MUTOH

User's Guide

Kona cutting plotter

760 / 1400 / 1650

kona

Copyright notice

Mutoh Europe nv reserves the right to modify the information contained in this manual at any time without prior notice.

This document may not be reproduced by any means, in whole or in part, without written permission of the copyright owner.

Mutoh furnished this document to support the Kona cutting plotter series. In consideration of the furnishing of the information contained in this document, the party to whom it is given, assumes its custody and control and agrees to the following:

The information herein contained is given in confidence, and any part thereof shall not be copied or reproduced without written consent of Mutoh Europe nv

This document or the contents herein under no circumstances shall be used in the manufacture or reproduction of the article shown and the delivery of this document shall not constitute any right or license to do so.

Table of contents

Chapter 1 Regulations and safety information

1.1 Warnings, cautions and notes

Safety terms in this manual and the contents of warning labels attached to the cutter are categorized into the following three types, depending on the degree of risk (or the scale of accident).

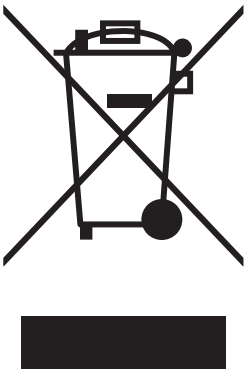
Read the following explanations carefully and follow the instructions in this manual.

Safety terms	Details
⚠ **Important** ⚠	Must be followed carefully to avoid death or serious bodily injury.
⚠ **Caution** ⚠	Must be observed to avoid bodily injury (moderate or light) or damage to your equipment.
⚠ **Notes** ⚠	Contains important information and useful tips on the operation of your cutter.

1.2 Compliance with the following regulations

The CE marking is a mandatory European marking for certain product groups to indicate conformity with the essential health and safety requirements set out in European Directives.

By affixing the CE marking, the manufacturer, his authorized representative, or the person placing the product on the market or putting it into service ensures that the item meets all the essential requirements of all applicable EU directives and that the applicable conformity assessment procedures have been applied.



Your product is designed and manufactured with high-quality materials and components, which can be recycled and reused.

When this crossed-out wheeled bin submenu is attached to a product, it means the product is covered by the European Directive 2002/96/EC - WEEE regulation.

Please inform yourself about the local separate collection system for electrical and electronic products.

Please act according to local rules and do not dispose of your old products with your normal household waste. The correct disposal of your old product will help prevent potential negative consequences for the environment and human health.

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

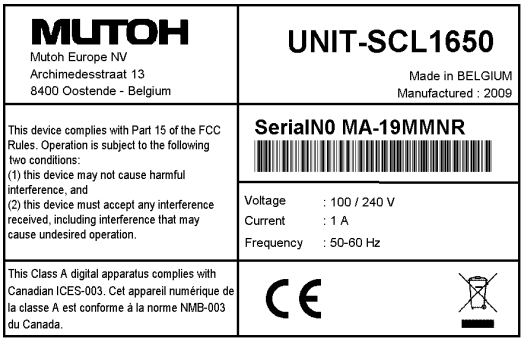
ICES

This Class A digital apparatus complies with Canadian ICES-003.

1.3 Important notes

- Technical problems and maintenance, which require the cutter to be opened, can only be done by qualified personnel who were trained to repair this type of machine.
- Unauthorized removing of covers and/or overruling safety locks can be dangerous and will result in your guarantee becoming void.
- After powering OFF the machine, wait at least 10 seconds before powering ON again. Not respecting this time interval could damage the machine.
- The cutter must be connected to an earthed mains socket-outlet.

1.4 Safety labels

Label	Description
	Be careful not to pinch your fingers between the pressure rollers and grit rollers when loading media for example.
	Be careful not to get stuck between the following moving parts: ■ Cutting head ■ Grit rollers
 	Be sure not to stare in the laser mounted on the cutting head.
	Serial number label providing you the following information: ■ Serial number ■ Unit name ■ Power supply requirements ■ Regularisations ■ Class A product ■ Address Mutoh Europe n.v.

Chapter 2 Product overview

2.1 Dimensions machine

	Kona 760	Kona 1400	Kona 1650
Width	1200 mm / 47,2"	1850 mm / 72,8"	2090 mm / 82.3"
Depth	260 mm / 10,2"	490 mm / 19,3"	490 mm / 19,3"
Height	275 mm / 10,8"	1150 mm / 45,3"	1150 mm / 45,3"
Weight (options excl.)	21 kg / 46,3 lb	48 kg / 105,8 lb	52 kg / 114,6 lb
Weight (options incl.) ■ Media support rolls ■ Media basket ■ Roll off system	40 kg / 88,9 lb	56 kg / 123,5 lb	63 kg / 138,9 lb

2.2 Installation environment requirements

2.2.1 Power supply

- **Voltage** 100-240 V AC
- **Current** 1 A
- **Frequency** 50-60 Hz

2.2.2 Ambient conditions

Operation environment

- **Temperature**: 10°C - 35°C
- **Humidity**: 35% - 75% non-condensing

Recommended environment (dark area)

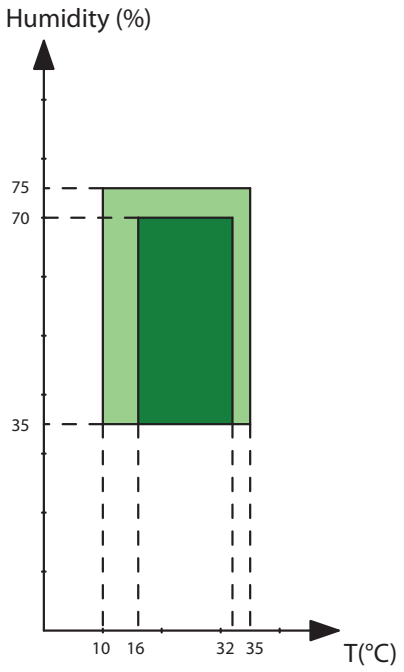
- **Temperature**: 16°C - 32°C
- **Humidity**: 35% - 70% non-condensing

Variation rate

- **Temperature**: 2°C per hour
- **Humidity**: 5% per hour

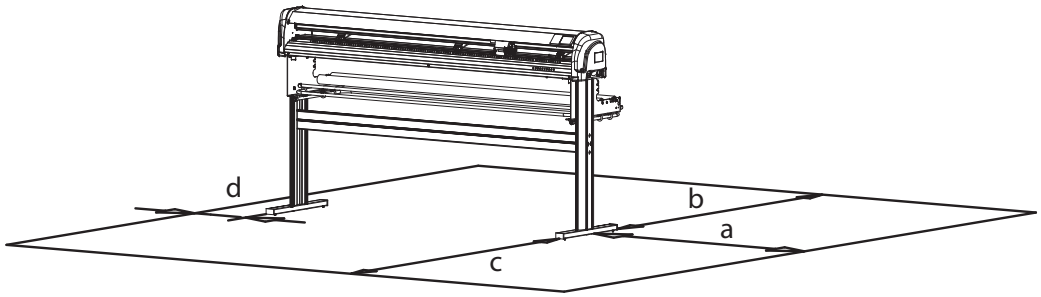
Storage environment

- **Temperature**: 0°C - 50°C



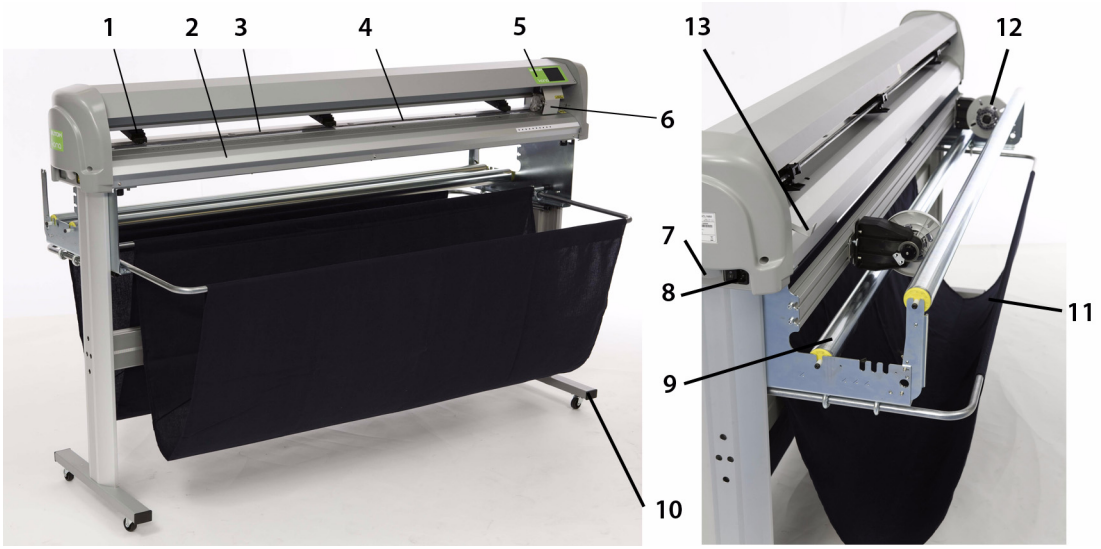
2.2.3 Room conditions

- Please protect your cutter from moisture, dust, draughts and direct sunlight (to prevent possible media detection and epos readout issues). It is best to keep your machine away from open windows and air-conditioners.
- See to it that there is an adequate space around the cutter so that ventilation is not obstructed.
- Avoid unnecessary vibrations and set up your cutter on a level surface.
- Be sure to have some free space on each side of the Kona to ease the operating of it.



- **a** = at least 1 meter
- **b** = at least 1 meter
- **c** = at least 1 meter
- **d** = at least 0,2 meter

2.3 Part names and functions



N°	Description	Extended description
1	Pressure rollers	To push the media against the grit rollers
2	Media guide	A guiding platform with vacuum fans to transport the media as flat as possible during cutting
3	Cutting mat	Provides a reliable cutting surface and minimizes damage to the knife tip
4	Grit rollers	Rollers with a granular surface to move the media front and backwards
5	Control panel touch screen	To make various settings before and during cutting
6	Cutting head	Assembly of cutting knife, sheet-off knife and EPOS sensor
7	USB inlet	To connect the USB cable
8	Power inlet and power switch	To connect the power cable and power on the unit
9	Roll conveyor	To support and roll-off the vinyl
10	Stand and wheels	To move the cutter easily
11	Media bag	To collect the media when sheeting off
12	Roll-off system	To roll-off pre printed vinyl
13	Pressure roller lever	To lower and raise the pressure rollers

Chapter 3 Basics

3.1 Installing and replacing tools

3.1.1 Installing tools

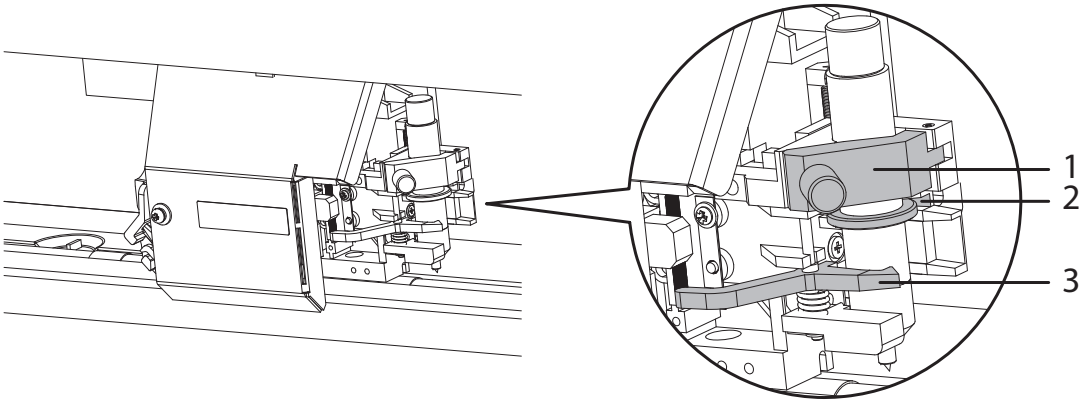
At the right-hand side of the cutter head, you will find a pivoting mounting bracket. Opening this bracket will enable you to install a full range of cutting and drawing tools.

To do so, please follow the instructions mentioned below.

Step 1: Open the screw (1) to unlock the tool head-mounting bracket.

Step 2: Hold back the clip (3) of the tool head and slide the tool into position, making sure the tool collar fits into the groove just beneath the locking screw (2).

Step 3: Fasten the screw (1) to secure the tool into position.



Step 4: Perform the EPOS alignment check to be sure the distance between EPOS sensor and knife/pen point is set correctly. Otherwise, it might occur that the data is cut with an offset.

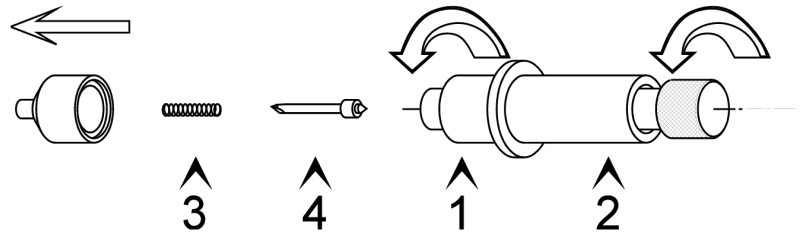
Refer to Menu overview > Settings 4/4 > Epos Alignment on page 65

3.1.2 Replace cutter blade

To replace a blade, please follow the procedure below:

Standard knife holder

Step 1: Hold the body (2) into one hand and unscrew the base part (1)



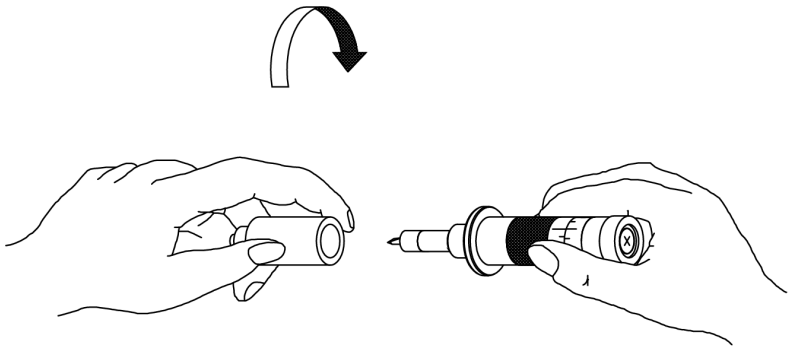
Step 2: Remove the spring (3) and the cutting blade (4).

Step 3: Slide the spring over the new cutting blade

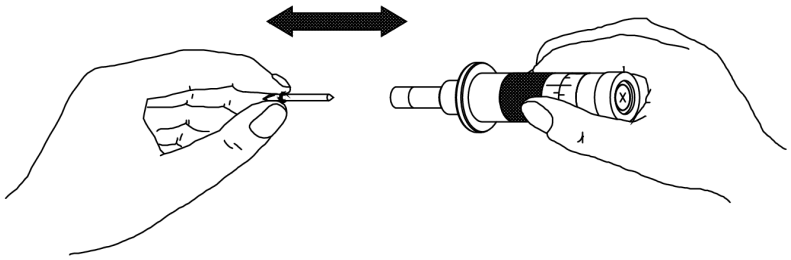
Step 4: Place the new blade with its spring into the base part and screw the whole assembly onto the body.

Knife holder with nonius

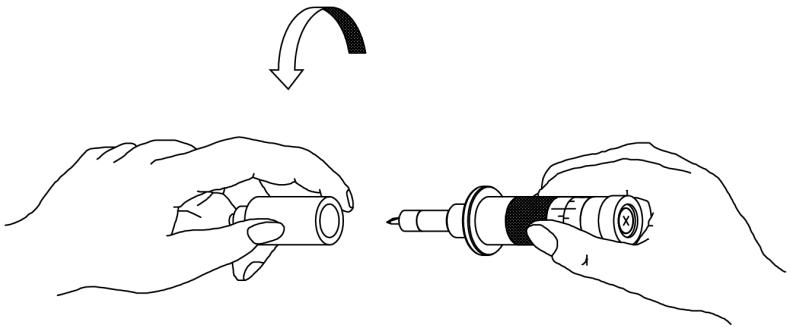
Step 1: Take the body into one hand and remove the base part.



Step 2: Pull the old blade out of the holder and insert a new one.



Step 3: Place the base part on top of the holder assembly and twist it tightly.



3.1.3 Replace sheet-off blade

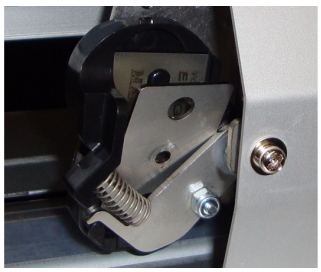
Caution

- **Be careful not to cut your fingers when replacing the sheet-off blade!**

Please follow the procedure below to replace the sheet-off blade:

Step 1: Loosen the screw fixing the sheet-off blade and protection plate with a hexagon key of 2,5 mm.

Step 2: Remove the protection plate and sheet-off blade.



Step 3: Replace the sheet-off blade or rotate it (4 cutting sides) and reinstall all the parts.

Step 4: Tighten the screw firmly and verify that the assembly has been reinstalled correctly by performing an automatic or manual sheet-off.

Refer to Menu overview > Settings 2/4 > Sheet off on page 55

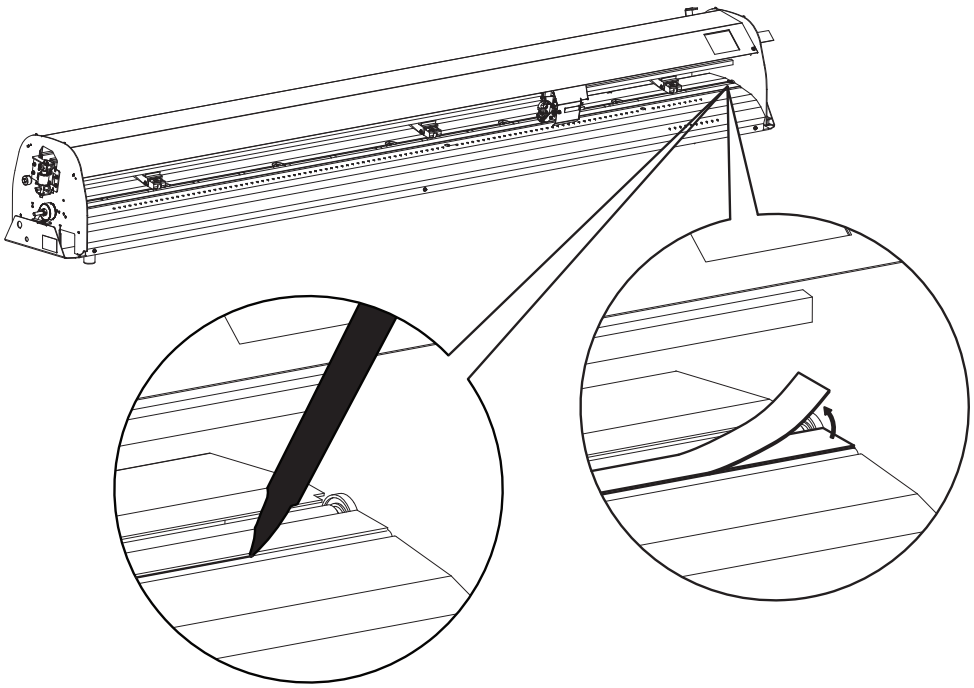
Refer to Menu overview > Actions 1/2 > Sheet off on page 77

3.1.4 Replace cutting mat

Please follow the procedure below to replace the cutting mat.

Step 1: To easy the replacement procedure, it is recommended to remove the Y-rail cover by loosening the 4 screws (2 left - 2 right). Experienced users might do this without removing the cover.

Step 2: Draw a line in front of the cutting mat and remove the worn cutting mat.



Step 3: Clean the platen using isopropanol.

Step 4: Install the new cutting mat in the same position as the previous one.

Step 5: Reinstall the Y-rail cover.

Step 6: If you notice some cutting errors after replacing the cutting mat, it might be necessary to contact an authorized Mutoh technician to perform a Y-Z profile measurement.

3.2 Setting the correct knife depth

Adjusting the knife depth is a very important parameter when it comes to making high quality outputs.

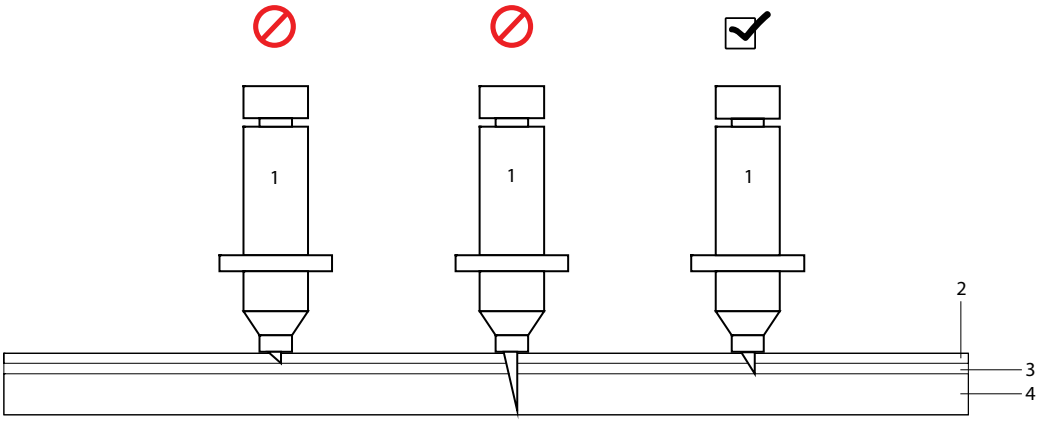
First of all you will need to decide wether to cut your job in single or multi tool mode before you are able to set the knife depth correctly. Refer to the table below for the different possibilities and which knife depth to set.

Application	Single tool mode	Multi tool mode
Kiss cutting	Contour cutting knife depth	Contour cutting knife depth
Through cutting (e.g. Cut Through - Trim Poster)	Cut through depth	Cut through depth
Kiss cutting & through cutting	Cut through depth	Contour cutting knife depth & Cut through depth

Refer to Menu overview > Settings 3/4 > Cut through on page 63 for even more details.

3.2.1 Contour cutting knife depth

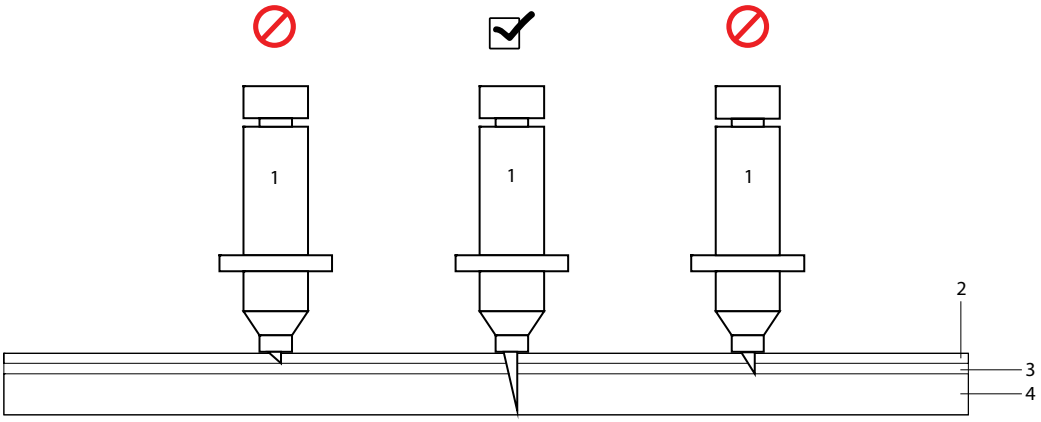
Always make sure that the knife blade protrudes enough out of the knife holder, but not too much. The knife top should just leave a mark on the backing.



N°	Description
1	Knife holder
2	Vinyl
3	Adhesive film
4	Backing

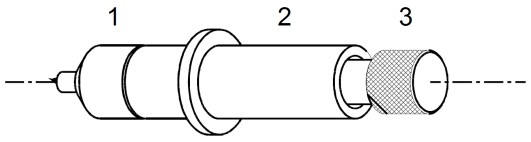
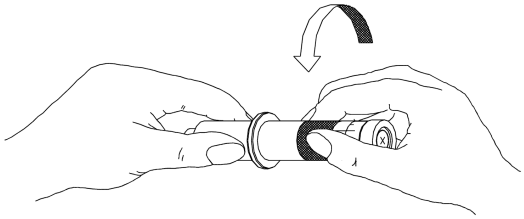
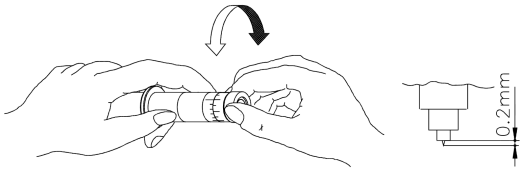
3.2.2 Cut through depth

Always make sure that the knife blade protrudes enough out of the knife holder, but not too much. The knife top should come through the backing.



N°	Description
1	Knife holder
2	Vinyl
3	Adhesive film
4	Backing

3.2.3 Adjusting the knife depth

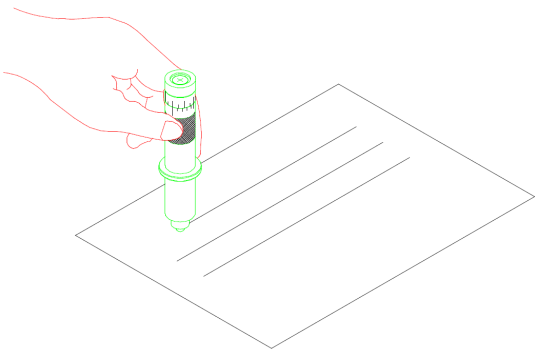
Standard knife holder	Knife holder with nonius
Hold the body (2) in one hand and adjust the depth by using the set screw (3).  Turning the set screw (3) clockwise will make the blade protrude out of the edge of the base part (1). Turning the set screw (3) counter clockwise, will retract the blade. For a first test, turn out the blade until it protrudes about 0.2mm (0.008") out of the base part.	Loosen the base part of the cutting knife. To do this, take the base part in your left hand and twist the ring slightly.  Take the base part and the ring in your left hand and twist the shaft until the knife point protrudes about 0.2 mm (0.008") out of the base part.  Tighten the ring firmly against the base part. This will prevent the cutting blade from coming loose during cutting.

Make a manual test-cut on a small piece of media, of the same type that you will be using.

For contour cutting
Adjust the depth until the top layer is cut completely and that you can see a slight scratch on the backing when peeling off. At no times you should be able to see a scratch at the back side of the media.

For cutting through
Adjust the depth until the knife just cuts through the back side of the media.

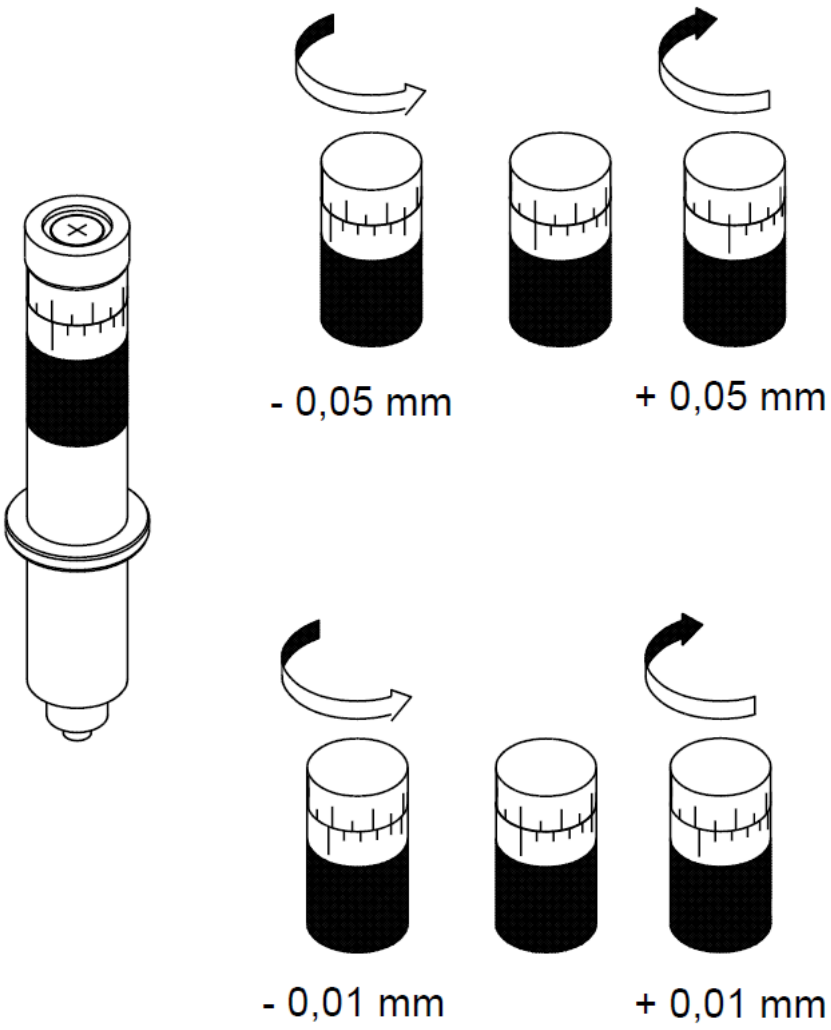
Refer to Menu overview > Settings 3/4 > Cut through on page 63



3.2.4 Features of knife holder with nonius

For some applications it might be convenient to be able to very accurately change the depth of the cutting blade. For those applications, Mutoh can provide you with a knife holder, featuring a nonius (vernier) with which it is possible to adjust the depth of the knife in increments of 0.01 millimetre (0.0004") The upper scale lines make it possible to change the knife depth over 0.05 mm (0.002").

The lower scale (nonius) makes it possible to change the knife depth over 0.01 mm (0.0004").



3.3 Handling and storing media

Before you will be able to cut a job, it is necessary to know which media to use.

3.3.1 Handling media

When you handle media, please pay attention to the following:

- Use recommended media in an appropriate environment. Following are the appropriate temperature and humidity ranges for cutting.

	Temperature	Humidity
Recommended working environment	16°C - 32°C	35% - 70%
Rate of change	within 2°C per hour	within 5% per hour

- Do not use creased, damaged, torn, curled, or wrapped media.
- Temperature changes will influence the size of media that is used. Before using sheet media, place the sheet in the working environment to have it match to the temperature of the working area.
- Cutting before the media has been able to accommodate to the cutting environment may cause media jams due to slippage or creases. This also adversely affects the quality of cutting.
- Do not throw away the box or wrapping bag for storing media.

3.3.2 Precautions on storing media

When storing media, pay attention to the following:

- Do not store media in high temperatures, high humidity, or direct sunlight.
- Store sheet media in the original bag after unpacking.
- Unused roll media must be removed from the scroller, rewound tightly, and stored in the original wrapping bag and the box.
- Do not wet media.

3.4 Loading media

3.4.1 Loading a sheet

Configuration to start from

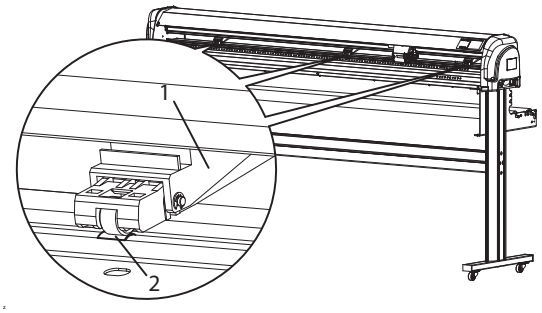
- The pressure rollers are raised.
- The media support rollers are removed.
- The rear media collection bag is open and empty.
- The front media collection bag is open (when the cutting job is smaller than 4m).
- The front media collection bag closed (when the cutting job is larger than 4m).

Media loading procedure

Step 1: Guide the media under the pressure rollers at the front of the cutter.

Step 2: Position the pressure rollers paying attention to the following restrictions:

- All pressure rollers (1) should face a grit roll (2). Each pressure roller has a tactile and audible click system which makes it easier to position them correctly.



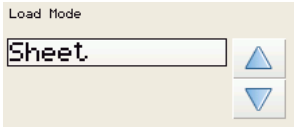
- There should always be a pressure roller installed on one of the 3 middle grit rolls when working with a Kona 1400 or 1650.

Step 3: Set the media type to sheet as follows:

- Press the following buttons in order:
  - *Settings*

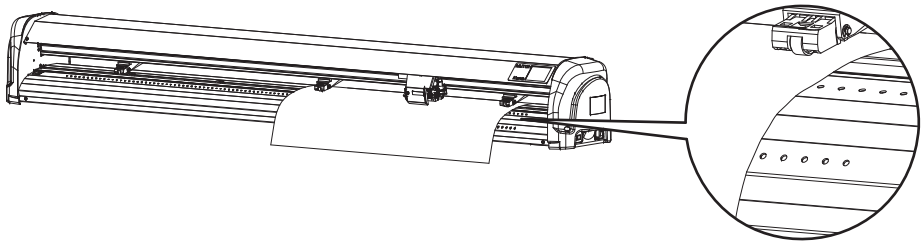
  - *Load Mode*

- Select *sheet* and confirm with ✓



Step 4: Make sure that about half of the sheet hangs in front of the machine and half hangs at the back. This will make it easier to align the media correctly.

Step 5: Load the media straight. To help you, rulers are drilled in the front platen.



Step 6: Be sure that the media is cut off straight at the front to avoid media initialization mismatches.

Step 7: Be sure that the set maximum sheet length is smaller than the actual length of the loaded sheet. If not, the cutter will automatically swap from sheet to roll front mode.

Refer to Menu overview > Settings 2/4 > Max. length on page 56

Note

- **Before lowering the pressure rollers, be sure that there is a knife or pen installed in the head. This because during the media initialization, the penhead will also be initialized. If you insert a pen/knife afterwards, the machine will not know the weight of the tool. This could result in cutting lines across the complete print.**

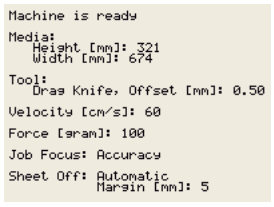
Step 8: Lower the lever.

Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

Step 9: The cutter will measure the paper. The following message will be displayed:

Step 10: When no problems occur, the main screen will appear. The usable width of media will be displayed:



Step 11: You are ready to cut.

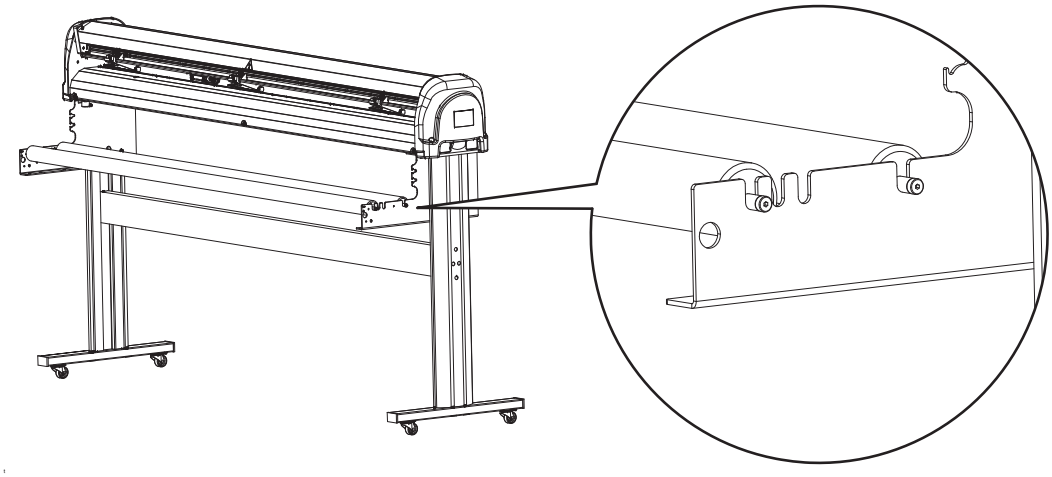
3.4.2 Loading a roll of vinyl using the media support rollers

Note

- **The media support rollers are not standard on a Kona 760. This procedure is only possible when you have this option installed.**

Configuration to start from

- The pressure rollers are raised.
- The media support rollers are installed correctly.



- The rear media collection bag is open and empty.
- The front media collection bag is open (when the cutting job is smaller than 4m).
- The front media collection bag closed (when the cutting job is larger than 4m).

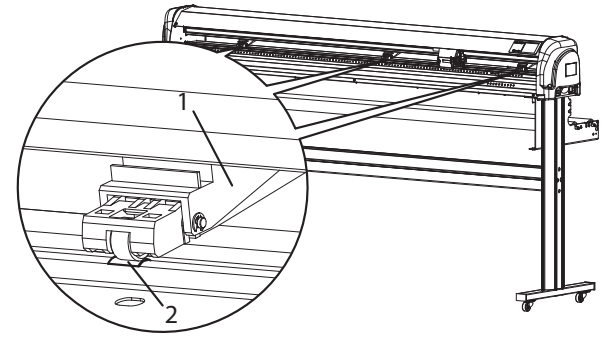
Media loading procedure

Step 1: Place the vinyl on the media support rolls. Be sure that the space between the rolls is smaller than the diameter of the core. Otherwise, the core will fall through the rolls when the roll is (almost) empty.

Step 2: Guide the media under the pressure rollers at the front of the cutter.

Step 3: Position the pressure rollers paying attention to the following restrictions:

- All pressure rollers (1) should face a grit roll (2). Each pressure roller has a tactile and audible click system which makes it easier to position them correctly.



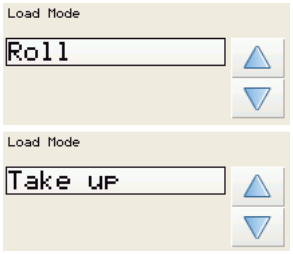
- There should always be a pressure roller installed on one of the 3 middle grit rolls when working with a Kona 1400 or 1650.

Step 4: Set the media type to roll or take-up as follows:

- Press the following buttons in order:
  - *Settings*

  - *Load Mode*

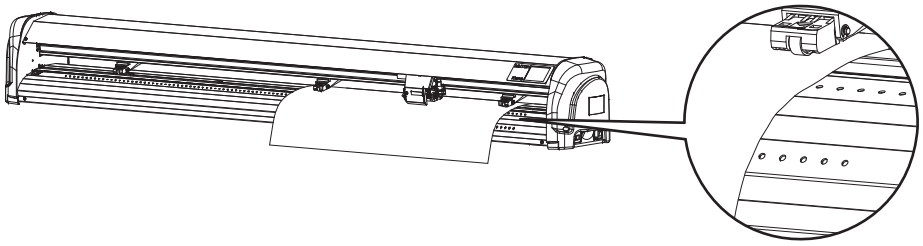
- Select *roll or take-up* and confirm with ✓



Refer to Menu overview > Settings 1/4 > Load mode on page 52 **to know the difference between the two modes.**

Step 5: Load the media properly:

- It is best that you hold the front edge of the media in the middle with one hand and with the other hand the roll itself.
- As you are holding the roll firmly into position, pull the front edge of the media forward so that there is an even tension across the whole width of the roll (= equal tension method)
- Do NOT use the drilled holes to align a roll of media! They are for use with sheets only. Rolls can only be correctly installed using the equal tension method.
- The holes will help you monitoring if the media is not meandering too much.



Step 6: Be sure that the media is cut off straight at the front to avoid media initialization mismatches.

Note

- **Before lowering the pressure rollers, be sure that there is a knife or pen installed in the head. This because during the media initialization, the penhead will also be initialized. If you insert a pen/knife afterwards, the machine will not know the weight of the tool. This could result in cutting lines across the complete print.**

Step 7: Lower the lever as soon as all the correct settings have been made

Refer to Menu overview > Settings 2/4 > Prefeed on page 54

Refer to Menu overview > Settings 2/4 > Max. length on page 56

Refer to Menu overview > Settings 2/4 > Auto shuffle on page 56

Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

Step 8: The cutter will measure the paper. The following message will be displayed:

Step 9: When no problems occur, the main screen will appear. The measured width of the media will be displayed.

Step 10: You are ready to cut.

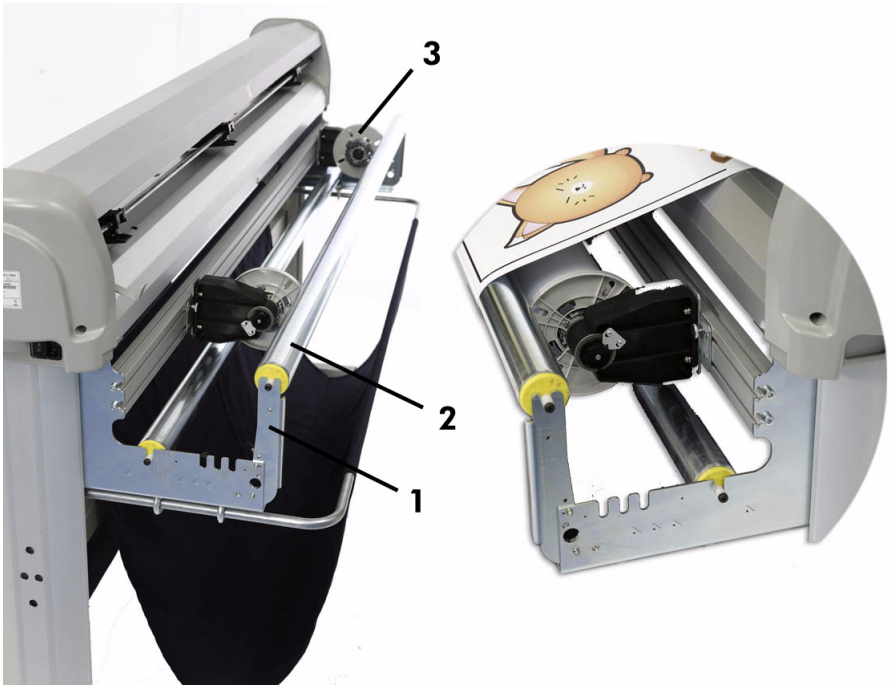
3.4.3 Loading a roll of pre-printed vinyl using the roll-off system

Note

- **The media roll-off system is not standard on a Kona 760, 1400 and 1650. This procedure is only possible when you have this option installed.**

Configuration to start from

- The pressure rollers are raised.
- The roll-off system is installed correctly:
  1. Install deflection roll bracket.
  2. Install the deflection roll.
  3. Install the media holders.

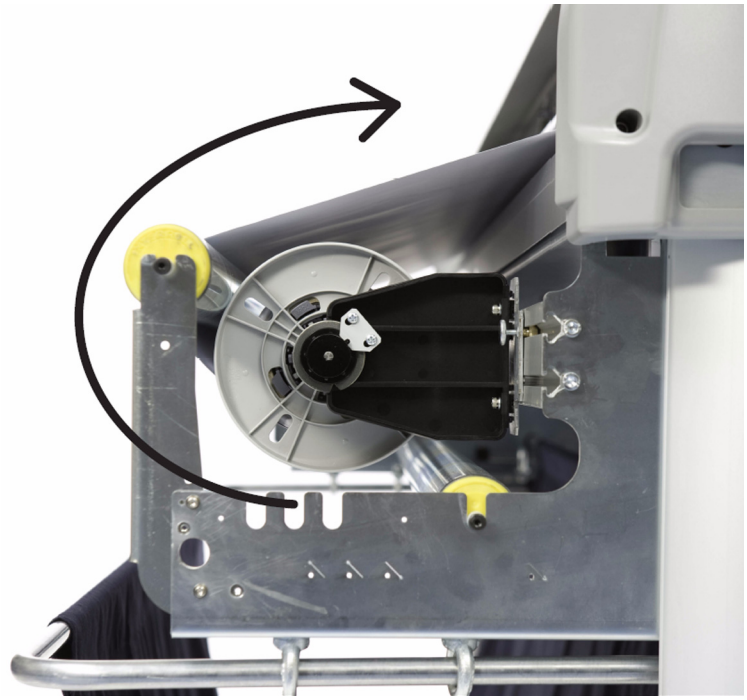


- The rear media collection bag is open and empty.
- The front media collection bag is open (when the cutting job is smaller than 4m).
- The front media collection bag closed (when the cutting job is larger than 4m).

Media loading procedure

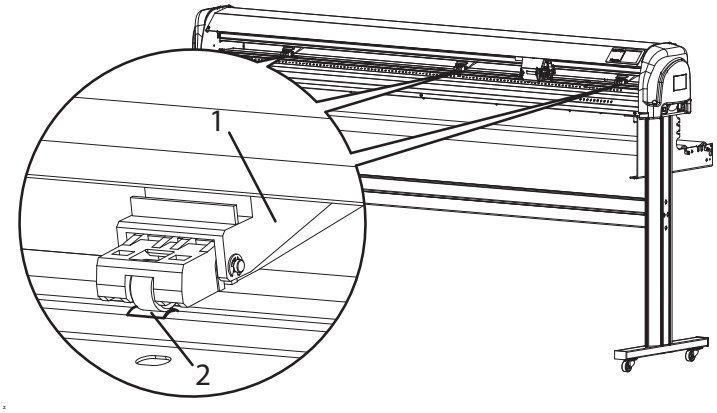
Step 1: Install the pre-printed roll of media between the media holders. Position the roll and tighten the media holders by fixing the thumb screws.

Step 2: Guide the media as shown below:



Step 3: Position the pressure rollers paying attention to the following restrictions:

- All pressure rollers (1) should face a grit roll (2). Each pressure roller has a tactile and audible click system which makes it easier to position them correctly.



- There should always be a pressure roller installed on one of the 3 middle grit rolls when working with a Kona 1400 or 1650.

Step 4: Set the media type to roll or take-up as follows:

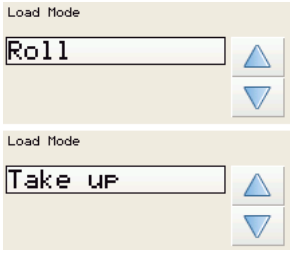
- Press the following buttons in order:
  - *Settings*

  - *Load Mode*

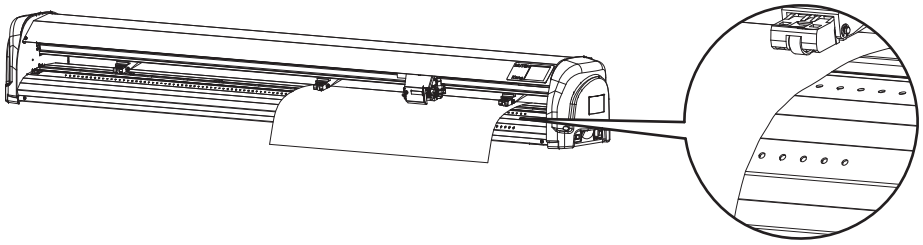
- Select *roll or take-up* and confirm with ✓



Refer to Menu overview > Settings 1/4 > Load mode on page 52 **to know the difference between the two modes.**

Step 5: Load the media properly:

- It is best that you hold the front edge of the media in the middle with one hand and with the other hand the roll itself.
- As you are holding the roll firmly into position, pull the front edge of the media forward so that there is an even tension across the whole width of the roll (= equal tension method)
- Do NOT use the drilled holes to align a roll of media! They are for use with sheets only. Rolls can only be correctly installed using the equal tension method.
- The holes will help you monitoring if the media is not meandering too much.



Step 6: Be sure that the media is cut off straight at the front to avoid media initialization mismatches.

Note

- **Before lowering the pressure rollers, be sure that there is a knife or pen installed in the head. This because during the media initialization, the penhead will also be initialized. If you insert a pen/knife afterwards, the machine will not know the weight of the tool. This could result in cutting lines across the complete print.**

Step 7: Lower the lever as soon as all the correct settings have been made

Refer to Menu overview > Settings 2/4 > Prefeed on page 54

Refer to Menu overview > Settings 2/4 > Max. length on page 56

Refer to Menu overview > Settings 2/4 > Auto shuffle on page 56

Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

Step 8: The cutter will measure the paper. The following message will be displayed:

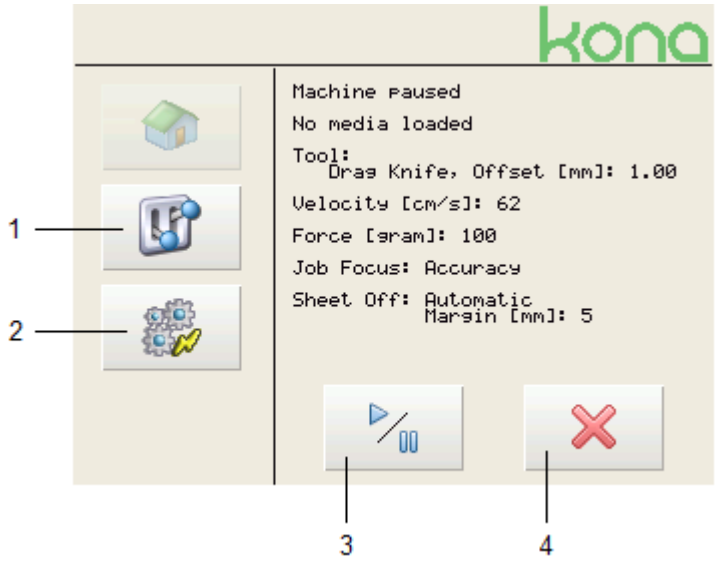
Step 9: When no problems occur, the main screen will appear. The measured width of the media will be displayed:

Step 10: You are ready to cut.

Chapter 4 Operation panel

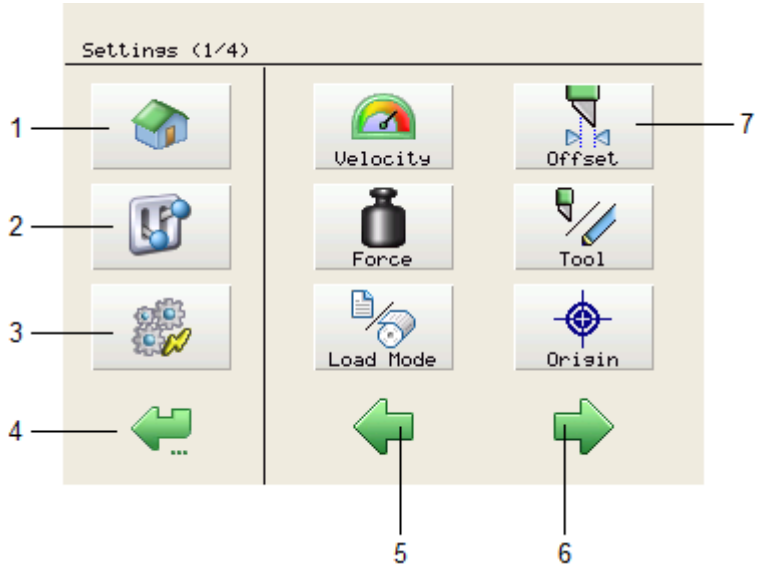
4.1 Explaining the different buttons

4.1.1 Main menu



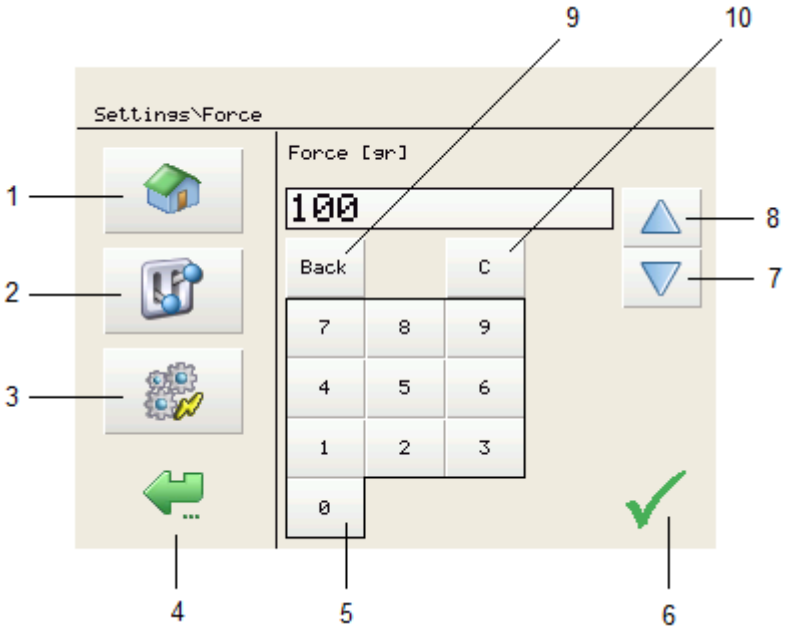
N°	Description	Extended description
1	Settings button	Open the *settings* menu 1/4
2	Actions button	Open the *actions* menu 1/2
3	Play / pause button	*Pause* or *resume* a job
4	Cancel button	*Cancel* a job

4.1.2 Settings or actions menu



N°	Description	Extended description
1	Home button	Go back to the home menu (the menu shown above)
2	Settings button	Open the *settings* menu 1/4
3	Actions button	Open the *actions* menu 1/2
4	Back / cancel button	Go *back* to the previous menu in the hierarchy
5	Previous button	Go *back* to the previous page within a menu level
6	Next button	Go to the *next* menu page wihtin a menu level
7	Menu button	*Open* the respective menu

4.1.3 Adjust value menu



N°	Description	Extended description
1	Home button	Go back to the home menu (the menu shown above)
2	Settings button	Open the *settings* menu 1/4
3	Actions button	Open the *actions* menu 1/2
4	Back / cancel button	Go *back* to the previous menu in the hierarchy and/or *cancel* the settings change
5	Numeric keyboard	*Type* the requested set value
6	Save button	*Save* the new value
7	Decrease button	*Decrease* the value with one digit
8	Increase button	*Increase* the value with one digit
9	Erase button	*Delete* the last digit
10	Erase all button	*Erase* the complete value

Note

- **It is impossible to exceed a maximum value. The cutter will beep twice if you try.**
- **The value will be displayed in blue when the chosen value is smaller than the minimum value.**

4.2 Menu overview

4.2.1 Tree diagram

Main menu	Sub menus	BOLD = default value		More info
Settings 1/4	Velocity	Tool down	1 - **60** -100 cm/s	page 45
		Tool up	1 - **100** cm/s	
		Laser	1 - **15** -100 cm/s	
	Offset	Offset	0.1 - **0.5** - 1 mm	page 47
		Test		
	Force	Force	20 - **100** - 450 g	page 49
		Test		
	Tool	**Drag knife**		page 51
		Pen		
	Load mode	**Roll**		page 52
		Take up		
		Sheet		
	Origin	Center		page 53
		Lower right		
		Lower left		
		Upper right		
		Upper left		
Settings 2/4	Prefeed	0 - **1000** - 10000 mm		page 54
	Sheet off	Mode	**Automatic**	page 55
			Manual	
			Disabled	
		Margin	1 - **5** - 250 mm	
	Max. length	0 - **2000** - 10000		page 56
	Auto shuffle	**On**		page 56
		Off		
	Job Focus	**Accuracy**		page 57
		Speed		
	Page Mode	0 - **1** - 2		page 58

Main menu	Sub menus	BOLD = default value		More info
Settings 3/4	Smoothing	**On**		page 59
		Off		
	Language	**English**		page 59
	Protocol	Emulation	**HPGL2**	page 60
			HPGL	
			MHGL2	
			MHGL	
		VS/ZF/AS	**Accept**	
			Ignore	
	Resolution	**0.010 mm**		page 61
		0.025 mm		
	Swap Alert	**Singletool** / multitool		page 62
	Cut Through	Velocity	1 - **15** - 100 cm/s	page 63
		Force	20 - **250** - 450 g	
		Test		
		Up Distance	**0.1** - 2.0 mm	
		Down Distance	0 - **10** - 100 mm	
Settings 4/4	Epos Alignment	**Automatic**		page 65
		Manual		
	Screen	Beep	**Off**	page 66
			On	
		Contrast	0 - **25** - 40%	
		Brightness	0 - **50** - 100%	
	Diagnostics	For authorized Mutoh technician only		page 67
	Defaults	Yes / **No**		page 67
	Information			page 68

Main menu	Sub menus	BOLD = default value		More info
Actions 1/2	Jogging			page 69
	Origin			page 70
	Cut Through	Trim poster	Length	page 71
			Width	
	Contour Cut	Multi frame	**Single scan**	page 74
			Repeat mode	
		Single frame	**Single scan**	
			Repeat mode	
		Manual	Length	
			Width	
			Direction	
	EPOS Read			page 76
	Sheet-off	Yes / **No**		page 77
Actions 2/2	Copies	0 - **1** - 100		page 78

4.2.2 Settings 1/4

Velocity

Set the cutting speed according to the application. The following speeds can be set:

Tool up speed

- the speed of the cutting head when the tool is up
- the cutting head speed in left-right movement

Tool down speed

- the speed of the cutting head when the tool is down
- the feeding speed (media detection)

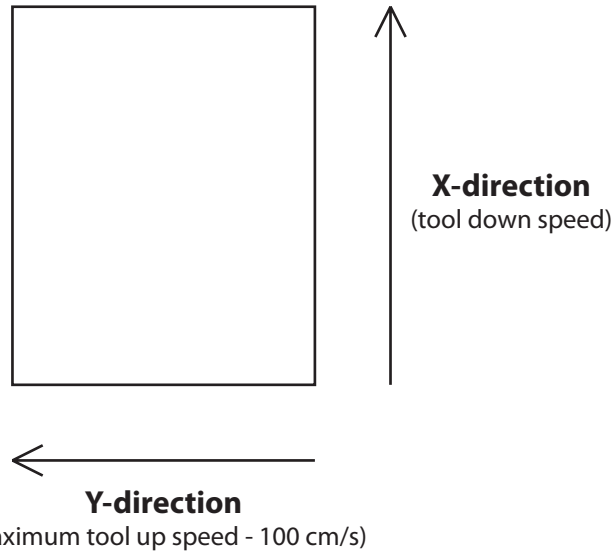
Laser speed

- the speed of virtual cutting when in laser mode
- this is NOT the speed of the bounding box measurement

The speeds can be set as well on the cutter panel as in the cut software. When the speed has been set in the software, the panel speed will be overruled when the function VS/ZF/AS is enabled (by default).

Refer to Menu overview > Settings 3/4 > VS/ZF/AS on page 60

In this case, the tool down speed is the speed of measuring up the box in X-direction. The tool speed in Y-direction will always be the maximum tool up speed (100 cm/s). Consequently, it is possible to gain some time when you set the real cutting speed in the software and the bounding box measuring speed on the control panel.



Note that there is also a throughcut speed. This speed can be set in the separate *Cut Through* menu.

Refer to Settings 3/4 > Cut through on page 63

Set the tool as follows:

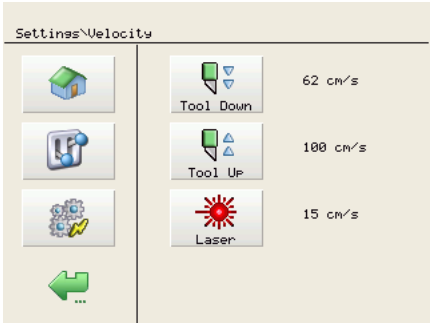
Step 1: Press the following buttons in order:

- *Settings*

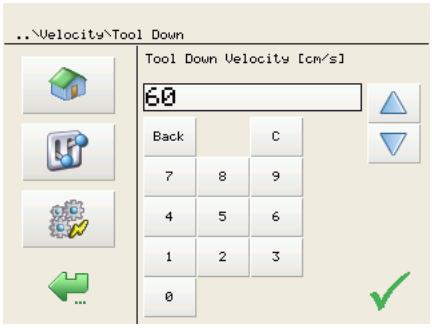
- *Velocity*

Step 2: Select which speed you want to change

- Tool Down
- Tool Up
- Laser



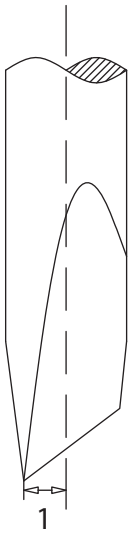
Step 3: Change the value(s) to the desired speed and confirm with ✓ or cancel with



Offset

One of the most important factors to obtain good quality, but unfortunately also one of the factors that is easily forgotten, is the offset. As you can see in the figure below, the knife offset (*1*) is the distance between the knife centre and the knife tip.

Accurate measurement of the *offset* to be used is very difficult and requires specialized equipment. You should therefore adjust the offset (1) by checking real cutting results on the media you will use. Mutoh helps you doing this by way of a semi-automatic offset adjustment routine, which has been integrated into your cutter.



Please follow the procedure below to perform this test:

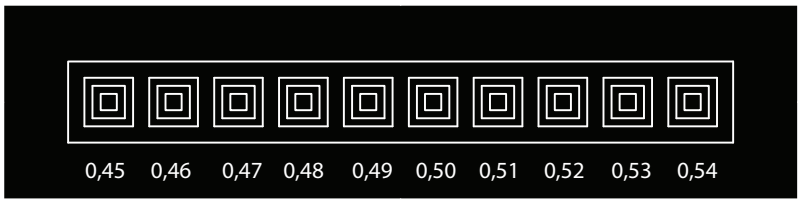
Step 1: Press the following buttons in order:

- *Settings*

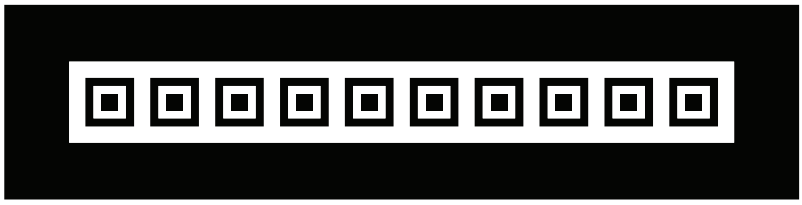
- *Offset*

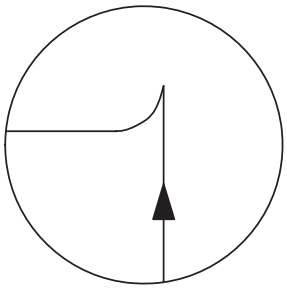
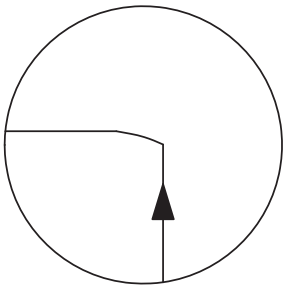
- *Test*

Step 2: A series of squares, each with a different offset, will be cut.

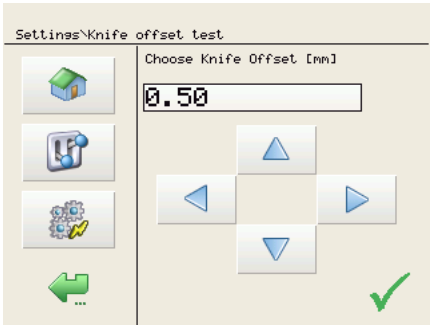


Step 3: Weed out the boxes as and check the patterns and determine which of them gives best quality. Especially look for good quality of the corners and easy weeding.



The offset value is ***larger*** than the optimum knife offset	The offset value is ***smaller*** than the optimum knife offset
In this case, a square corner will be cut as follows:  The cutting direction is indicated by the arrow. The corners are not well formed. The cutter cuts too far in the angular points.	In this case, a square corner will be cut as follows:  The cutting direction is indicated by the arrow. The corners are not well formed. The cutter did not cut far enough in the angular points.

Step 4: Point the knife over the optimum knife offset using the left-right arrow keys and confirm with ✓. Use the up-down arrows to show the test pattern once more.



Force

Tool force (cutting pressure) is the amount of downward pressure that the cutter applies on the knife / pen. We merely want to point out that you have to try to cut your design with the lowest possible pressure that gives no trouble to weed. Some film media require only 20 grams to be cut completely through. In that case there is no need to apply 100 grams of pressure. Too much pressure can cause a decrease of quality. For cutting through applications we recommend 250 grams. The same principle as for contour cutting, the lowest possible pressure is advised, not only for the output quality but also for the lifetime of the cutting mat.

Be sure that the knife depth is set correctly.

Refer to Setting the correct knife depth on page 22

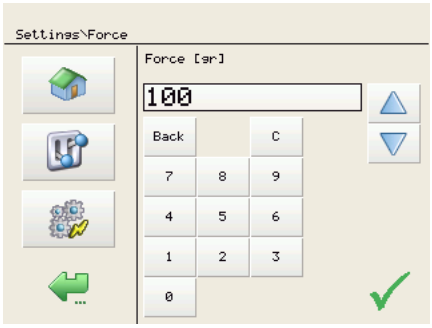
Please follow the procedure below to *set* the force

Step 1: Press the following buttons in order:

- *Settings*

- *Force (2x)*

Step 2: Change the value to the desired force and confirm with ✓ or cancel with ↵



Please follow the prodcedure below to *test* the actual settings:

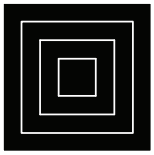
Step 1: Press the following buttons in order:

- *Settings*

- *Force*

- *Test*

Step 2: When performing the test, a pattern will be cut using the current *force* value.



Step 3: Weed out the following squares.

Step 4: Check if the top layer is cut completely and that you can see a slight scratch on the backing.

Tool

Depending on which tool has been installed, the offset should be taken into account or not. When a pen is loaded, no offset is necessary as the pen point is in the center of the pen head. When loading a drag knife, the pen tip is not in the center of the pen head and an offset is necessary.

Refer to Menu overview > Settings 1/4 > Offset on page 47 **for all information about the offset principle.**

Set the tool as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *Tools*

Step 2: Select which tool is installed

- Drag knife
- Pen

Step 3: Confirm with ✓

Step 4: Perform the EPOS alignment check to be sure the distance between EPOS sensor and knife/pen point is set correctly. Otherwise, it might occur that the data is cut with an offset.

Refer to Menu overview > Settings 4/4 > Epos Alignment on page 65

Load mode

It is necessary to pre-define the media kind before lowering the pressure rolls. Depending on the kind of media selected, another media measurement routine will be executed. Follow the procedure below to set the media kind and measurement details:

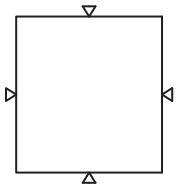
Step 1: Press the following buttons in order:

- *Settings*

- *Load Mode*

Step 2: Select which media kind is installed and confirm with ✓

- Roll
- Take-up
- Sheet

Media kind	Media measurement
Roll	The cutter will measure the left, right and front of the media. The origin will be defined from the position of the roll when lowering the lever. There will be a shuffle of the set Pre-Feed length. 
Take-up	The cutter will measure the left and right side of the media. The origin will be defined from the front of the roll. There will be a shuffle of the set Pre-Feed length. 
Sheet	The cutter will measure the left, right, front and rear of the media. The origin will be defined from the front of the sheet. The set Pre-Feed length will be ignored. When the sheet is longer than the set maximum sheet length, the media type will be changed to roll. 

4

Origin

Set the cutting starting position (origin) as follows:

Step 1: Please make sure media is loaded. If not, the positioning calculation is based on previously installed media.

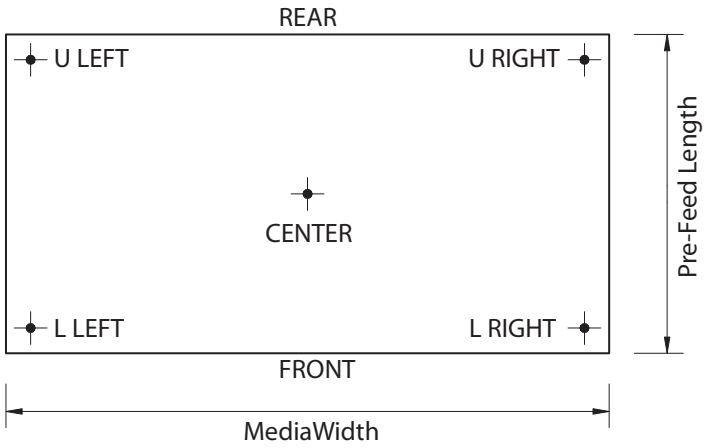
Step 2: Press the following buttons in order:

- *Settings*

- *Origin*

Step 3: Select the origin position and confirm with ✓.

- Center
- **Lower right corner** (default)
- Lower left corner
- Upper right corner
- Upper left corner



4.2.3 Settings 2/4

Prefeed

This parameter is directly related to media load mode.

Refer to Settings 1/4 > Load mode on page 52

The Pre-Feed length or shuffle length has to be set before a roll is loaded. There are three reasons for using a Pre-Feed Length:

- The length of media set for the Pre-Feed length parameter will be pulled off the roll, before the cutting job starts. This will prevent media from being pulled off the roll at high speed and acceleration. High speed can only be properly used on condition that the media can move freely, without having to be pulled off the roll during a job.
- Before actually cutting starts the complete length of the media is shuffled back and forth through the cutter, ensuring that the pressure rollers have a discrete path while the user has the time to verify if the vinyl transport goes well.
- Your Kona cutter has been equipped with Mutoh's unique auto sheet-off feature, to automatically cut off media at the end of a cutting sequence. Following an automatic PAGE command or a manual PAGE command initiated via the control panel, the cutter will shuffle through the pre-set Pre-Feed length of media, to ensure that there is enough media left for a possible replot. If there is not enough media left, the cutter will stop before the end of the assigned media length and switches to SHEET mode. The cutter will not initiate the media again in between two contour cutting jobs.

Set the cutting starting position (origin) as follows:

Step 1: Please make sure media is loaded. If not, the positioning calculation is based on previously installed media.

Step 2: Press the following buttons in order:

- *Settings*

- *Next page*

- *PreFeed*

Step 3: Enter the desired value and confirm with ✓

4

Sheet off

The auto-sheet-off mechanism of your cutter can be very easily used to cut the front edge of a new roll of vinyl straight as well as to cut off a sheet of vinyl from a roll, to be used as a separate sheet. As well the sheet-off mode as the sheet-off margin can be set:

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *Sheet-off*

- *Mode*

Step 2: Choose between one of the following modes and confirm with ✓.

Sheet off mode	Description
Automatic	A sheet-off will be done automatically when selecting sheet-off in the actions menu. **Refer to** Actions 1/2 > Sheet off on page 77
Manual	The media will be fed away from the media platform. This to manually sheet-off the media using a snap-off blade.
Disabled	There is no sheet-off possible

Step 3: Click on the margin button.

Step 4: Set the distance that the media should be feeded before sheeting-off and confirm the new value with ✓.

Max. length

After installation of a sheet and sheet being selected in the menu, the cutting plotter will measure the width and length of the sheet.

To avoid unrolling a full roll of media when a roll is loaded while the media type is set to sheet, you can define a maximum allowed sheet length.

In case sheet is selected in the menu, the cutter will not measure more than the length in the Max. Sheet Length menu, preventing the roll media to be rolled off completely.

Set the maximum sheet length as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *Max. Length*

Step 2: Enter the desired value (in mm) and confirm with ✓

Auto shuffle

After an automatic sheet-off, it is possible to let the cutter shuffle the set pre-feed length or to hold until further action is required.

Refer to Settings 2/4 > Prefeed on page 54

Enable or disable this function as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *AutoShuffle*

Step 2: Choose between *ON* and *OFF* and confirm with ✓

4

Job Focus

A lot of advanced cutting settings will be made in the background without any need of intervention by the end-user. Select by means of the table below the correct job settings (focus).

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *Job Focus*

Step 2: Choose between accuracy and speed and confirm with ✓

Job Focus	Description
Accuracy	Give in some speed, gain quality.
Speed	Give in some quality, gain speed.

Page Mode

The page mode determines the cutter's reaction to a PAGE command sent by the cutting software. The PAGE command is used to relocate the origin after a job is finished and can take control remotely of the cutter's automatic sheet-off feature. Sheeting-off automatically, without user intervention, is a feature which is unique to Mutoh cutting-plotters and which enhances the cutter's versatility and overall performance enormously.

A page-command looks like this: "PG;" or "PGN;" with "n" a number in millimetres.

If the PAGE command "PG;" is sent, the cutter will automatically sheet of regardless of the Page mode, minimizing the loss of vinyl.

If the PAGE command "PGN;" is sent, the number mentioned after the PG command will be interpreted differently, depending on the page mode you have chosen:

Page Mode 0

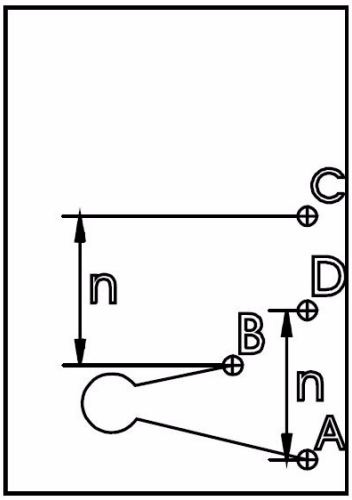
The number after the page command is ignored. The media will be cut 5 mm (0.2") after the latest down-vector. The new cutting limit will be located 0.5 (0.2") from the lower media border.

Page Mode 1

The new origin is located "n" millimetres beyond the last down-vector that was sent.

Page Mode 2

The new origin is located "n" millimetres beyond the previous origin position.



"PGN" is sent (n is a number in mm).

A: Original origin

B: End point last vector

C: New origin with Page Mode 1

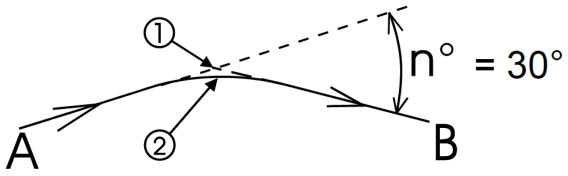
D: New origin with Page Mode 2

4.2.4 Settings 3/4

Smoothing

Smoothing can be *enabled* or *disabled*. Depending on your choice, cutting of obtuse angles will be dealt differently by the cutter.

If the complementary angle between two consecutive vectors A & B is larger than the smoothing angle, the cutter will slow down and cut a sharp corner (1). If the angle is smaller, the cutter will maintain its speed and cut a rounded corner (2). The optimum smoothing angle is calculated internally. When smoothing is DISABLED all corners will be cut sharply.



Enable or disable the smoothing as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *2 x next page*

- *Smoothing*

Step 2: Choose between enabled (recommended) or disabled and confirm with ✓

Language

Set the desired language as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *2 x next page*

- *Language*

Step 2: Choose between the different available languages and confirm with ✓

Emulation

Your cutter is able to understand different graphic languages. It is highly recommended to leave this setting unchanged. The default value is HPGL2

VS/ZF/AS

Several cutting software packages enable the user to send speed, force and acceleration commands to the cutter. The cutter can be set up to *accept* or *ignore* these commands.

Set this parameter as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *2 x next page*

- *Protocol*

- *VS/ZF/AS*

Step 2: Choose between accept and ignore and confirm with ✓

Note

- **When VS and ZF commands are sent and accepted, they will override the speed, force and acceleration settings the user may have set from the cutter operation panel. When the VS and ZF commands are ignored, the cutter will always use the settings, which are set-up from the cutter operation panel.**

Resolution

Please note that some software packages use the "step per mm" terminology, in which case a program step of 0.025 mm corresponds with 40 steps per mm and a program step of 0.010 mm with 100 steps per mm.

Contour cutting supports only 0.010 mm program step.

Note

- **If the plot unit is not set correctly, all your cutting jobs will be cut 2.5 times too large or too small.**

Set the resolution as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *2 x next page*

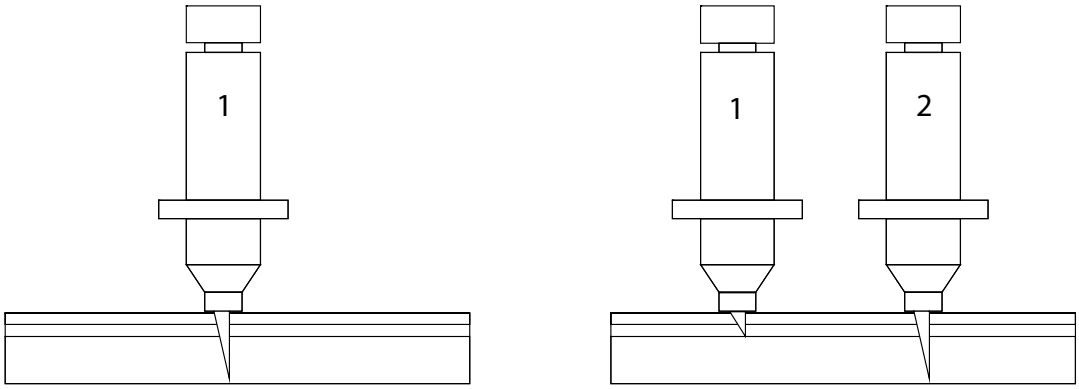
- *Resolution*

Step 2: Choose between *0,010* and *0,025* and confirm with ✓

Swap alert

Mutoh's supporting cut through technique encodes two cut through methods:

- **Single tool -** cut through tool (1)
  Executes both contour and cut through vector paths with one single knife holder with cut through knife depth.
- **Multi-tool -** standard (1) & cut through tool (2)
  This multi tool method will complete both contour and cut through data with two separated knife holders. A message on panel will inform the user to swap tools based on the vectors path identity.



Refer to Menu overview > Settings 3/4 > Cut through on page 63 for the other cut through settings.

Refer to the Application Guide of the Kona to know how to initiate a cut through routine flawless.

Step 1: Press the following buttons in order:

- *Settings*

- *2 x next page*

- *Swap alert*

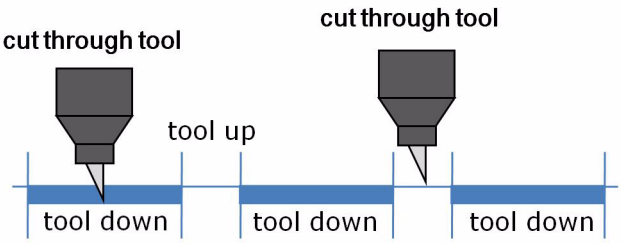
Step 2: Make your preferred choice:

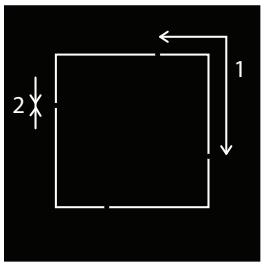
- Multi-tool configuration. You will be asked to switch tools
- Single tool configuration. You will not be asked to switch tools.

4

Cut through

When all vector paths of your contour alignment are completed, single sticker samples (basic shapes) are often to be isolated. Due to the intermittent or discontinued plotting of Mutoh's supporting cut through technique, an extra protection of sticker drop-outs will be guaranteed by configuring your tool-up distance consequently.





Refer to the Application Guide of the Kona to know how to initiate a cut through routine flawless.

It is however not easy to match an ideal tool configuration setup in which the media weakness suffers not radically from the multiple cut through samples accomplished. Therefore a perfect harmony between your tool down force and tool up distance needs to be synchronised.

Via this menu, you can set the desired cut through parameters.

Parameter	Description
Velocity	The speed of which the cut through routine is cut. *Default: 10 cm/s*
Force	The force on the tool during the cut through routine. *Default: 250 gram*
Tool Down Distance (1)	The distance of cutting through the vinyl. *Default: 10 cm*
Tool Up Distance (2)	The quantity of vinyl left uncut to hold the sticker fixed to the media. *Default: 0,1 cm*

After setting these values, it is also possible to test if they match your needs

Follow the procedure below to the velocity and force:

Step 1: Press the following buttons in order:

- *Settings*

- *2 x next page*

- *Cut through*

Step 2: Set the values for the *velocity* and *force*.

Step 3: Enter the desired values and confirm with ✓

Step 4: Set the values for the *tool up* and *tool down* distance.

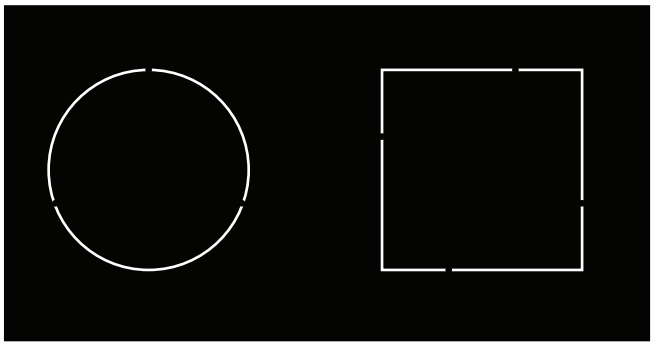
- *Go to the next sub page*

- *Select Up Dist. and/or Down. Dist.*

Step 5: Enter the desired values and confirm with ✓

Step 6: Press the test key to verify the quality of the through cutting settings.

Step 7: The following pattern will be cut.



Step 8: Check if it is easy to push out the cut patterns.

- If not, try to increase the force and knife depth

Refer to Settings 1/4 > Force on page 49 **and** Setting the correct knife depth on page 24

Step 9: Be sure to perform a sheet-off after the test because the pushed-out squares/circles will uncover the paper sensor which could lead to an error.

Refer to Menu overview > Settings 3/4 > Swap alert on page 62 **to know how to use the single and multi-tool possibility throughcutting.**

4.2.5 Settings 4/4

Epos Alignment

This test will fine-tune the position of the cutting knife compared to the EPOS laser. This test can be done manually and automatically. It is recommended however, to let the Kona adjust the values automatically.

Note

- **Each time a new tool is installed, this test should be performed.**

Step 1: Install and set a knife.

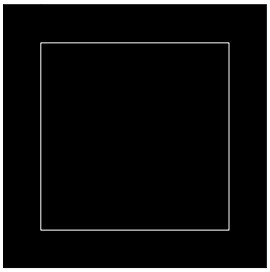
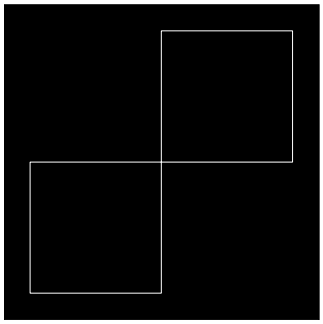
Step 2: Install a dark (black) vinyl. Check with the EPOS readout function if it is dark enough as described in EPOS read on page 76.

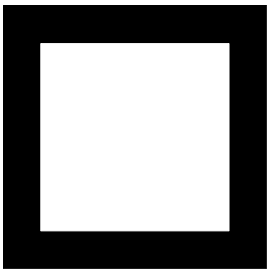
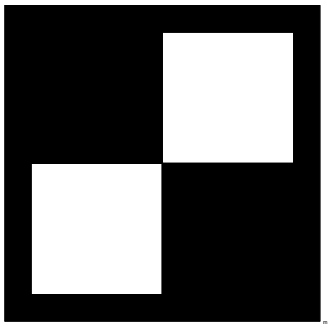
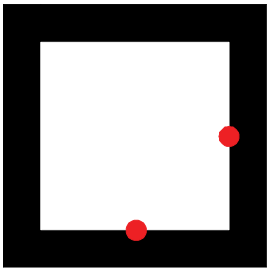
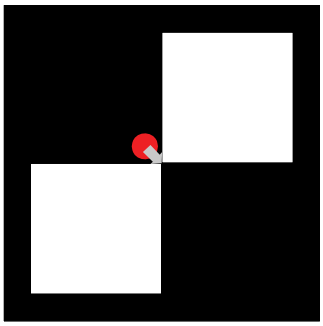
Step 3: Press the following buttons in order:

- *Settings*

- *1 x previous page*

- *Epos Align*

	Automatic alignment	Manual alignment
Step 4:	Select automatic	Select manual
Step 5:	Press the start key 	Press the start key 
Step 6:	The following pattern will be cut: 	The following pattern will be cut: 
Step 7:	The machine will present the test pattern by feeding the vinyl	The machine will present the test pattern by feeding the vinyl

	Automatic alignment	Manual alignment
Step 8:	Weed out the square and press OK 	Weed out the squares and press OK 
Step 9:	The cutter will automatically measure the bottom and right side of the box, to know the distance between the EPOS sensor and the knife tip. 	The EPOS laser will be activated and will move to the approximate centre of the cross. Guide the laser to the perfect centre (if necessary) of the two squares and confirm the position with OK. 
Step 10:	The EPOS calibration has been finished.	The EPOS calibration has been finished.

Screen

All settings regarding the touch screen can be set here. As well the brightness, contrast as sound can be changed.

Step 1: Press the following buttons in order:

- *Settings*

- *1 x previous page*

- *Screen*

Step 2: Select the desired parameter, change it and confirm it with ✓

Diagnostics

This section is intended for authorized Mutoh technicians only!

Defaults

Restore the machine to the factory defaults as follows:

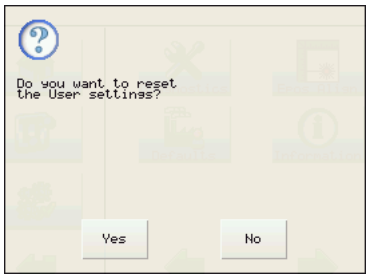
Step 1: Press the following buttons in order:

- *Settings*

- *1 x previous page*

- *Default*

Step 2: To reset all the settings, press *yes*.



Step 3: The machine will restart and all settings will be reset.

Information

As well for yourself as for the communication with an authorized Mutoh technician, it is handy to know which firmware, serial number, revision... the machine has.

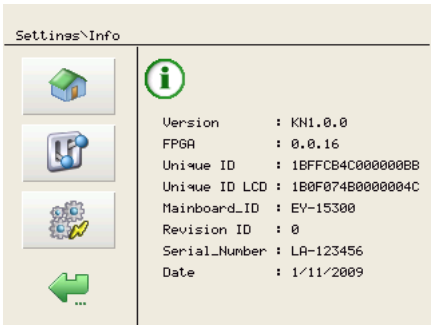
Open the information screen as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *3 x next page*

- *Information*



4.2.6 Actions 1/2

Jogging

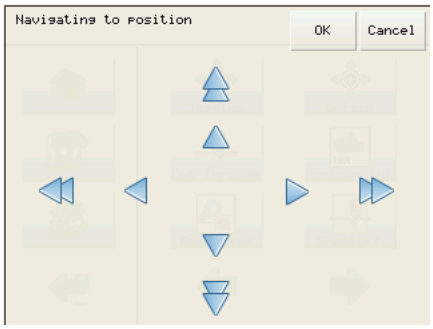
Move the head from the left to right or the media to the front and the back as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *Jogging*

Step 2: The following screen will be displayed:



Button	Action
	Move the head to the left
	Move the head to the right
	Feed the media forwards
	Feed the media backwards

Step 3: Navigate the head over the media using the arrows. The single arrows let the head move slowly and more accurate. The double arrows will move the head faster.

Note

- **It is possible to move as well the head as media at the same time when touching the jogg screen in diagonal direction.**

Step 4: Press OK when done.

Origin

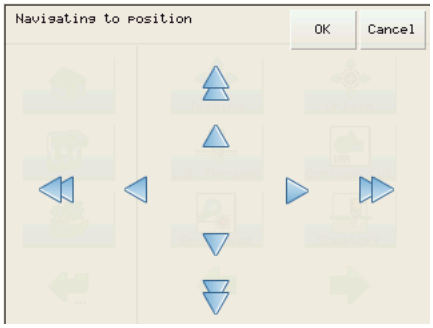
Follow the procedure below to change/control the origin:

Step 1: Press the following buttons in order:

- *Actions*

- *Origin*

Step 2: The following screen will be displayed:



Step 3: Navigate the head and/or media using the arrows until you reached the desired origin.

Step 4: Press OK when done to save the new origin position.

Refer to Settings 1/4 > Origin on page 53 **for more information about the origin settings.**

Cut Through - Trim Poster

After printing some posters, it is possible to use the Kona to trim the posters afterwards. Do this as follows:

Step 1: Load the poster in the cutter.

Step 2: Install a knife at through cut depth.

Refer to Setting the correct knife depth > Cut through depth on page 23

Step 3: Make your personal settings regarding the cut through feature.

- Velocity
- Force
- Tool up distance
- Tool down distance

Refer to Settings 3/4 > Cut through on page 63 **for all details on how to change the parameters.**

Step 4: Press the following buttons in order:

- *Actions*

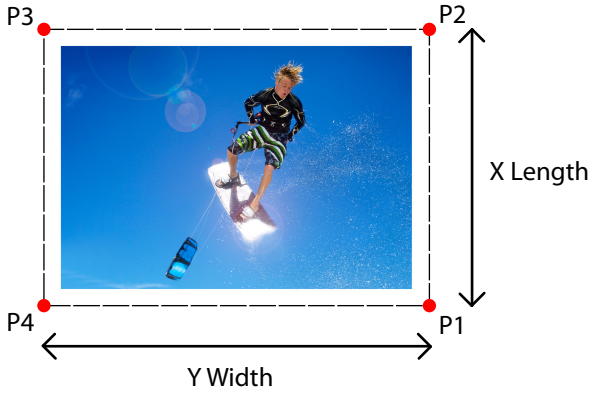
- *Cut Through*

- *Trim poster*

Step 5: Set the approximate length and width of the poster.

Step 6: Press the *play* key.

Step 7: Move the penhead using the jog keys until the knife point is positioned above P1 and press OK when done.



Step 8: The cutter will automatically feed the media the length set previously. Use the jog keys to set the second corner more precisely if necessary.

Step 9: Do this until you have selected all 4 corners in correct order (P1 – P2 – P3 – P4).

Step 10: Insert the through cut tool when asked and press OK when done.

Note

- **This message will only be displayed when the swap alert setting is set to multi-tool. Otherwise, the poster will be cut through without this notification.**

  Refer to Menu overview > Settings 3/4 > Swap alert on page 62

Step 11: The poster will be trimmed according to the routine shown below:

Step 12: After finalizing the trimming of the poster, insert the standard tool again and press OK.

Note

- **This message will only be displayed when the swap alert setting is set to multi-tool.**

  Refer to Menu overview > Settings 3/4 > Swap alert on page 62

Step 13: Gently push out the poster.

Contour cut

Refer to the Application Guide of the Kona for all information about contour cutting in detail, on how to set your cutter and software.

Refer to the chapter Contour cutting on page 85 **to know which alignment method to choose and the bounding box specifications.**

When performing a single or multi-frame contour cut job, the job can be started via the *Go* button on Mutoh's CUTserver. It is also possible to launch the job directly from the cutter itself, only on the condition that the cutter is connected with Mutoh's CUTserver. In fact, this function replaces the *Go* button.

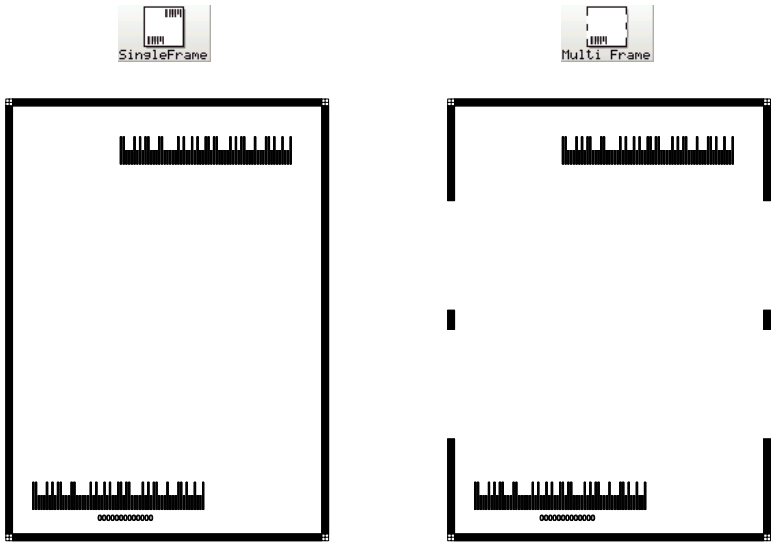
Start a *single* or *multi-frame* contour cutting job as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *Contour Cut*

Step 2: Select whether the job loaded is a single or multi-frame contour cut.



Step 3: Decide if the job need to be performed once (*single scan*) or multiple times (*repeat mode*)

Step 4: Press the start key

Step 5: The cutter will start scanning the bounding box and reading out the barcode.

Step 6: As from the moment the barcode is recognized, the corresponding job will be launched from the Mutoh CUTserver.

4

When you want to start a contour cutting job without using the automatic alignment option, the *manual* mode need to be chosen. This could be useful when you have loaded very reflective media which cannot be detected by the cutter.

Start a *manual* contour cutting job as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *Contour Cut*

- *Manual*

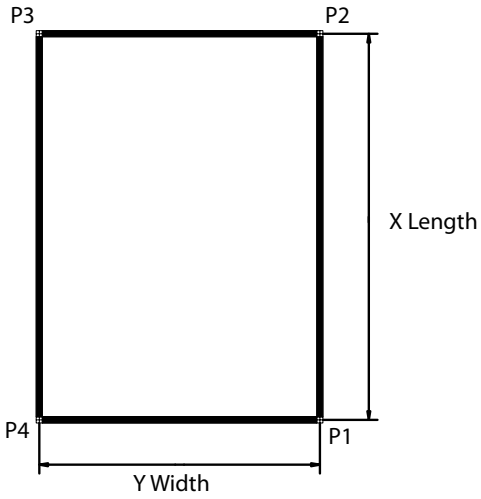
Step 2: Set the length and width of the bounding box.

Step 3: Set the roll direction

- Non-reverse: the data sent should not be rotated.
- Reverse: the data sent should be rotated.

Step 4: Press the start key.

Step 5: Move the penhead using the jog keys until the knife point is positioned above P1 and press OK when done. Then select P2 - P3 - P4.



Step 6: The knife will pause near point P1

Step 7: Send the relative (NOT absolute) plot data to the cutter to start the job.

EPOS read

To be able to perform a contour job, the EPOS sensor need to see the difference between the media and the printed bounding box. When you have loaded a media and the measurement of the bounding box fails, it is interesting to perform the EPOS read test. Via this way you can see if the sensor is able to detect a contrast between the media and bounding box.

Perform the test as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *EPOS read*

Step 2: The EPOS sensor will be activated.

Step 3: Move the media away under the sensor and check if the read value changes from white (media) to colour (bounding box).

- White is approximately 1000
- Black is < 400

Step 4: If this is not the case, it will be impossible to use the automatic alignment method and you should switch to the manual alignment mode.

Refer to Actions 1/2 > Contour cut on page 74

4

Sheet off

Via this menu you can sheet-off the media. Perform a sheet-off as follows:

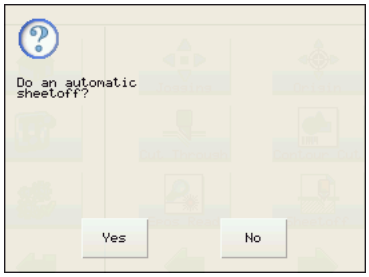
Step 1: Press the following buttons in order:

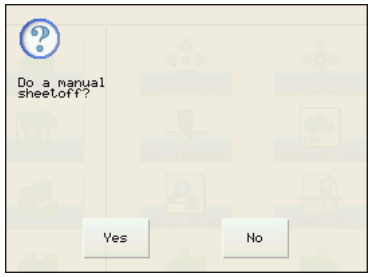
- *Actions*

- *Sheet off*

Step 2: Depending on the settings made in the sheet-off parameter menu, one of the following screens will be displayed.

Refer to Settings 2/4 > Sheet off on page 55





Step 3: Press *Yes* to proceed the sheet-off routine.

4.2.7 Actions 2/2

Copies

In case multiple outputs of a specific design are needed, you can use the copies function. This function will replot the last set of data, which was sent to the cutting plotter. That is, all data that was sent since the last INITIALISATION command ("IN").

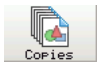
Set the number of copies as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *next page*

- *Copies*



Step 2: Set the number of copies and confirm with ✓.

Chapter 5 Finetuning your cutter

In order to help you to obtain perfect quality our engineers have developed a step-by-step method for the beginning user. Once you have more experience with your cutter, you will be able to fine-tune your cutter in a trice.

5.1 Knife types

There are several knife types available, each of them meant for specific cutting media.

	Cutting blade 1	Cutting blade 2	Cutting blade 3
Top angle	45° (red cap)	30° (yellow cap)	60° (blue cap)
Typical offset	0.50 mm	0.50 mm	0.50 mm
Default speed	60 cm/s (20 inch/s)	60 cm/s (20 inch/s)	60 cm/s (20 inch/s)
Default force			
■ **Contour cutting**	100 g	100 g	100 g
■ **Through cutting**	250 g	250 g	250 g

5.2 Kona calibration

5.2.1 Knife settings

There are three factors that have to be taken into account when setting up your cutter to execute a demanding cutting job:

- The knife depth for as well kiss cutting, contour cutting as through cutting.

  Refer to Setting the correct knife depth on page 22 **to know how to set and test this parameter.**

- The cutting pressure for as well kiss cutting, contour cutting as through cutting

  Refer to Menu overview > Settings 1/4 > Force on page 49 **to know how to set and test this parameter.**

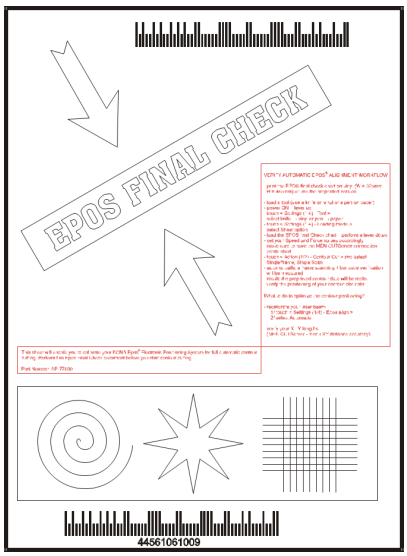
- The offset of the knife

  Refer to Menu overview > Settings 1/4 > Offset on page 47 **to know how to set and test this parameter.**

5.2.2 EPOS test cuts

To be able to contour cut, an Epos® feature has been incorporated. This feature will search for the reference box and measure the position of the design(s). When you establish some miscalculations during contour cutting, it is recommended to perform the test cuts described below. After these test, everything should be all right. If not, please contact an authorized Mutoh technician.

EPOS alignment verification



For this routine, there is need of the EPOS test sheet and Mutoh CUTserver. As well the source file of this sheet as the installation program of the Mutoh CUTserver can be found on the getting started CD of the Kona. This sheet will enable you to calibrate your Kona Epos® Electronic Positioning System for full automatic contour cutting. Verify the EPOS alignment as follows:

Step 1: Print the test sheet on vinyl observing the original size of the sheet (scale of 100%)

Step 2: Install a knife or pen.

Step 3: Power ON the cutter.

Step 4: Set the tool you have loaded.

Refer to Menu overview > Settings 1/4 > Tool on page 51

Step 5: Set the media load mode to sheet.

Refer to Menu overview > Settings 1/4 > Load mode on page 52

Step 6: Load the test sheet just printed.

Refer to Loading media > Loading a sheet on page 27

Step 7: Lower the pressure rollers.

Step 8: Set the tool force and speed accordingly.

Refer to Menu overview > Settings 1/4 > Velocity on page 45

Refer to Menu overview > Settings 1/4 > Force on page 49

Step 9: Start the Mutoh CUTserver and make connection with the Kona.

Step 10: Go to the contour cutting menu and select single frame - single scan.

Refer to Menu overview > Actions 1/2 > Contour cut on page 74

Step 11: Start the contour cutting routine by pressing the play button.

Step 12: The cutter will go through the following routine

- Scan the frame.
- Scan the barcode.
- Cut the contour data.

Step 13: Check the positioning.

- In case you want to optimise the contour positioning
  - Kona calibration > EPOS test cuts > EPOS alignment test on page 82
  - Kona calibration > XY-distance accuracy on page 82

EPOS alignment test

This test will fine-tune the position of the cutting knife compared to the EPOS laser. This test can be done manually and automatically. It is recommended however, to let the Kona adjust the values automatically.

Refer to Menu overview > Settings 4/4 > Epos Alignment on page 65 **to know how to perform the test.**

EPOS readout

To be able to perform a contour job, the EPOS sensor need to see the difference between the media and the printed bounding box. When you have loaded a media and the measurement of the bounding box fails, it is interesting to perform the EPOS read test. Via this way you can see if the sensor is able to detect a contrast between the media and bounding box.

Refer to Menu overview > Actions 1/2 > EPOS read on page 76

5.2.3 XY-distance accuracy

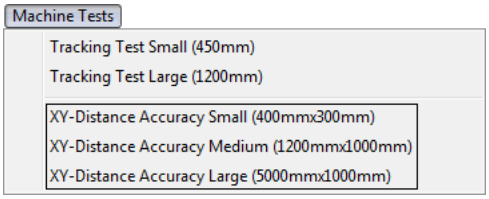
The *XY - Distance Accuracy* tests are developed to check the actual X-Y cutting distance with the sent vector data.

Please follow the procedure below to make the test:

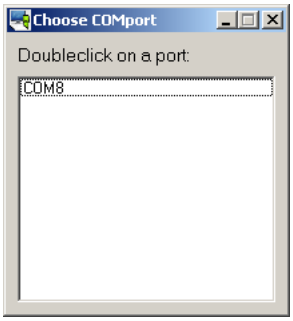
Step 1: Launch Mutoh's CUTserver.

Step 2: Be sure that the cutter is connected with the Mutoh CUTserver.

Step 3: Select which test to perform.



Step 4: Select the appropriate COM-port and double-click.



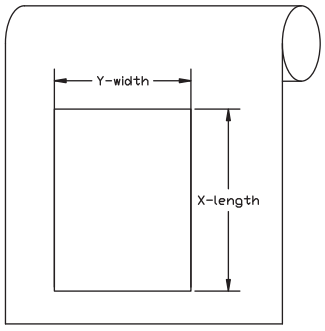
Step 5: Load a roll or sheet with at least the measurements indicated in the dropdown menu.

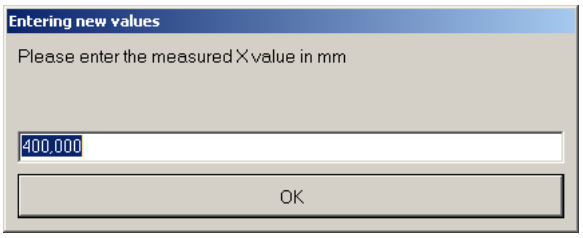
Step 6: Load a knife.

Step 7: A box will be cut.

Step 8: Peel out the box.

Step 9: Measure the X length and Y width and enter them. **Be sure to enter the values in mm!**





Step 10: If the correct values have been entered, the following message will appear and the test will be done.

Chapter 6 Contour cutting

6.1 Introduction

Contour cutting is a very popular feature of the Kona cutter.

This feature is made to cut pre-printed signs on vinyl for sticker production as shown on this picture:

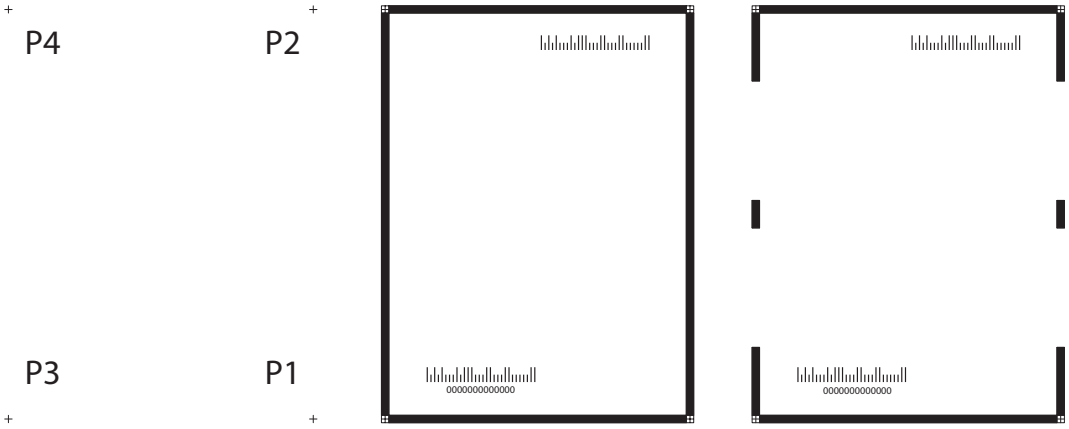
Please read this chapter carefully. Because of the importance of this feature, almost a complete manual is written about it. So please refer to the Application Guide for all necessary information.

6.2 Different alignment methods

There are some different approaches to cut your signs which also implicate a different alignment method.

N°	Description	Info
1	Manual	Manual alignment method ■ Manually set the size of the paper and 4 corners of the box
2	Single Frame	Automatic alignment with barcode and single frame ■ Automatic measurement of the reference box and barcode ■ Only 1 reference box
3	Multi Frame	Automatic alignment with barcode and multi-segment frame. ■ Automatic measurement of the reference box and barcode ■ Multiple segments in 1 reference box (for long files to guarantee precision).

Manual alignment **Single frame alignment** **Multi frame alignment**



6.3 Which alignment method to use?

6.3.1 Manual alignment method

The Mutoh Manual Alignment Method is the non-automatic method.

Its advantage is that the cropmark system is very small (for small sized jobs), and that this method can be used in case of vinyl that do not reflect the EPOS laser light (meaning, the laser would not be capable of measuring the cropmarks automatically).

Refer to Menu overview > Actions 1/2 > EPOS read on page 76

The user has to use the jog keys on the keyboard to measure each cross manually before contourcutting can start.

Refer to the Kona application guide for all details about Mutoh's CUTserver and the Print&Cut workflow.

6.3.2 Single frame alignment method

The Mutoh Single frame alignment method is a fully-automated alignment system, with a barcode printed on the sign. This method should be used in combination with Mutoh's CUTserver.

This method can be used in case you are creating multiple different contour signs. It allows you to make all your prints at once (overnight printing for example), and then load the roll with images in the Kona.

If each sign on the roll has a barcode and if all plot files are in the Mutoh CUTserver, just click on *Go* in the Mutoh CUTserver (make sure that the Mutoh CUTserver properties are set to *SINGLE FRAME*, and *REPEAT MODE*) and every sign on the roll will be cut, without the need for user intervention (make sure you've enabled auto-sheet-off in EasySIGN for each contour-sign).

The reason for the two barcodes is to make it possible for the Kona to auto-detect if the image is loaded upside-down or correctly. There is no need for you to search the plot file for each image; the Kona and the Mutoh CUTserver will do this fully-automatically, until the complete roll with signs is finished.

We do not recommend this method over 2 m job length, although there is no real limit to the length that can be used.

Refer to the Kona application guide for all details about Mutoh's CUTserver and the Print&Cut workflow.

6.3.3 Multi frame alignment method

The Mutoh Multi frame alignment method offers all advantages of the previous one but it will split the image in multiple segments. This is to enhance precision over long length. This method should be used in combination with Mutoh's CUTserver.

With this method, it is possible to make signs of 10m or longer, and the Kona will measure segment per segment, and cut segment per segment. This method gives you more accuracy than the previous method. We do not recommend this method for signs smaller than 1,5m.

You should use the Mutoh CUTserver for this method, and make sure the Mutoh CUTserver properties are set to *MULTI- FRAME MODE*.

Difference between AL5 and AL6

These alignment methods appear to be the same and they are, up to the part where the segments are split. In an AL5 alignment method, the segments are split in the cut software, which means there is only one block of date. In AL6, the segments are split by the Mutoh CutServer. The prefix of an AL6 command is _NC (not clipped).

Refer to the Kona application guide for all details about Mutoh's CUTserver and the Print&Cut workflow.

6.4 Bounding box details

6.4.1 Hints, tips and recommendations

To use the automatic alignment procedure, the pre-printed sheet contains a reference box around the design to be cut.

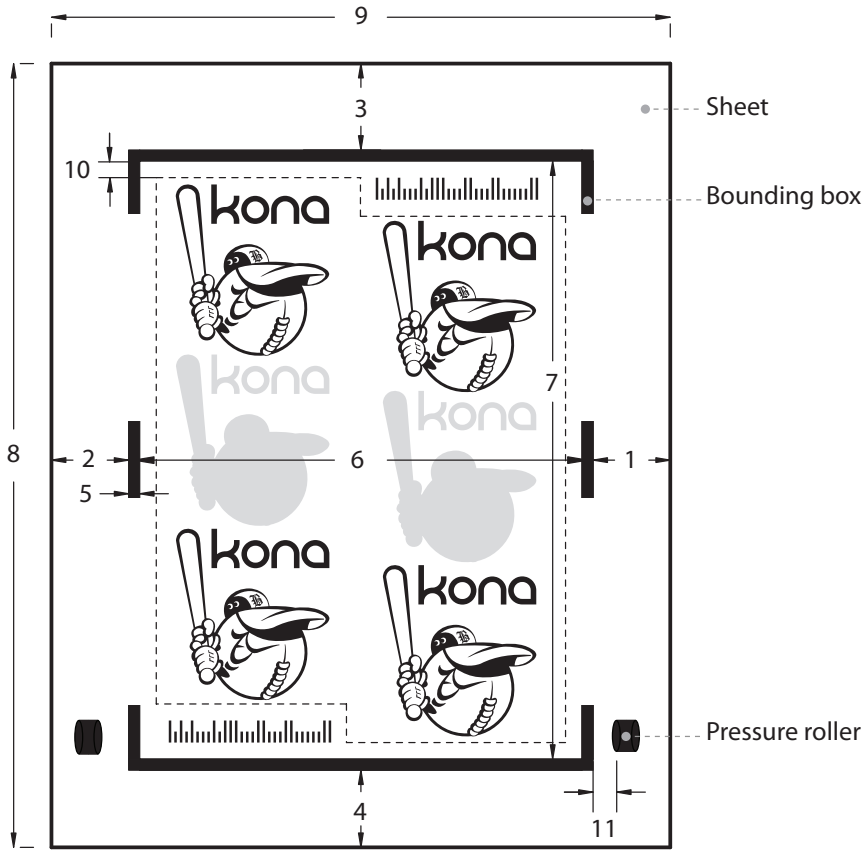
- Note that the reference box around your design(s) will be printed. Before contour-cutting the EPOS technology will search for the reference box and measure the position of the design(s).
- Be sure that there is 5 mm of white space between the image and the reference box.
- Be sure that the reference box has a dark colour (recommended: black) in order to have enough contrast with the vinyl.
- The minimum thickness of the bounding box is 3 mm. However, when printing the print&cut file on an Osprey or Toucan, it is recommended to raise this value to at least 5 mm.
- Make sure that the reference box fits within the margins of the maximum cutting width of your cutting plotter.
- **Be sure that the media has been sheeted off straight. If not, the cutter will have problems measuring the media.**

Note

- **The position of the design with the reference box compared to the page edges is defined in the print-software.**
- **The creation of an image should be done in a graphics application software (e.g. CorelDraw, Adobe Illustrator, Adobe Photoshop or Macromedia Freehand) or in origin software with design functionalities (EasySIGN Power Pack Pro Mutoh Edition or Scanvec Amiable PhotoPRINT DX Mutoh Edition)**
- **Do not forget to create the cutting line around your image. The default cutting line is a "magenta hairline" or "spotcolor" with <CutContour> swatch name (in the CMYK pallet).**
  - Thickness line = hairline (or 0.25)
  - Colour = 100% magenta
- **For more details, please refer to the Kona Application Guide.**

6.4.2 Bounding box specifications

The frame reference box printed or generated around the contour cut data should respect the following guidelines:

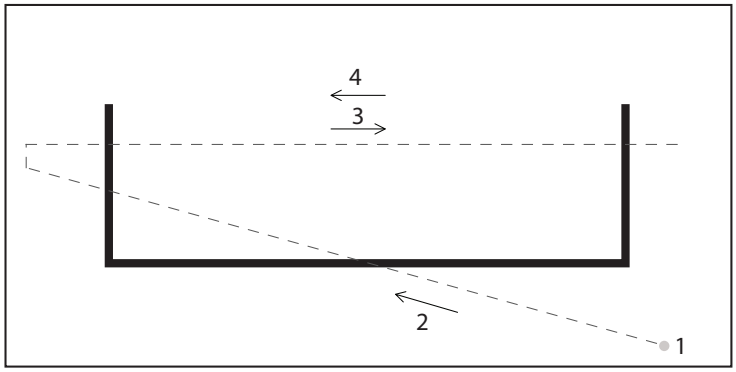


N°	Description	Minimum	Maximum
1	White edge at the right side	20 mm	300 mm
2	White edge at the left side	20 mm	300 mm
3	White edge at the rear side ■ Sheet ■ Between 2 boxes	 90 mm 50mm	 250 mm 250 mm
4	White edge at the front side	20 mm	300 mm
5	Reference box thickness	3 mm	20 mm
6	Reference box width	250 mm	-
7	Reference box height	350 mm	-
8	Media height	440 mm	10 m
9	Media width	280 mm	Device limit
10	Margin between image and bounding box / barcode	6 mm	-
11	Distance between pressure roller and bounding box	5 mm	-

6.5 Scanning routing of bounding box

The bounding box will be measured by the Epos sensor during a fast scan routine. It is interesting to know the principle behind this innovative scanning method.

The scanning routine will go through the following steps:



1 The laser will be activated to detect the background colour. This value will be used to recognize the difference between background and box during the scanning procedure.

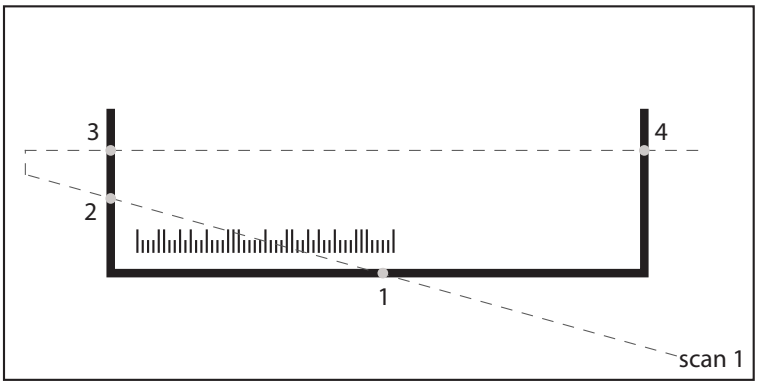
2 A diagonal scan will be executed at the set cutting speed in the firmware (user controlled)

3 A horizontal scan will be executed at maximum speed

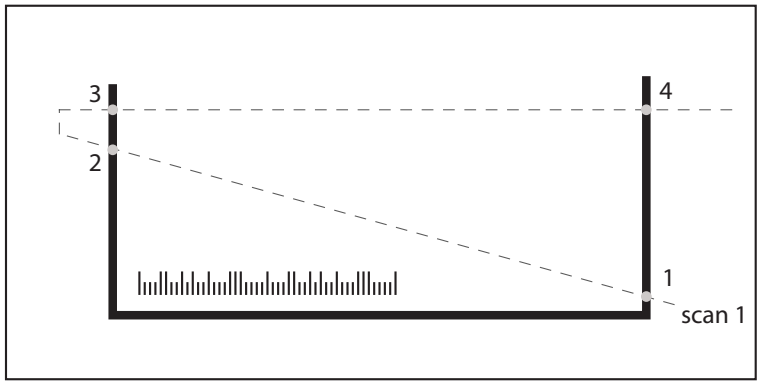
4 The head goes back over the scanned path to verify

As from the moment the scan cycle detects 4 points, the position of the barcode is known (situation 1 and 2). When there are less than 4 points detected, an intelligent feed of media will be done and the same type of scan will be performed a second time (situation 3).

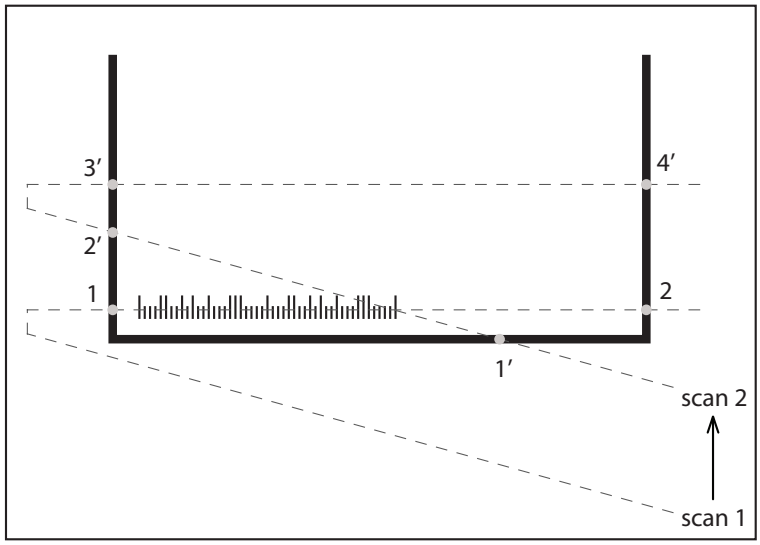
Situation 1 = Bottom and side of frame detected (4 points)



Situation 2 = Both sides detected (4 points)



Situation 3
1st scan > both sides detected (2 points)
feed of media to start second fast scan
2nd scan > bottom and side of frame detected (4 points)



When the cutter establishes a slight difference between the thickness of the frame in one or more corners, a re-measuring will be performed at the respective side of the frame but slightly higher or lower. If there is still a dissimilarity, a warning message will be displayed on the panel and a cross will be cut in the lower right corner.

Refer to Error messages > Contourcutting errors and warnings (ID 6201-6271) on page 105

Chapter 7 Maintenance

7.1 Cleaning and daily maintenance

Your cutting plotter, knives and pens will work better and last longer if you keep them clean and perform a few simple daily maintenance tasks.

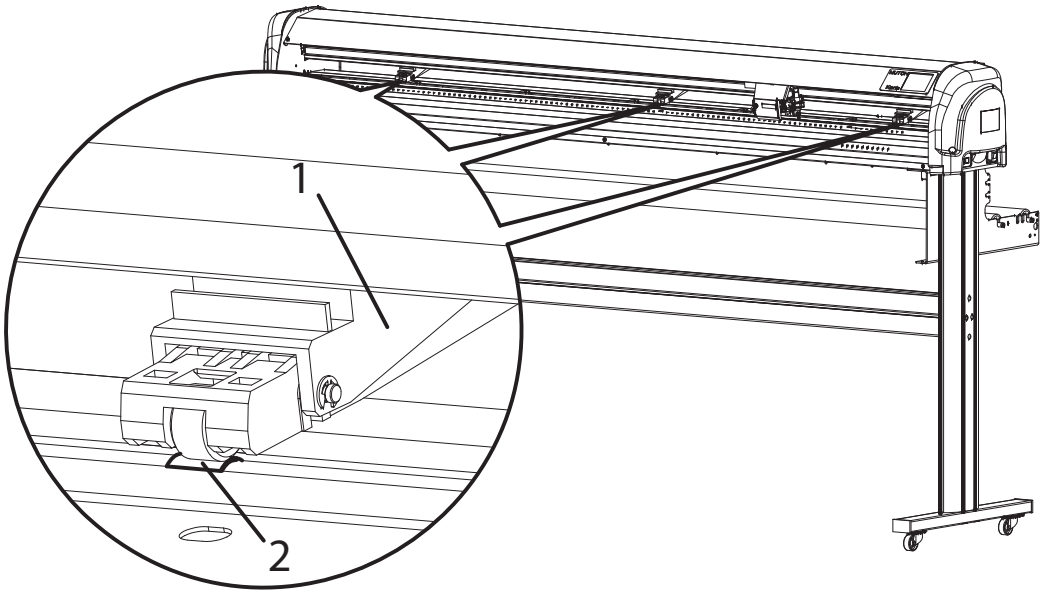
Note

- **Before performing cleaning and daily maintenance, please power OFF the unit and remove the power cable.**

7.1.1 Cleaning the grit rolls

The figure below shows you this part of the plotter that might require your attention.

The pressure rollers (1) press the vinyl firmly against the friction drive rolls (2). For this reason it is possible that, after some time, the friction drive rolls (2) become clogged with accumulated residue from cutting media. This can cause slippage of the material, resulting in inaccurate cuts or incorrect vinyl transport. Therefore it is a good habit to clean the drive rolls regularly. To do this you can use a brush and rotate the rolls manually to make sure that they are thoroughly cleaned.



7.1.2 Cleaning the cutting plotter

Use a soft cloth to clean paper dust and particles off the platen, the grit cover the cutting mat and the carriage cover.

Use a cotton swab to clean the media sensors and EPOS laser.

Be sure to recalibrate the EPOS sensor after cleaning it.

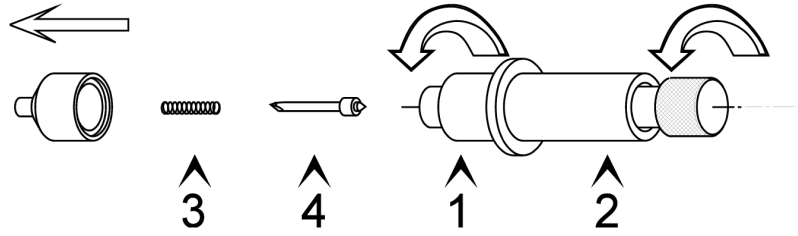
Refer to Menu overview > Settings 4/4 > Epos Alignment on page 65

7.1.3 Cleaning the cutter blade

Use following procedure to remove small vinyl particles in the base part of the cutting blade holder.

Standard knife holder

Step 1: Hold the body (2) into one hand and unscrew the base part (1)



Step 2: Remove the spring (3) and the cutting blade (4).

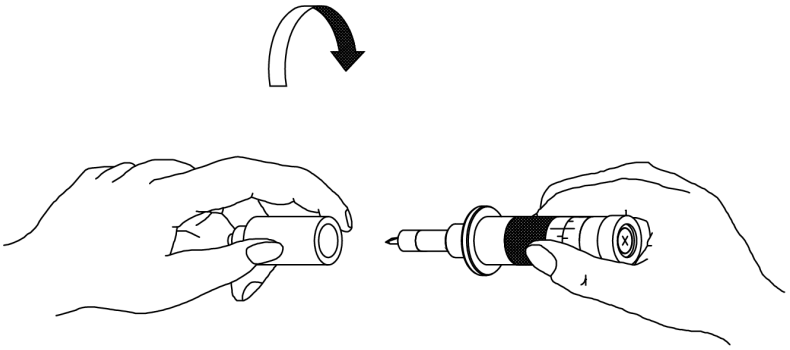
Step 3: Blow away vinyl particles accumulated in the top of the base part.

Step 4: Remove the spring from the cutting blade and remove any residual material from the blade tip

Step 5: Place the spring back over the cutting blade and tightly screw the base part on the body.

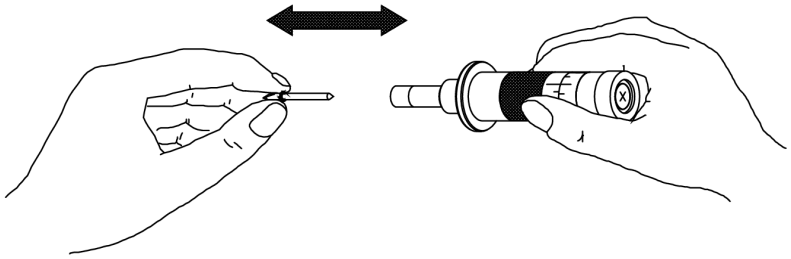
Knife holder with nonius

Step 1: Take the body into one hand and remove the base part.

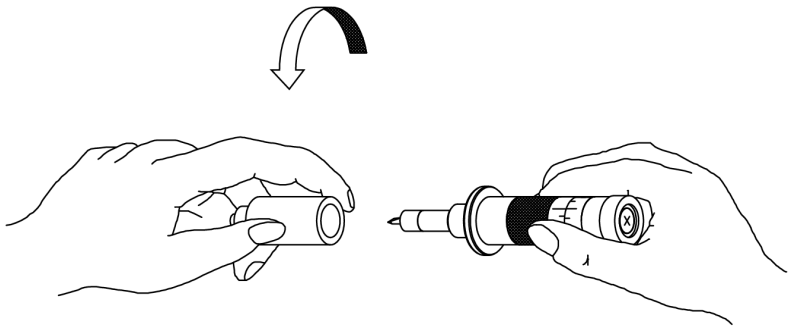


Step 2: Blow away the vinyl particles accumulated in the top of the base part.

Step 3: Remove any residual material from the blade tip.



Step 4: Place the base part on top of the holder assembly and twist it tightly.



7.1.4 Cleaning the touch screen

After a while, fingerprints or dust will make the touch screen dirty. Clean the touch screen as follows:

Step 1: Power off the cutter.

Step 2: Wet a soft, lint-free or microfiber cloth with distilled water. Wring out as much water as you can. Make sure the cloth is damp but not wet. Wipe the screen in a gentle motion to remove dust or fingerprint smudges off.

Step 3: Another option is to use a screen cleaner kit that includes antistatic wipes. You can buy this at various electronic or online stores. Spray a little solution on a wipe then rub it gently across the screen.

Step 4: Finish cleaning the touch screen with a dry lint-free cloth to wipe any excess moisture.

Chapter 8 Troubleshooting

8.1 Day-to-day use issues

In this section you will find a summary of problems that might occur during day-to-day use of your cutter and some hints how to determine the cause of the problem.

Power switch is turned ON, but the cutter does not operate.

- Is the power cable connected to the cutter?

Media is loaded, but the cutter does not operate.

- Is the pressure roller lever lowered?
- Is the media properly loaded?
- Are the paper sensors clean?
- Is the cutter in an error state?
- Is the cutter protected against direct sunlight which could disorder the media sensors?

Data is being sent from the computer, but the cutter does not react.

- Is there a proper interface cable connected?
- Do the interface conditions on the host computer match those set on the cutter?
- Are you in the pause state?
- Is there media loaded?

Data is sent from the computer but errors occur on the cutter's side.

- Are the output settings correct on the host computer and in the cutting software?
- Do the interface conditions on the host computer match those set on the cutter?
- Does the command mode on the host computer match the command mode on the cutter?

Some parts of the design are not well cut.

- Check whether the knife tip is not clogged with material residues.
- Examine the knife blade with a magnifier to see if the tip is not damaged or broken.
- Perform the offset adjustment routine to check cutting quality.
- Perform the test cut and check its quality.
- Perform the EPOS alignment test.

The output is 2,5 x too large or 2,5 x too small

- The cutter is using the wrong step adjust. Please refer to chapter 4 "Program Step", to correct the step adjust and try again. As an alternative solution, you can also choose to change the step adjust in your software. Both settings should be matched to each other.

8.2 Error messages

8.2.1 Recoverable error messages with no error ID number

During a cutting, measuring or other sequence, it might be possible that one of the below errors occur. Please find a list below with all the possible errors which can be solved yourself, without any need of an intervention by an authorized Mutoh technician.

Error	Cause	Solution	Refer to ...
EPOS calibration error <RETRY>	EPOS sensor goes in error during the EPOS calibration.	1. Try again or reboot and try again. 2. Contact an Authorized Mutoh Technician if the error remains.	
EPOS problem: PG problem occurred	When there has been executed a PG command between 2 segments or at the start of a new job, this error can occur. This can be caused by: ■ Media is too short ■ Job has been interrupted by the user ■ A movement cannot be performed because of mechanical failures.	1. Check the media size. 2. Reboot the machine.	
The plot data is out of limit and is clipped to hardclip region	■ The data sent to the cutter is larger than the position between the first and fourth pressure roller.	1. Load appropriate media. 2. Reposition pressure rollers. 3. Redesign your job.	**Refer to** Loading media on page 27

Error	Cause	Solution	Refer to ...
Unable to show point	■ There is an error during the switch from the cutter knife to the laser or vice versa. ■ If the cutting head is located at the end of a paper during the switch, this error can occur also.	1. Try again or reboot and try again. 2. Contact an authorized Mutoh technician if the error remains.	
EPOS problem: No EPOS reference found	■ It might be possible that the reference box cannot be found. ■ The EPOS sensor is broken	1. Select the correct file in the Mutoh Cut-Server and start the job manually (send EPOS job) 2. Make sure that the printed reference box is made within the specifications. (print the file once again with a thicker reference box, e.g. 5 mm or more) 3. Be sure that the contour cutting box is located in between the two outer pressure rollers. 4. Be sure that the media is loaded straight. 5. Contact an authorized Mutoh technician to replace the sensor	**Refer to Application Guide** **Refer to** Bounding box details on page 90

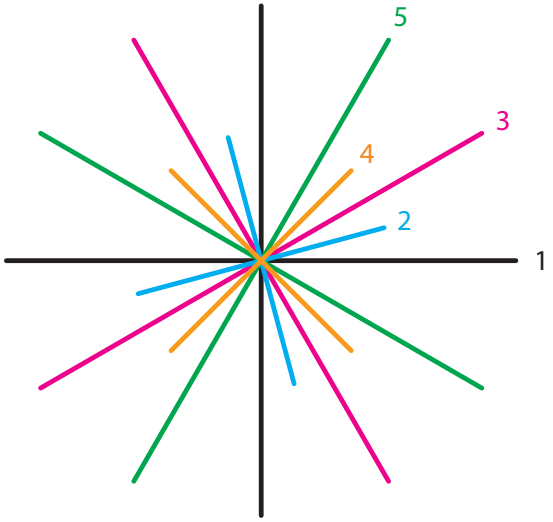
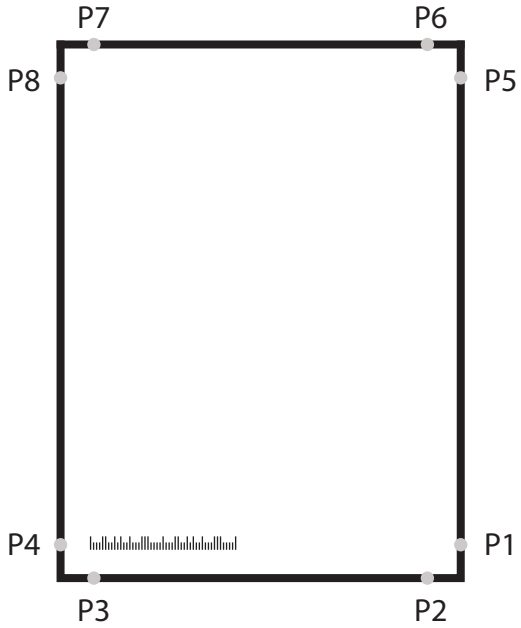
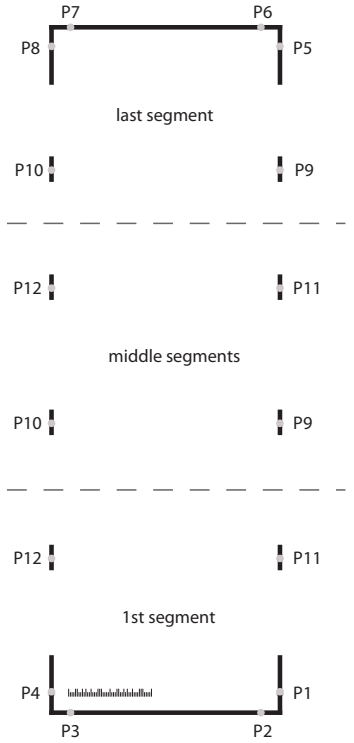
8.2.2 Errors with error number (ID 1009-6115)

Error	Message	Description	Solution	Category
1009	Y position error	The head is obstructed and can not move anymore. Because of a media crash or mechanical obstruction for example.	Remove the media or object blocking the head from moving and restart the cutter.	Fatal error
1010	X position error	The media can not be fed forward/backward. Because of a media crash, too heavy media or mechinacal obstruction.	Remove the media or object blocking the grit rolls from moving and restart the cutter.	Fatal error
1014	X fuse error	■ 48 V problem ■ X fuse is broken ■ X motor problem	Contact an authorized Mutoh technician	Fatal error
1015	Y fuse error	■ 48 V problem ■ Y fuse is broken ■ Y motor problem	Contact an authorized Mutoh technician	Fatal error
1045	No Z encoder	■ Z encoder or flatcable is broken	Contact an authorized Mutoh technician	Fatal error
1049	Y PWM max error	There is too much force necessary to move the head left or right.	Remove the media or object blocking the head from moving and restart the cutter.	Fatal error
1050	X PWM max error	There is too much force necessary to move the media back- and/or forwards.	Remove the media or object blocking the grit rolls from moving and restart the cutter.	Fatal error
1060	Sheet off error	The front sensor is still covered after a sheet-off	Check if the sheet-off system Is the cutting blade still sharp?	Warning
2000	PG problem detected	Media is too short to perform a PG action	Load a longer sheet	Warning

Error	Message	Description	Solution	Category
6098	EPOS calibration error	Could not calibrate the pen to laser distance	■ Make sure that the difference between white and colour can be recognized by the EPOS sensor **Refer to** EPOS read on page 76 ■ The media has not been weed out (when asked on the display) before the EPOS alignment measurement ■ The laser is broken.	Warning
6099	EPOS measurement is unstable	There is too much variation between the X and Y calibration measurements	■ Is the media loaded correctly? **Refer to** Loading media on page 27	Warning
6100	Bump problem machine width	The cutter can not finish the cutter width measurement routine. This could be caused by a mechanical obstruction.	Remove the media or object blocking the head from moving and restart the cutter.	Warning
6105	X measurement problem. Reload media	The rear media sensor is uncovered during a media measurement routine	■ Try tIs the media loaded correctly? **Refer to** Loading media on page 27	Warning
6115	TFT board detection problem	The flatcable of the touch screen is not connected or broken	Contact an authorized Mutoh technician	Warning

8.2.3 Contourcutting errors and warnings (ID 6201-6271)

When a specific contour cutting warning or error occurs, an error number will be displayed and a cross will be cut in the lower right corner. All codes are unique and the cross has a predefined angle and size to know of which nature the error is.

Pre-defined crosses	Single frame calibration points	Multi frame calibration points
		

1. Print distortion - Bad rectangle
2. Media shift detected
3. Print distortion - Stretch
4. Possible data clipped
5. Thickness problem

Please find below an overview of the codes and category of problem

- A warning means that you will have the choice to continue cutting the current segment, all segments or to cancel the job.
- An error means that you will have to retry the scanning routine. The reading of the frame has been cancelled.

Error	Message	Description	Solution	Category
6201	EPOS alignment aborted	EPOS alignment aborted	-	Error
6202	EPOS alignment aborted	The pressure rollers are raised		
6203	EPOS alignment aborted	Alignment procedure has been aborted by the user		
6206	Movement failed	Movement failed during EPOS routine (moveabsc)	-	Error
6207	Movement failed	Movement failed during EPOS routine (drawcontrol)		
6208	Movement failed	Movement failed during EPOS routine (scanroutine)		
6211	Barcode problem occurred	Barcode too long	Rescan the job and if the error still occurs, try to: ■ Replot the job ■ Reprint the job **Refer to** Bounding box details on page 90	Error
6212	Barcode problem occurred	Barcode width problem		
6213	Barcode problem occurred	Barcode height problem		
6214	Barcode problem occurred	Barcode scan problem 1 (lower line of barcode)		
6215	Barcode problem occurred	Barcode scan problem 2 (upper line of barcode)		
6216	Barcode problem occurred	Checksum not OK		
6218	Media size problem	Check if the margins left, right, top and bottom are within the specifications. It might be possible that the file you have sent is not correct	■ Did you sent the correct file **Refer to** Bounding box details on page 90	Error
6221	Page problem occurred	PG after job failed	Check the media size	Error
6222	Page problem occurred	PG between 2 segments failed or the cutter is set to repeat mode and there cannot be found a next job.		

Error	Message	Description	Solution	Category
6223	No EPOS reference found	During search with EPOS laser, no edge was found (colour <> white)	**Refer to** EPOS read on page 76	Error
6225	Possible data clip detected	One or more frame points lie outside hardclip region. Plot data will be clipped.	Outer pressure rollers are inside frame. **Refer to** Loading media on page 27	Warning
6226	Print distortion *bad rectangle*	Original print distortion. No perfect rectangle, no parallel sides (difference > 3mm)	Bad print quality or outside specs. **Refer to** Bounding box details on page 90	Warning
6227	Print distortion *print stretch*	Stretch detected on bottom of frame. P1 & P4 have identical thickness. P2 & P3 have identical thickness. But thickness of P1-P4 and P2-P3 differ too much from each other. Print is stretched.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 90	Warning
6228	Print distortion *print stretch*	Stretch detected on top of frame. P5 & P8 have identical thickness. P6 & P7 have identical thickness. But thickness of P5-P8 and P6-P7 differ too much from each other. Frame (print result) is stretched.		
6229	Print distortion *print stretch*	Stretch detected on side of frame. Px & Py have identical thickness. Pw & Pz have identical thickness. But thickness of Px-Py and Pw-Pz differ too much from each other. Frame (print result) is stretched! Depending on kind of measured segment: Px, Py, Pw, Pz are different. **1.** Px = P1, Py = P4, Pw = P5, Pz = P8 **2.** Px = P1, Py = P4, Pw = P9, Pz = P10 **3.** Px = P9, Py = P10, Pw = P11, Pz = P12 **4.** Px = P11, Py = P12, Pw = P5, Pz = P8		

Error	Message	Description	Solution	Category
6231	Thickness problem *frame bottom*	All measured points of frame bottom vary too much from each other! This will influence the accuracy of the cutting.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 90	Warning
6232	Thickness problem *frame bottom*	Invalid thickness of P1 (right side of frame bottom). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6233	Thickness problem *frame bottom*	Invalid thickness of P2 (bottom right of frame bottom). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6234	Thickness problem *frame bottom*	Invalid thickness of P3 (bottom left side of frame bottom). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6235	Thickness problem *frame bottom*	Invalid thickness of P4 (left side of bottom point). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6236	Thickness problem *frame bottom*	Invalid thickness of P1 and P4. Thickness of these points varies too much from each other AND varies also from P2 & P3! This will influence the accuracy of the cutting.		
6237	Thickness problem *frame bottom*	Invalid thickness of P2 and P3. Thickness of these points varies too much from each other AND varies also from P1 & P4! This will influence the accuracy of the cutting.		

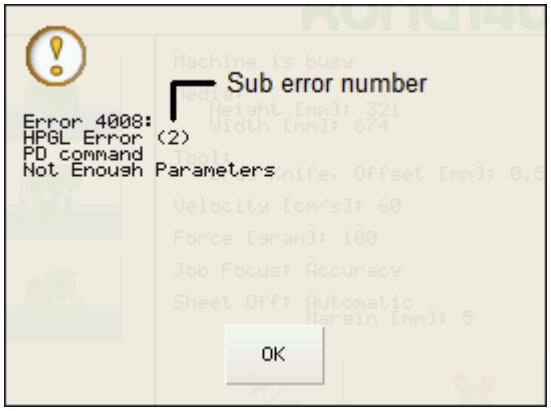
Error	Message	Description	Solution	Category
6241	Thickness problem *frame top*	All measured points of frame top vary too much from each other! This will influence the accuracy of the cutting.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 90	Warning
6242	Thickness problem *frame top*	Invalid thickness of P5 (right side of frame top). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6243	Thickness problem *frame top*	Invalid thickness of P6 (top right of frame top). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6244	Thickness problem *frame top*	Invalid thickness of P7 (top left side of frame top). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6245	Thickness problem *frame top*	Invalid thickness of P8 (left side of top point). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6246	Thickness problem *frame top*	Invalid thickness of P5 and P8. Thickness of these points varies too much from each other AND varies also from P6 & P7! This will influence the accuracy of the cutting.		
6247	Thickness problem *frame top*	Invalid thickness of P6 and P7. Thickness of these points varies too much from each other AND varies also from P5 & P8! This will influence the accuracy of the cutting.		

Error	Message	Description	Solution	Category
6251	Thickness problem *frame centre*	Thickness of centre points (P9 & P10) differs too much from each other AND differs also from bottom points P1 and P4.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 90	Warning
6252	Thickness problem *frame centre*	Invalid thickness of P9 (right centre point). Thickness varies too much from P10! This will influence the accuracy of the cutting.		
6253	Thickness problem *frame centre*	Invalid thickness of P10 (left centre point). Thickness varies too much from P9! This will influence the accuracy of the cutting.		
6254	Thickness problem *frame centre*	Thickness of centre points (P11 & P12) differs too much from each other AND differs also from bottom points P1 and P4.		
6255	Thickness problem *frame centre*	Invalid thickness of P11 (right centre point). Thickness varies too much from P12! This will influence the accuracy of the cutting.		
6256	Thickness problem *frame centre*	Invalid thickness of P12(left centre point). Thickness varies too much from P11! This will influence the accuracy of the cutting.		

Error	Message	Description	Solution	Category
6261	No valid frame found	No valid frame found during fast scan routine (after several retries). Make sure all frame specifications are applied.	To check: ■ Frame isn't found within 120 cm. Media space before frame bottom is too much. ■ Frame bottom doesn't have the correct specifications (minimum thickness of 3mm on ALL sides, thickness too varying, frame height < 20cm, frame width < 10cm, frame angle < 5°) **Refer to** Bounding box details on page 90	Error
6262	No valid frame found	Only 1 frame point found during diagonal scan.		
6263	No valid frame found	No frame points found during diagonal scan.		
6264	No valid frame found	Thickness of left side of frame invalid		
6265	No valid frame found	Varying thickness		
6266	No valid frame found	Invalid thickness		
6267	No valid frame found	Invalid frame angle		
6268	No valid frame found	Requested X movement for fast scan cannot be executed.		
6269	No valid frame found	Invalid spot type		
6271	Media shift detected	Media displacement detected during cutting. Centre markers of previous segment are shift more than 2mm.	To check: ■ Grits on media? ■ Pinches and grits clean? **Refer to** Cleaning and daily maintenance > Cleaning the grit rolls on page 96	Warning

8.2.4 HPGL errors (ID 4000-5000)

As from the moment data is sent to the Kona which is not correct, an error and sub error number will be displayed. Please find below a list with explanations of these sub numbers.



Sub number	Description
0	No parameters allowed
1	No parameter case is illegal
2	Not enough parameters
3	Too many parameters
4	Illegal command termination
5	Ilegal command definition
6	Undefined program flow
7	Parameter size overflow
8	Error in HPGL command definition
9	Label out of limit error
other	Unknown HPGL error

Chapter 9 Consumables

Refer to the Mutoh Kona cutting plotter's unit or spare part price list for the most recent prices of these consumables.

9.1 Knife holder and blades

9.1.1 Knife Holder without Depth Change Indication

Picture	Partnumber	Description
	ZMY-10050B	Knife Holder without Depth Change Indication including one blade, 45° angle, 0.5 mm offset
	*Blades for Knife Holder without Depth Indication - 0.5 mm offset*	
	ZME-20034A	Cutting Knife Blades 30° angle (set of two)
	ZME-20034B	Cutting Knife Blades 45° angle (set of two)
	ZME-20034C	Cutting Knife Blades 60° angle (set of two)

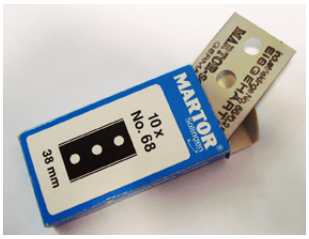
9.1.2 Knife Holder with Depth Change Indication

Picture	Partnumber	Description
	ZMY-10034B	Knife Holder with Depth Change Indication Including one blade, 45° angle, 0.5 mm offset
	*Blades for Knife Holder with Depth Change Indication - 0.5 mm offset*	
	ZME-10034A	Cutting Knife Blades 30° angle (set of two)
	ZME-10034B	Cutting Knife Blades 45° angle (set of two)
	ZME-10034C	Cutting Knife Blades 60° angle (set of two)

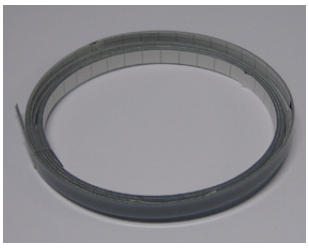
9.2 Pens

Picture	Partnumber	Description
	PSGBBK	Pressurized ballpoint pen.

9.3 Sheet off blades

Picture	Partnumber	Description
	KY-15134	Set of Sheet Off Blades (10 pieces)

9.4 Cutting mat

Picture	Partnumber	Description
	KY-15305	Cutting mat (5 pieces)

Index

J

K

L

M

O

P

R

S

T

V

X