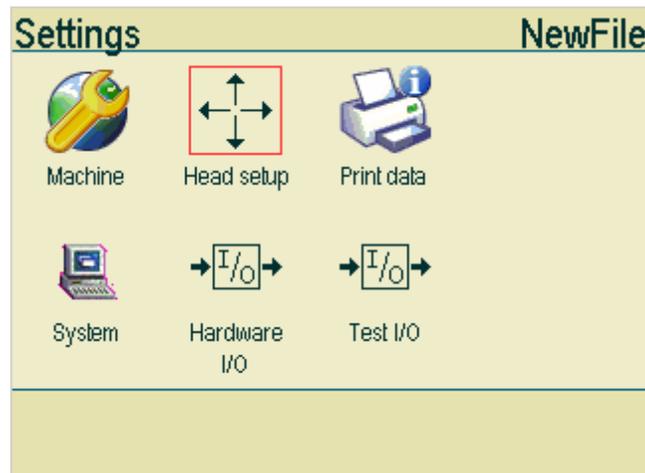
2 Physical setup

2.1 Select head type

On the MKHP you can print with 2 print heads, but with no more than 4 pens.

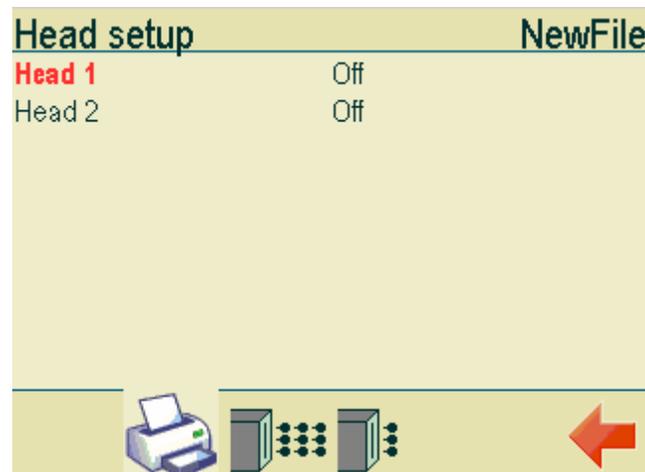This is how you setup your heads on the MKHP.

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Head setup". Press accept to continue.

Use the arrow buttons to select either Head 1 or Head 2. Press accept to continue.

Use the arrow buttons on your keyboard to select "head size". Press accept to change values.
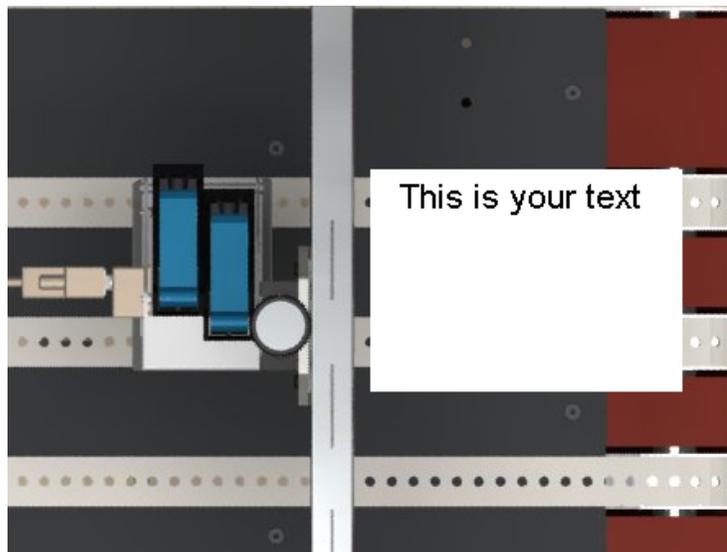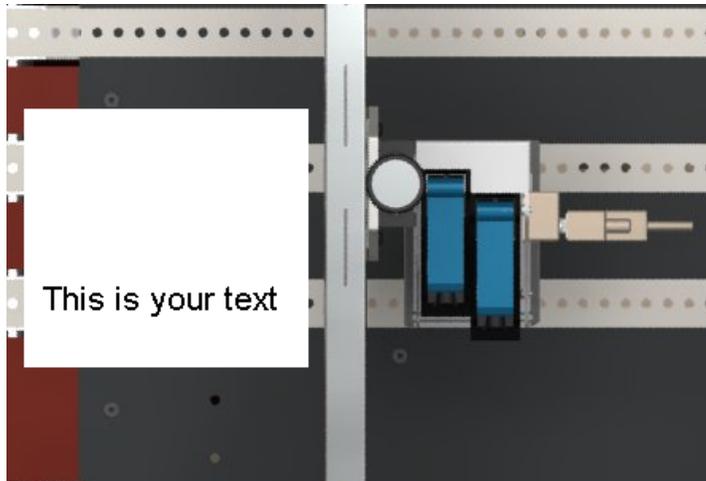

Use the arrow buttons to select the green check mark in the bottom right corner. Press accept to finish.

2.2   Select head position

Example A. This the default position of the head. If your head is positioned as shown, "upside down" must be set to off.
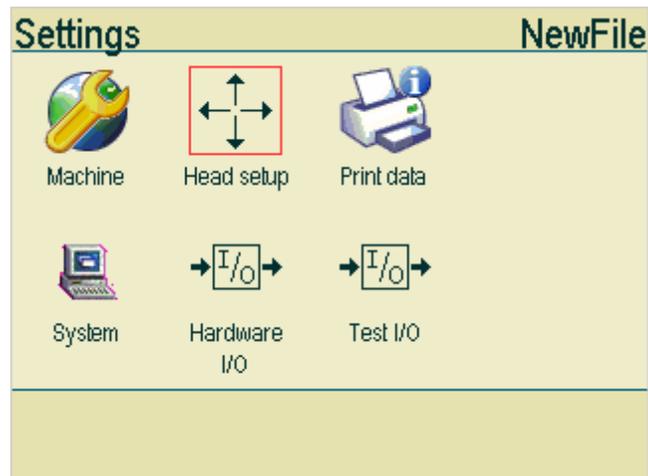
Example B. If you want to position your head as shown below, "upside down" must be set to on.
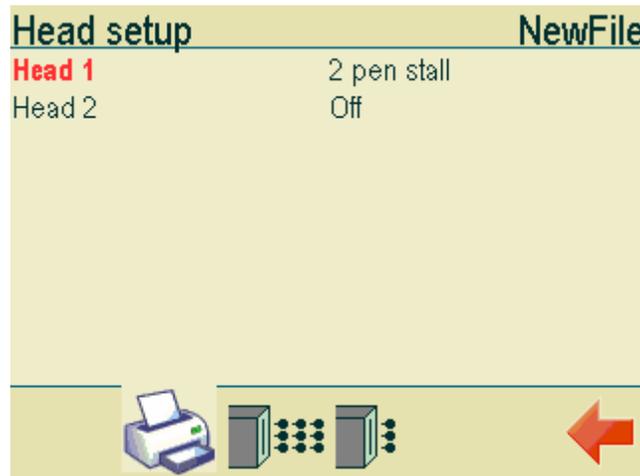

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Head setup". Press accept to continue.

Use the arrow buttons to select either Head 1 or Head 2. Press accept to continue.

Use the arrow buttons to select "upside down". Press accept to change the values.

If your head is positioned as shown in example B , "upside down" must be set to on. If you head is positioned as shown in Example A, upside down must be set to off.

Use the arrow buttons to select the green check mark in the bottom right corner. Press accept to finish.

2.3   Print direction

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.

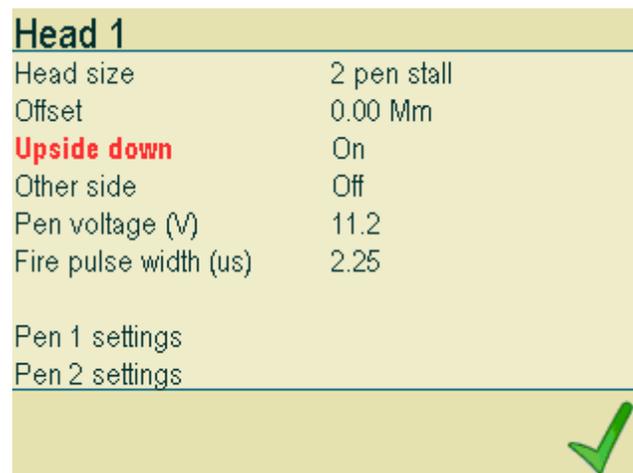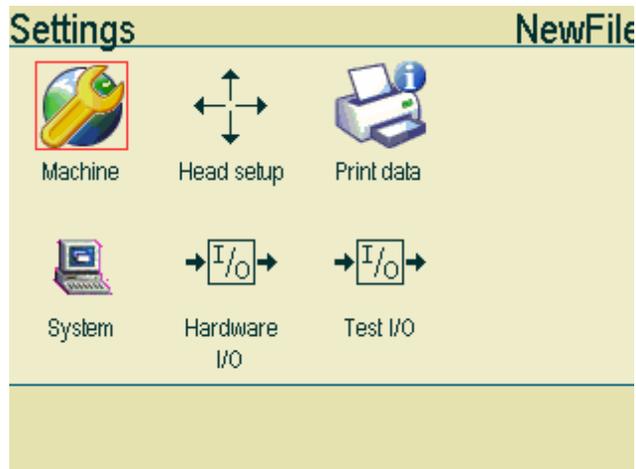Use the arrow buttons on your keyboard to select "print direction".
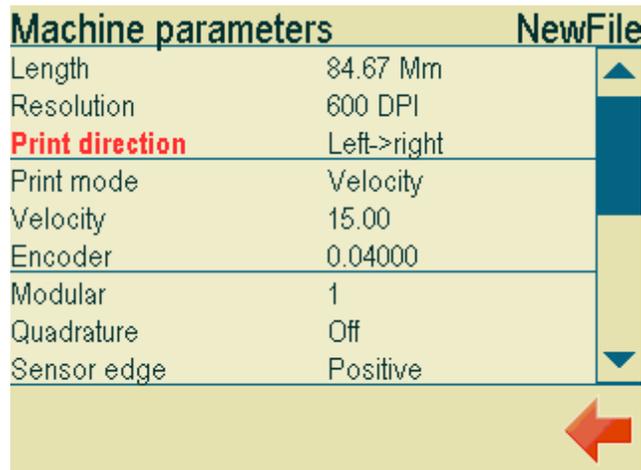
Print direction is the same as the travel direction of the medium.
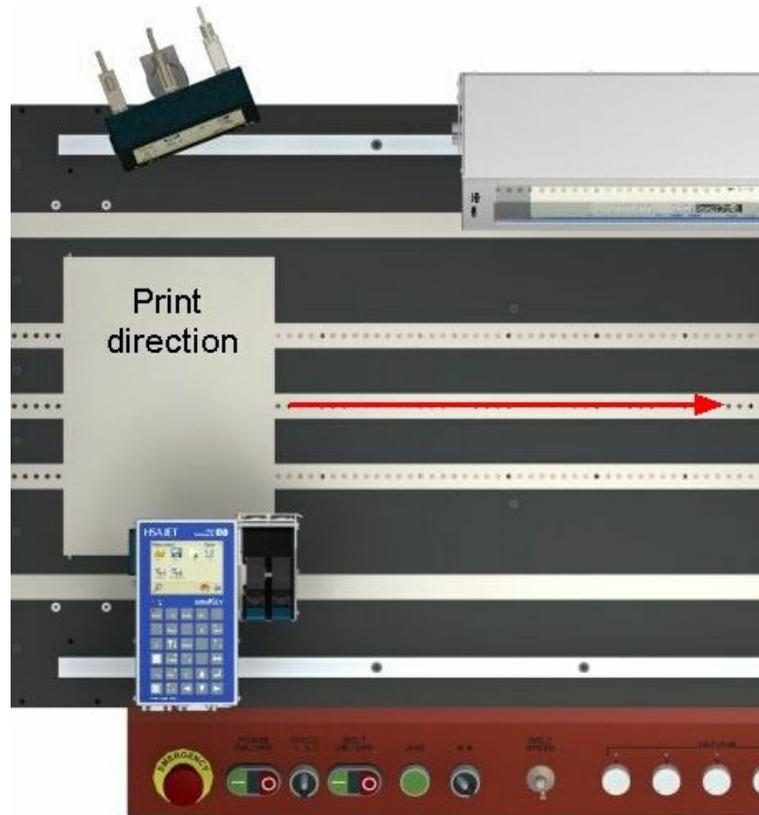
Use the arrow buttons to select the red arrow in the bottom right corner. Press accept to finish.

2.4   Start distance

You are required to enter a start distance. The sensor start distance is the distance from the sensor to the head.

The MKHP is provided with a integrated sensor in the print head. This means that with 0 sensor distance, printing will commence when the medium(paper, box etc) has reached the first nozzle row. 0 sensor distance will place your print close to the edge of the medium. Enter a higher sensor distance to move your print further away from the edge.

The MKHP can also be connected to an external sensor. In this case please measure the distance from the sensor to the print head.
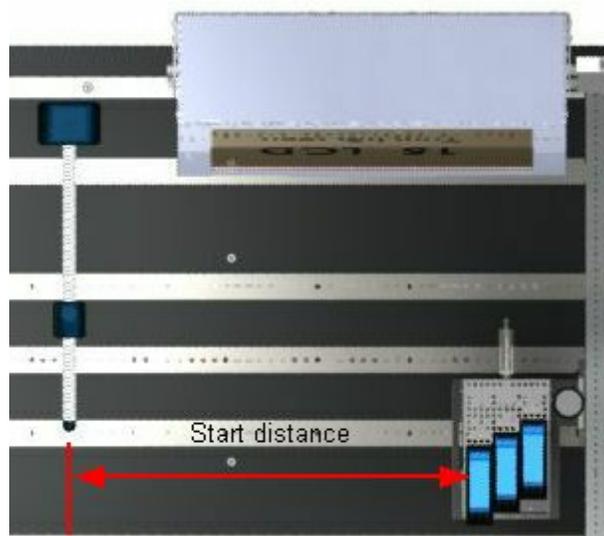
Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.
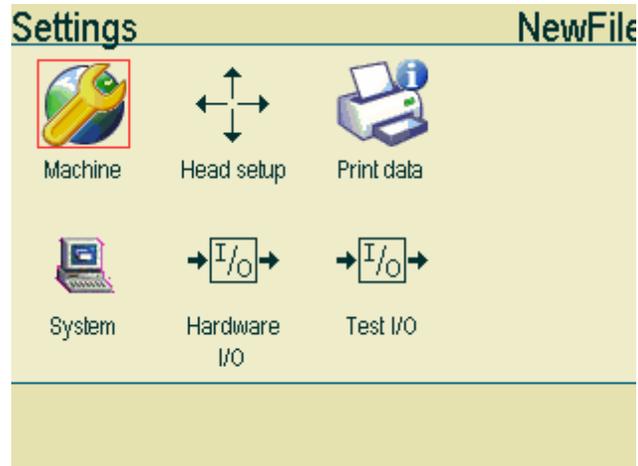
Use the arrow buttons, to highlight the "start distance". Press accept to continue.

Enter your start distance. Press accept to continue.

2.5   Sensor settings

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.

Use the arrow buttons, to highlight the "sensor edge". Press accept to change values.

Set the sensor settings to positive or negative, depending on the type of sensor you are using.If printing starts when the sensor's signal goes active, the sensor edge should be set to positive. If printing starts when the sensor's signal goes inactive, the edge should be negative. If you use the standard sensor supplied with the MKHP, the sensor settings must be set to negative.
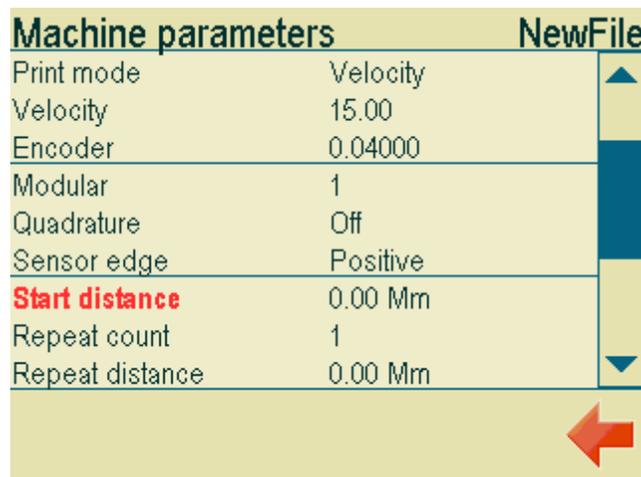
Use the arrow buttons to highlight the red arrow at the bottom of the screen. Press accept to finish.

2.6   Pen Offset

If you are using a 2-pen head, you are required to adjust the pen offset. The pen offset is the distance from the first nozzle row of the first pen to the first nozzle row on the second pen.
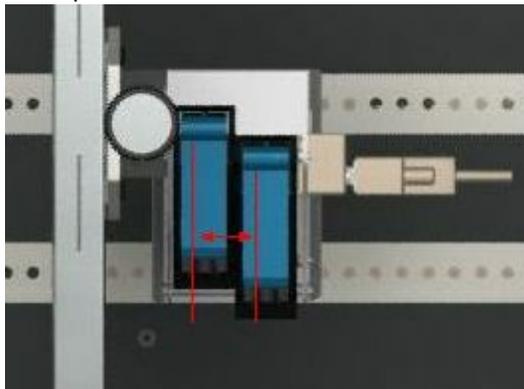
Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Head setup". Press accept to continue.
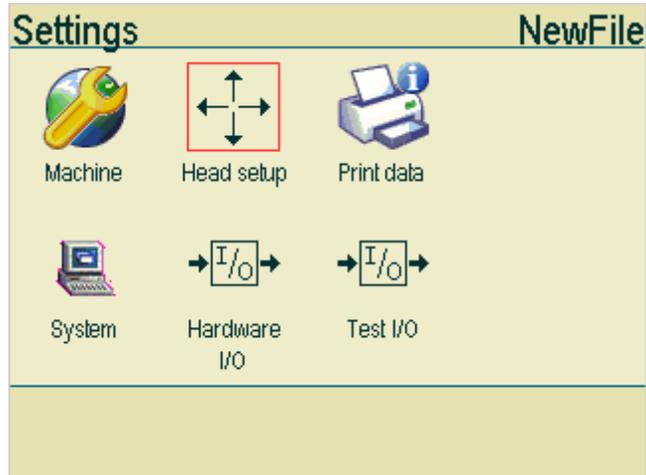
Use the arrow buttons to select either Head 1 or Head 2. Press accept to continue.
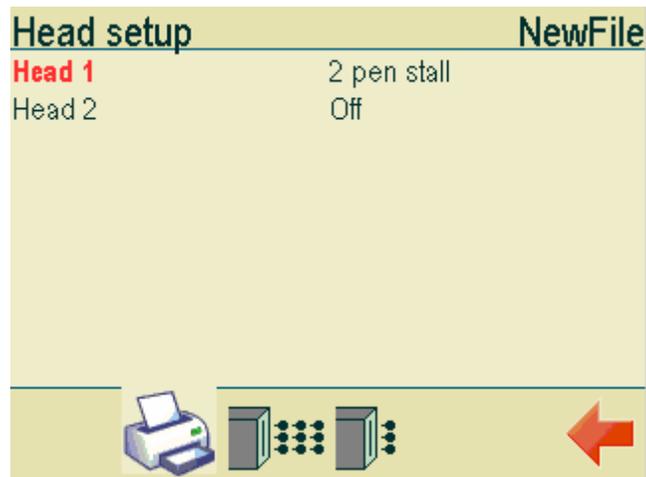
User the arrow buttons to highlight "offset". Press the enter button on your keyboard.

Head 1
Head size	2 pen stall
Offset	0.00 Mm
Upside down	Off
Other side	Off
Pen voltage (V)	11.2
Fire pulse width (us)	2.25
Pen 1 settings	
Pen 2 settings	

Enter your pen offset value. Press accept when done.

Offset

0.000_

```
7  8  9  -
4  5  6  ←
1  2  3
   0     .
```

esc   enter

The recommended settings are:

Pen 1   O mm
Pen 2   25.4 mm

2.7   Head offset

If you have multiple heads installed on your system, you are required to adjust the offset between them. The distance is measured from the first nozzle row of the first pen in the first head to the first nozzle row of the first pen in the second head. The first head has a 0,0 mm offset.
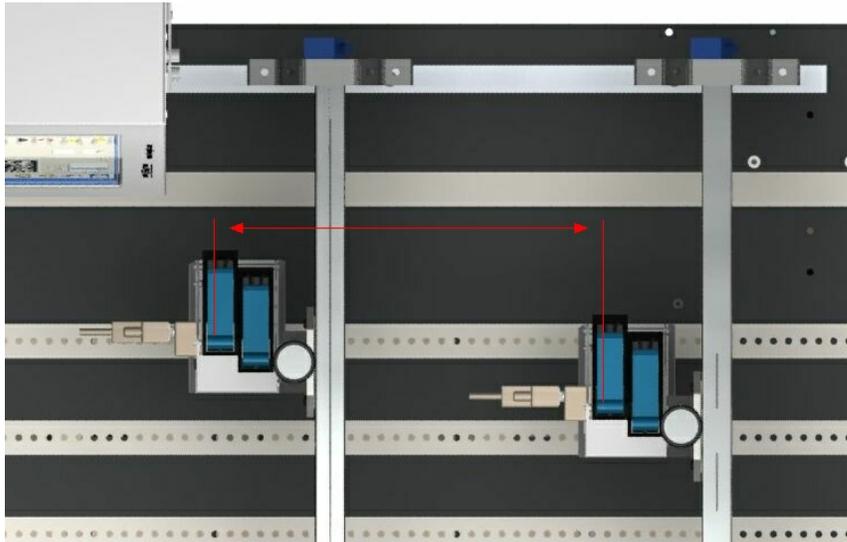

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Head setup". Press accept to continue.
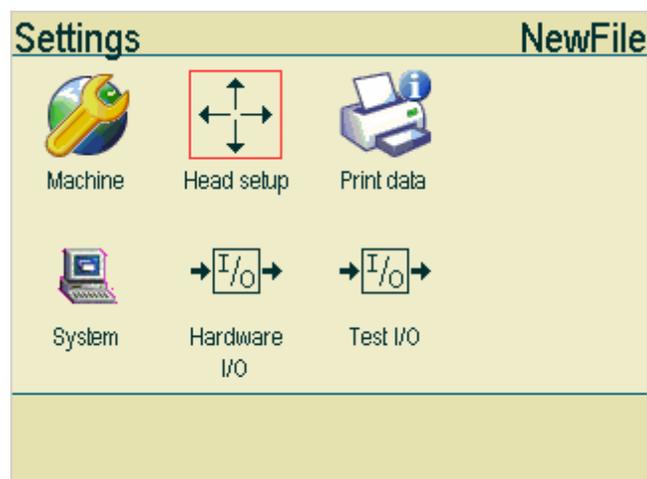
Use the arrow buttons to select either Head 1 or Head 2. Press accept to continue.

Use the arrow buttons to highlight "offset". Press accept to changes values.

Enter new head offset. Press accept to finish.

3 Other settings

3.1 Select fixed speed

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.

Use the arrow buttons to highlight "Print mode". Press accept to change the values.

If you are using fixed speed, print mode must be set to Velocity. Please make sure the velocity settings are correct. Compare the settings with the speed of your conveyor. You can use a tachometer to measure your conveyor speed.

3.2   Setting up encoder

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.
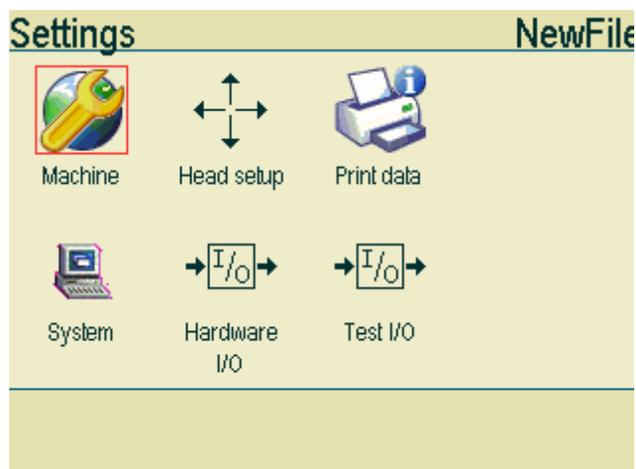
Use the arrow buttons to highlight "Print mode". Press accept to change the values. [⏎] Print mode must be set to position.

To calculate the encoder value for a hollow shaft encoder, you need to know the circumference of the wheel and the number of pulses transmitted in on revolution.
Please refer to the documentation from your encoder supplier. If you use a shaft encoder, you need to know the belt pulley diameter.

Example, hollow shaft encoder

In the following example the encoder transmit 5000 pulses in one revolution. The wheel has a diameter of 64mm.

Circumference = Pi * Diameter=64mm*3.14 = 200.96mm

The encoder value is 200.96/5000= 0,04.

If quadrature is set to on, the encoder value must be divided by 4, so the encoder value will be 0.01.

Example, shaft encoder

In the following example the encoder transmit 5000 pulses in one revolution. The belt pulley has a diameter of 300mm.

Circumference = Pi * Diameter=3,14*300 = 942mm

The encoder value is 942/5000= 0,19.

If quadrature is set to on, the encoder value must be divided by 4, so the encoder value will be 0.09.

3.3   Ink settings

please make sure that the ink settings "Pen voltage" and "fire pulse width" are correct. These settings can greatly
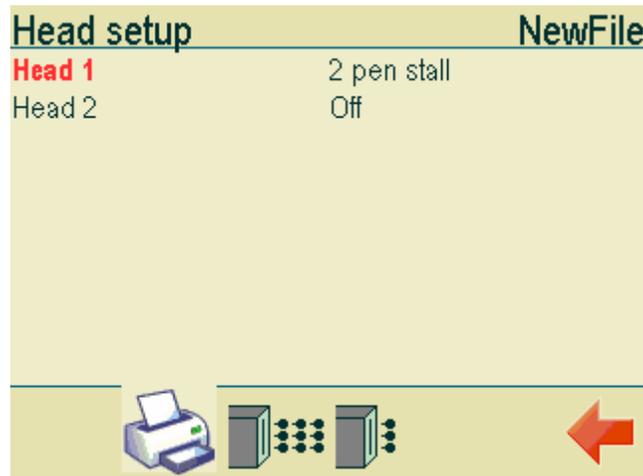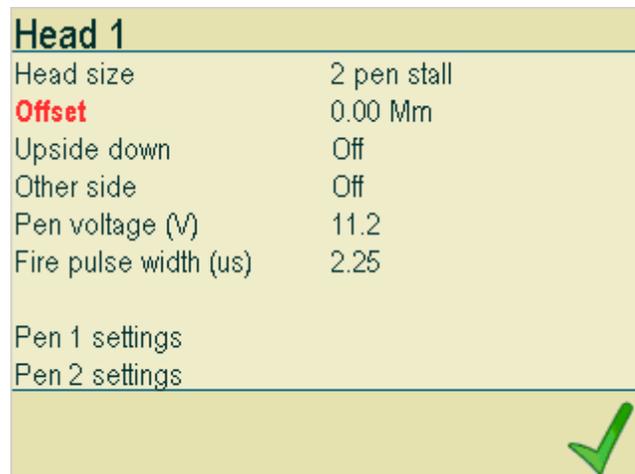
Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Head setup". Press accept to continue.
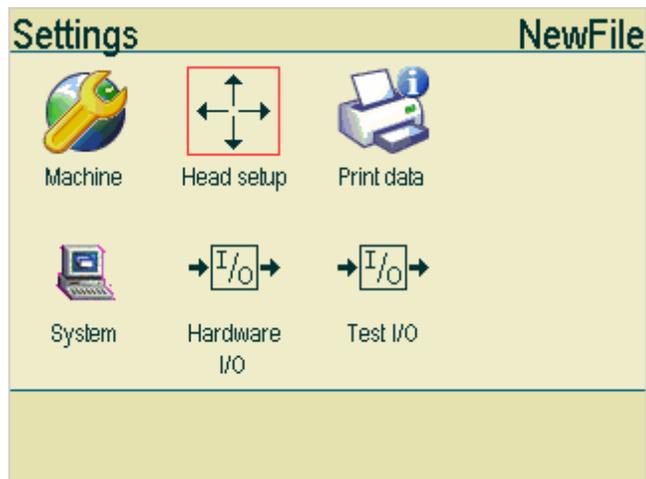
Use the arrow buttons to select either Head 1 or Head 2. Press accept to continue.
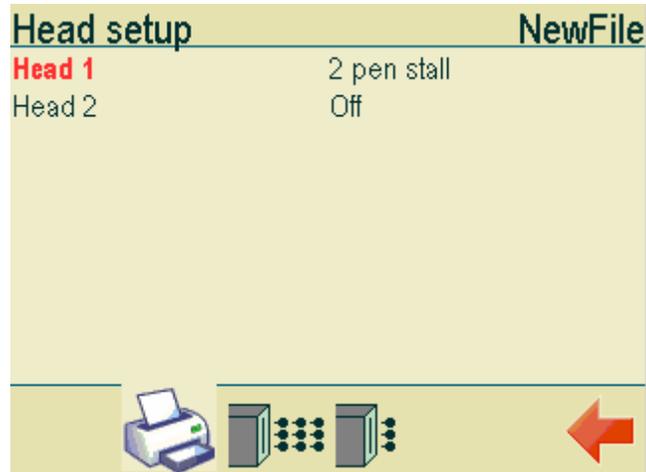
Use the arrow buttons to select "Pen voltage" or "Fire pulse width. Press accept to change the values.

Head 1

Head size	2 pen stall
Offset	0.00 Mm
Upside down	Off
Other side	Off
Pen voltage (V)	11.2
Fire pulse width (us)	2.25
Pen 1 settings	
Pen 2 settings	

Enter a new value. Press the accept button to finish.

Pen voltage (V)

11.2_

7	8	9	-
4	5	6	←
1	2	3	
	0		.

esc   enter

Please enter the values for the ink of your choice. The list below contains the inks most commonly used. It is impossible to provide a complete of all inks available. There are many types of ink on the market and new types are being introduced all the time. So if your ink is not on the list, please contact your ink supplier for advice.

Manufacturer	Code	Ink name	Voltage	Fire Pulse width
HP black inks	C6195A	HP Fast Dry Black Ink	11.2	1.9
	C8842A	HP Versatile Black Ink	11.2	2.25
	Q2344A	HP Dye Black 1918 Cartridge	11.2	2.25
	CG339A	HP45A 10 pack black ink cartridges	11.2	1.9
HP color Inks	C6168A	HP Spot Red Ink	11.2	1.9
	C6169A	HP Spot Green Ink	11.2	1.9
	C6170A	HP Spot Blue Ink	11.2	1.9
Collins black inks	CM150	Collins Black Hi Speed Ink	10	2.25
	CM150H	Collins Black Hi Speed Ink Heads Up	10	2.25
	CM290FD	Collins Black Fast Dry	10	2.25
	CM557	Collins Black Coated Stock	10	2.25
	CM557H	Collins Black Coated Stock Heads Up	10	2.25
	CM796KB	Collins Black Ink Fast Dry Coated	10	2.25
	CM838H	Collins Fluorescent Red Heads Up	10	2.25
	CM902H	Collins Black Ink Heads Up	10	2.25
	CM903	Collins Black Ink	10	2.25
	Complete	Collins Complete Black Ink	10	2.25
	TSK1750	Collins BEAR Black Dye Ink ct (flammable)	7.4	2.25
	TSK1948	Collins SHARK Black Dye Ink ct	10	2.25
	TWK1268	Collins ONYX Black dye ink (flammable)	10	2.25
	TWK1369	Collins MAX Black pigment ink (flammable)	10	2.25
	TWK1386	Collins MAX2 Black pigment ink	10	2.25
	TWK1396	Collins MAX3 Black pigment ink	10	2.25
	TWK1579H	Collins Complete Black Ink Heads Up	10	2.25
	TWK1818H	Collins Complete Black Ink, Heads Up	10	2.25
	TWK1915H	Collins CORE Black Ink Heads Up	10	2.25
	TWK1921	Collins MAX PLUS Black pigment ink	10	2.25
	TWK9015H	Collins Reliable Black Ink Heads Up	10	2.25

| Manufacturer	Code	Ink name	Voltage	Fire Pulse width
Collins Color inks	CM457	Collins Blue Ink	10	2.25
	CM488	Collins Blue Ink	10	2.25
	CM500	Collins Red Ink	10	2.25
	CM501	Collins Cyan Ink	10	2.25
	CM502	Collins Blue Ink	10	2.25
	CM503	Collins Green Ink	10	2.25
	CM506	Collins Red Ink	10	2.25
	CM784	Collins Orange Ink	10	2.25
	CM785	Collins Yellow Ink	10	2.25
	CM787	Collins Magenta Ink	10	2.25
	CM788	Collins Brown Ink	10	2.25
	CM789	Collins Purple Ink	10	2.25
	CM790	Collins Green Ink	10	2.25
	CM791	Collins Red Ink	10	2.25
Collins special inks	CM631	Collins Invisible UV Ink	10	2.25
	TWB1374	Collins Reliable Blue dye ink Heads Up	10	2.25
	TWB1388	Collins MAX2 Blue pigment ink	10	2.25
	TWR1370	Collins Reliable Red Ink Heads Up	10	2.25
	TWR1397	Collins MAX2 Red pigment ink	10	2.25
	TWW1284	Collins IR Invisible Blue Dye ink	10	2.25
	TWW1406	Collins Invisible MAX UV ink	10	2.25
	TWW1929	Collins Invisible UV Fluorescent red ink	10	2.25
	TWY1372	Collins Reliable Yellow Ink Heads Up	10	2.25
	TWY1443	Collins MAX2 Yellow Pigment Ink	10	2.25

3.4   Select resolution

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.
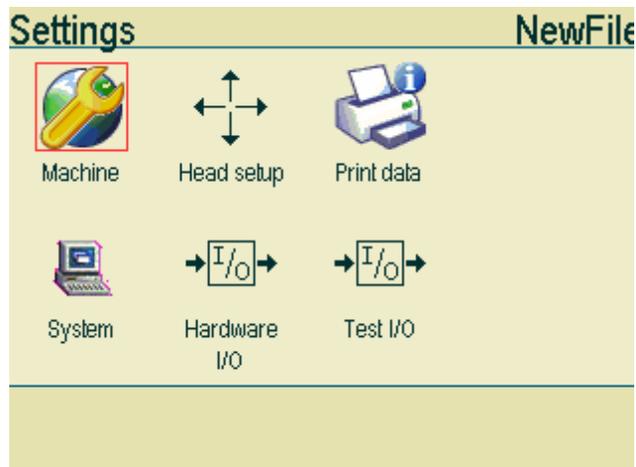
Use the arrow buttons on your keyboard to select "resolution". Press the accept button to change the values.
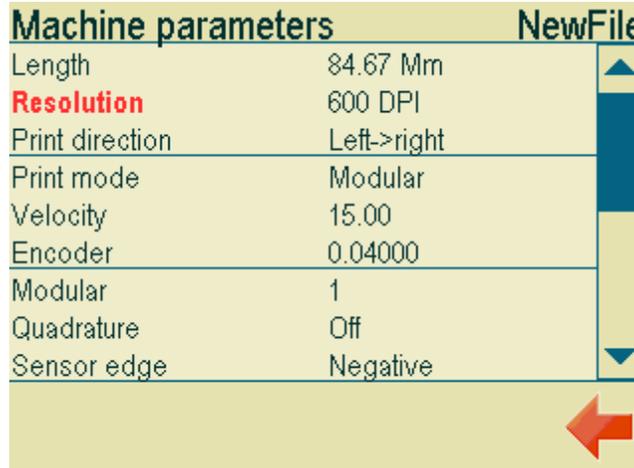
Resolution can be set to 1 row, 150 dpi, 300 dpi or 600 dpi. For printing with 150 dpi, 300 dpi or 600 dpi resolution, an encoder is required.

Use the arrow buttons to highlight the red arrow at the bottom of the screen. Press accept to finish.

3.5   System Clock

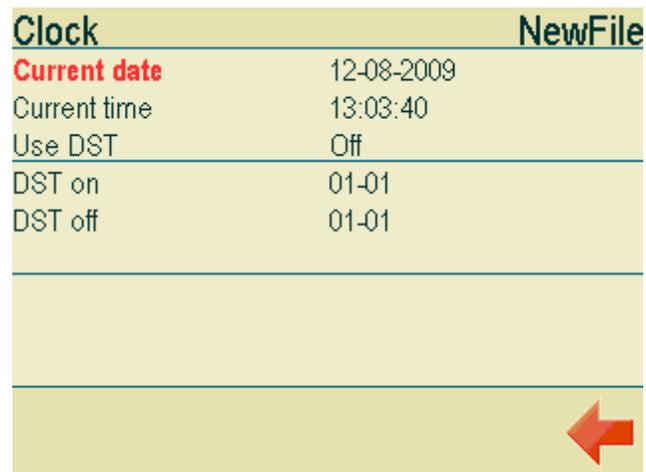Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "System". Press accept to continue.
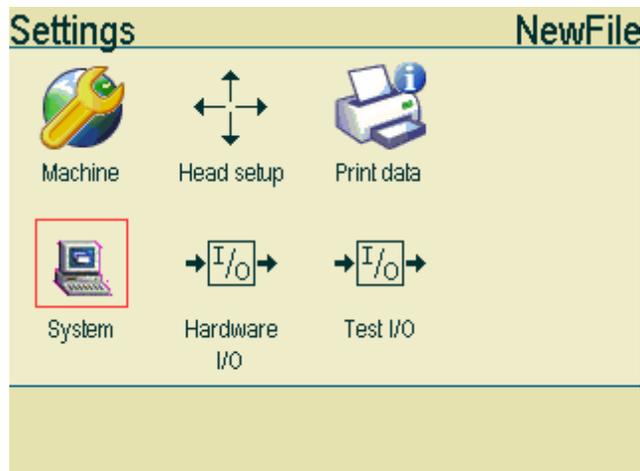
Use the arrow button to select "Clock". Press accept to continue.

Use the arrow buttons on your keyboard to selct either "current date" or "current time". Press accept to

change values.

Enter a new value. Press the accept button on your keyboard to finish.

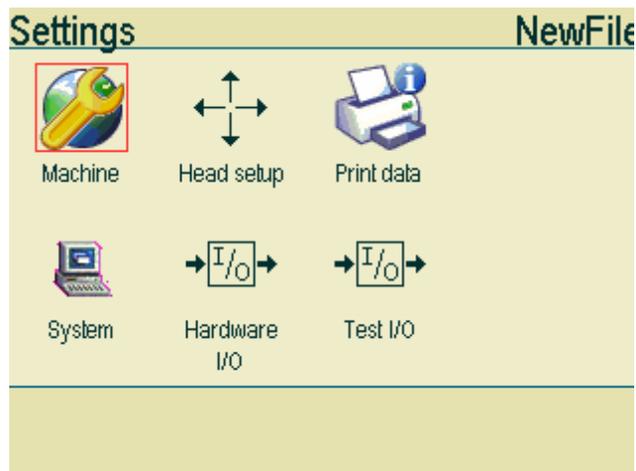## 3.6 Select buffer mode

The buffer is a location in the controller memory that holds data waiting to be printed when printing of other data is in progress. Turn buffer mode off if instant printing is required. Typically this is needed if you want to print the exact time.

Press the tool button on the keyboard

Use the arrow buttons on the keyboard to highlight "Machine". Press accept to continue.

Use the arrow buttons on your keyboard to select "Buffer mode". Press the accept button to change the values.
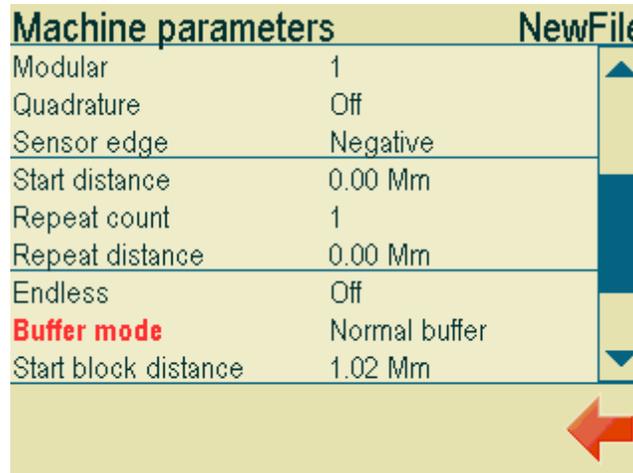
Use the arrow buttons to highlight the red arrow at the bottom of the screen. Press accept to finish.

3.7   Testjob and troubleshooting

On the MKHP you will find a test job to help you setup you controller.

Load and print the test job to test your MKHP.

- You you have 1 pen installed on your system, only the first line will be visible.
- If you have 2 pens installed on your system, the first and the second line will be visible.

When printing the test job, please do not exceed the speed limits shown below.

· 600x600 dpi   Speed limit is 37 m/min
· 300x300 dpi   Speed limit is 148 m/min
· 150x300 dpi   Speed limit is 296 m/min
· 300x300 dpi (One row)   Speed limit is 74 m/min

Troubleshooting

There is no printout at all. Please make sure your hardware has been properly connected. Please refer to the installation manual. If your hardware is working, the most likely explanation is that either the start distance or the sensor settings are wrong. If the start distance is to short, printing will start before the media has reached the head. If the sensor settings are wrong, printing will start after the media has passed the head. Please refer to the chapters "start distance" and "sensor settings".

Only a part of the print has been printed. Check your start distance. If the start distance you have entered is shorter than the distance between the sensor and the head, printing will start before the media has reached the head and consequently only a part of the printout will be printed on the paper.

The print is blurred. Check the distance between the head and the media. The optimal distance is 0.5mm. Please refer to the installation manual. Make sure your ink settings are correct. Please refer to the chapter on the subject.

There are white lines in the print. Check your head. The head must be placed in an angle of 90 degrees in relation to the print direction. Please refer to the installation manual. Also check that your pen offset and your head offset is correct. Refer to the chapter on the subject.

The print has been mirrored. Please make sure the selected print direction is correct. Please refer to the chapter on the subject.

There is a shadow image in the print. Your encoder value could be wrong. Please refer to the chapter "Setting up encoder". You will also see a "shadow image" in your print out if your are printing faster than the speed limits shown above. Check the resolution settings. If your are printing in velocity mode, resolution must be set to one row.

Your printout should be approx. 84 mm long. If the printout is much longer or much shorter, several things could be wrong. If you are printing in velocity mode, your speed may be incorrect. Please refer to the chapter "Select fixed speed".If you are using an encoder, your encoder value could be wrong. Please refer to the chapter "Setting up encoder".Your encoder may not be properly installed. Please refer to the installation manual.

If either the date or the time on your print is incorrect, please check your system clock settings. Make sure buffer mode is set to off.

If the vertical line appears interrupted on your printout, you will need to readjust your head offset and pen offset.

4 Support

For product support, please contact HSA SYSTEMS Customer Service department

HSA SYSTEMS CUSTOMER SERVICE DEPARTMENT

Phone: +45 66103401
Email: techsupport@hsasystems.com