Kongsberg XE

User Manual

04 - 2019 | Kongsberg XE

ESKO

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1. Preface

User Manual

for

Kongsberg XE / i-XE

Serial no ___________

Note: We remind you that only the Esko Staff, or persons having received appropriate training, are allowed to handle, manipulate or do repairs on the system.

Note: Original instructions are in English. Instructions in other languages are translations of original instructions.

Disclaimer: Do not operate this equipment in an EU member State if the Instructions are not written in that State's language. Contact Esko if a translation is needed.

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Correspondence regarding this publication should be forwarded to:

Global support

Esko-Graphics Kongsberg AS

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Esko-Graphics Kongsberg AS
www.esko.com
P.O.Box 1016, NO-3601 Kongsberg, NORWAY
Tel.: +47 32 28 99 00

2. Change Record

Date dd-mm-yy	By	Description
09-02-2014	jhbe	First edition of this document
12-01-2017	JHBE	Updated version of this document
13-06-2017	jhbe	Psaligraphy Knife tool added
05-09-2017	jhbe	PressCut chapter updated.
09.04.2019	DHO	Minor updates.

3. Welcome

Welcome to the **User Manual for Kongsberg XE / i-XE**.

This manual will provide a complete and detailed description of all **XE / i-XE** functions.

It is aimed for operators of **Kongsberg Cutting Tables** and people preparing files for such equipment.

Note: Some of the functions and equipments described in this manual are optional.

Kongsberg XE10

4. Using this manual

4.1. Main Sections

The manual is divided into the following **Main Sections**:

Safety Regulations

- All safety related issues are discussed.

System Description

- This chapter provides basic knowledge about the machine.

Basic Operations

- This chapter provides basic knowledge about how to operate the machine.

Prepare for a Job

- A typical workflow is described, with detailed information about each step.

How to Procedures, Advanced
Optional functions for the advanced user:

- **Multi Pass Creasing** - how to.
- Jobs including **Reverse Score** - how to.
- Work with different **Reference Point Settings** - how to.
- **Forced Tool Height Measurement** - how to.

System Setup

- Settings specifying the general behaviour of the system.

Tool Configuration and Adjustment

- General information about the tooling and adjustment of tools.

Tooling System

- Tool descriptions.

Maintenance

- This chapter describes maintenance to be carried out by the customer.

Fuse Replacement

- Fuse location and specification.

Appendices

- FAQ - Frequently Asked Questions

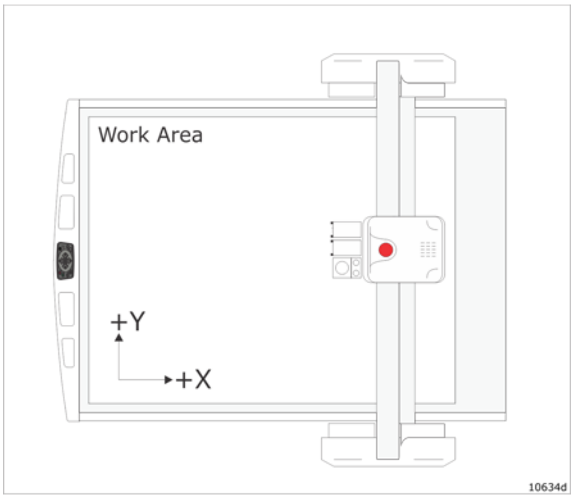
4.2. Name Styles and Symbols

Name or style	Description
Pop-up dialog	This is the dialog that appears when you click the Right mouse button.
Start button	The italic style indicates this is a button on the Operator panel.
OK	The bold style indicates this is a button or function in the GUI.
Maintenance	Link to topic.
➡ **Options->System Option**	Menu selection: From the **Options** menu, select **System Option**.

4.3. Pictures and Illustrations

Orientation

Pictures and illustrations related to the **Cutting Table** are viewed as illustated here:



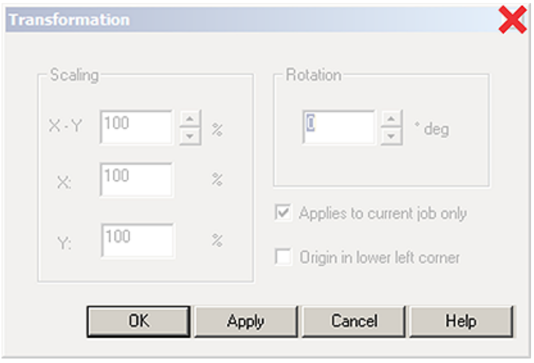
4.4. Local Languages

This manual is available in a wide range of local languages.

Screen pictures and illustrations remain in English language.

For safety related illustrations, text is translated.

4.5. About Xx-Guide dialogs



Transformation

Scaling

X - Y: 100 %

X: 100 %

Y: 100 %

Rotation

0 ° deg

☑ Applies to current job only

☐ Origin in lower left corner

To exit from any Xx-Guide dialog, use the control buttons available.

Using the cross in upper right corner is not recommended and the consequence is unpredictable.

5. Safety Regulations

5.1. Introduction

The table is designed to conform to **Safety Regulation** standards.

Nevertheless, operating the table can involve hazards if:

- The operator does not follow the **Operating Instructions**.
- The table is used for **Non-intended** purposes.

In addition to the **Safety Regulation** described below, you will find safety warnings in the respective topics.

5.2. Responsibilities

5.2.1. The Manufacturer

The Manufacturer is responsible for delivering the system according to **Safety Regulation** standards.

5.2.2. The owner

The owner is responsible for:

- Ensuring that the system is used for it's **Intended Use** only
- Ensuring that only authorized and trained personnel operate the system
- Preventive maintenance as described in the Maintenance chapter
- That the **Local Regulations** regarding installation and operation are fulfilled

5.2.3. The Operators

The Operators are responsible for:

- Operating the system only when it is in a flawless state.
- Operating the system according to **Operating Instructions**.

- Ensuring that no **Unauthorized Personnel** come close to the system.

5.3. Requirements to be met by Operators

Personnel operating the system must:

- Be adequately trained.
- Have read and understood the instructions described in **Safety Regulation** as well as any other safety warnings.

5.4. Definition of Use

The intended use is described in the following chapters:

- *Basic Operations*
- *Prepare for a Job*
- *How to Procedures, Advanced*

Any other use is considered **non-intended use**.

Examples of **non-intended use**:

- Operation by operators not meeting the requirements as described above.
- Unauthorized modifications (bridging safety devices, removing covers etc.)
- Utilizing accessories other than those specified by Esko.

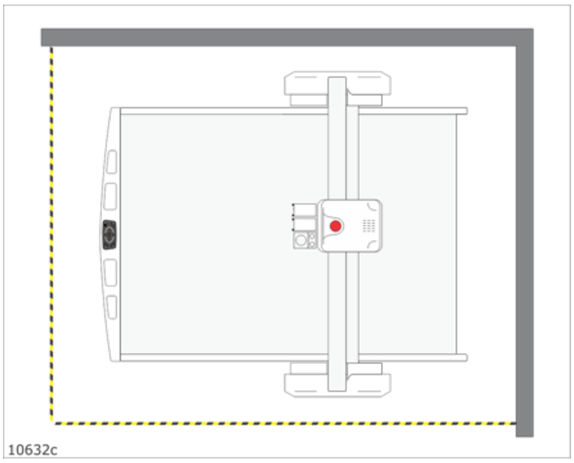
Non-intended use may cause:

- Health hazards and injuries.
- Damage to the system.
- Incorrect functionality.
- Damage to work materials.

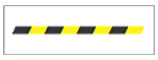
Note: Esko is not liable for any damage resulting from such non-intended use.

5.5. Danger Zones

5.5.1. Danger Zones

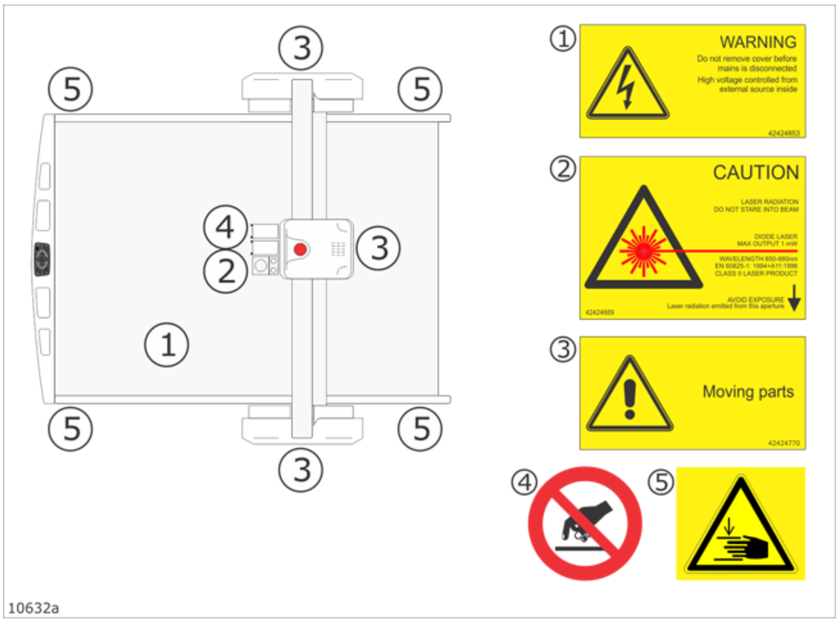


The area around the moving parts is considered to be a **Danger Zone**.



The **Danger Zone** is identified by the means of a yellow / black floor marking.

5.5.2. Moving Parts, Laser Radiation and High Voltage


①
②
③
④
⑤
WARNING
Do not remove cover before mains is disconnected
High voltage controlled from external source inside
42424853
CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
DIODE LASER
MAX OUTPUT 1 mW
WAVELENGTH 650-660nm
EN 60825-1: 1994+A11:1996
CLASS II LASER PRODUCT
AVOID EXPOSURE
Laser radiation emitted from this aperture
42424689
Moving parts
42424770
10632a

5.5.3. Loose Clothing

While working with this machine, do not:

- Use ties
- Use loose necklaces
- Use scarfs

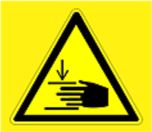
5.5.4. Noise Level

- **Hearing Protection** should be used by any personnel exposed to the noise from the machine.

5.6. Warning Sign Explanation

Knife Blades are extremely sharp.

This symbol is used in this documentation to indicate operations with **Knife Blades** and **Milling Bits**.

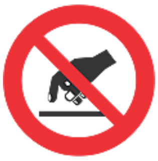


Hand Squeeze

Potential areas with a risk of being squeezed are marked with the **Hand Squeeze** sign.

These areas are:

- Between X-axis end stopper and traverse wagon.

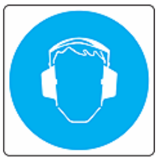


Do not Touch

Potential areas with a risk of being squeezed are marked with the **Do Not Touch** sign.

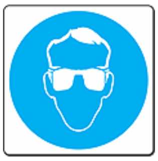
These areas are:

- Between Y carriage and rack
- Between the table top and the moving traverse.
- Underneath the tool head.



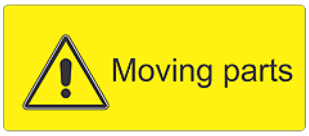
Hearing Protection

The **Hearing Protection** symbol indicates areas where the use of hearing protection is compulsory.



Eye Protection

The **Eye Protection** symbol indicates areas where the use of eye protection is compulsory.

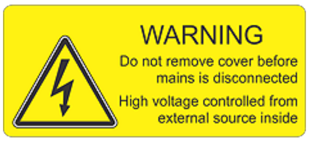

Moving parts

Moving Parts

Potential areas with a risk of being hit by **Moving Parts** are marked with the **Moving Parts** sign.

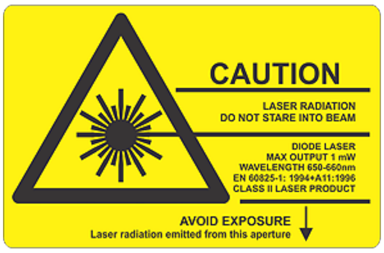
These areas are:

- Both traverse ends.
- Y carriage.
- Tool head(s).


WARNING
Do not remove cover before mains is disconnected
High voltage controlled from external source inside

The **Main Power Unit** (MPU) contains **Mains Voltage** and may be opened by **Authorized Personnel** only.

The MPU is marked with the **High Voltage** warning sign.


CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
DIODE LASER
MAX OUTPUT 1 mW
WAVELENGTH 650-660nm
EN 60825-1: 1994+A11:1996
CLASS II LASER PRODUCT
AVOID EXPOSURE
Laser radiation emitted from this aperture

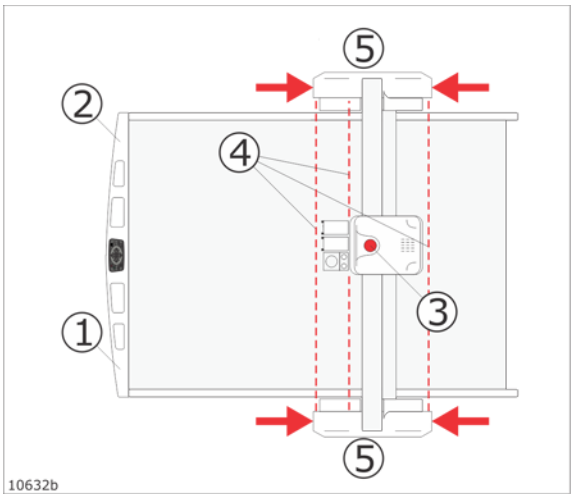
Laser Radiation.

The tool head is equipped with a class II **Laser Pointer**.

Avoid laser light into your eyes.

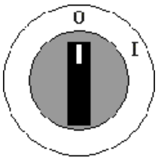
5.7. Safety devices

5.7.1. Overview


⑤
②
④
③
①
⑤
10632b

Device no	Description
1	**Main Power Switch**
2	**Emergency Stop Button**
3	**Warning Lamp / Status Lamp**
4	**Photo cell supervision**, **Dynaguard**
5	**Traverse Stop Switches**, **Dynaguard**

5.7.2. Main Power Switch



The **Main Power Switch** turns power to the table on/off.

5.7.3. Emergency Stop Button

Switch positions:

OUT	- **Emergency Stop** is switched OFF.
IN	- **Emergency Stop** is switched ON; **Servo Power** to the machine is switched off.

Note:

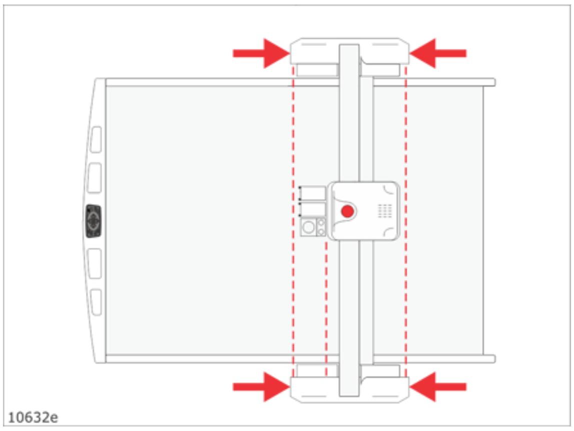
Activating the **Emergency Stop Button** does not provide a guarantee against injury!

Due to the high kinetic energy of moving parts, do not underestimate **Stop Distance** of traverse, Y carriage and **Tool Head**.

5.7.4. Warning Lamp on top of Y Carriage

Light is	Description
Off	**Servo Power** is off
On	**Servo Power** is on, **Safety System** is enabled, table is in operation
Flashing	**Safety System** is activated. Reset **Safety System** to continue operation

5.7.5. DynaGuard Safety System



The **DynaGuard Safety System** consists of two light beams in front of the traverse and one behind.

In addition, there is a stop mechanism mounted on each end of the traverse.

Machine movement will stop and **Servo Power** will be switched off if:

- One of the light beams are broken.
- The stop mechanism is activated, for instance when a person is standing too near the table.

Continue after DynaGuard is triggered

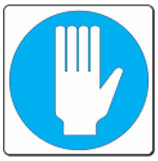
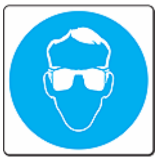
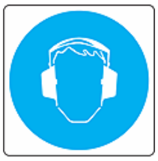
To continue operation, proceed as follows:

1. Ensure the table is free from obstructions and ready for operation.
2. Reset the **Safety System** by pressing the ***Pause*** pushbutton.
3. Observe that **Servo Power** is switched on,
4. Press ***Start*** to continue.

5.8. Protective Equipment

For the operator(s), Esko recommends the following **Protective Equipment**:

Close-fitting clothes to avoid being caught by the beam or the tool head which can cause injuries.

	Gloves to protect against cuts from materials with sharp edges.
	Eye protection must be used by any personnel working with milling.
	Always use **Hearing Protection** when working with the machine for a longer period of time. The acoustic noise level will vary with the type of operation and tooling, but a typical average level is 78.5 – 83.5 dBA and a maximum level of 98.5 dBA.

5.9. Procedures in case of Malfunctions

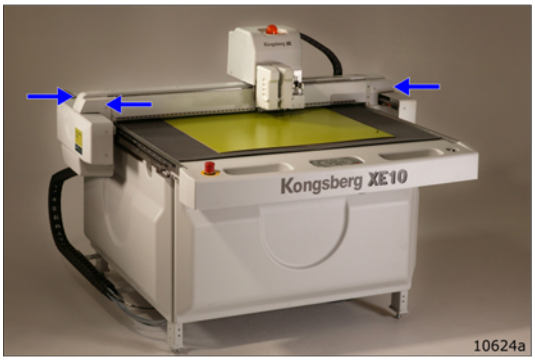
Trouble-shooting and repair shall be executed by **Authorized Personnel** only.

Contact the **Esko Service Organization**.

5.10. Residual Risk

Despite all safety protection means incorporated in this machine, there are some **Residual Safety Risks** to be aware of:

Traverse end



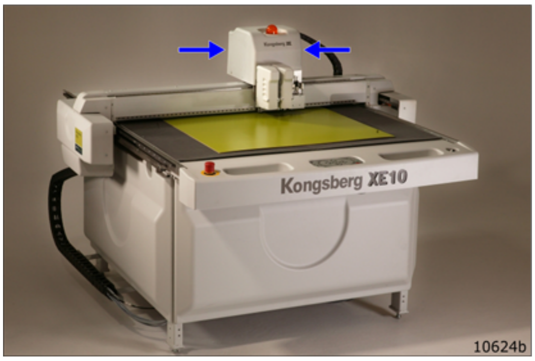
1

The low part of the traverse ends is unprotected.

Actions:

- Children are not supposed to be in the machine area.
- Do not work or stay beneath the traverse while the machine is working.

Y-carriage


Kongsberg XE10
10624b

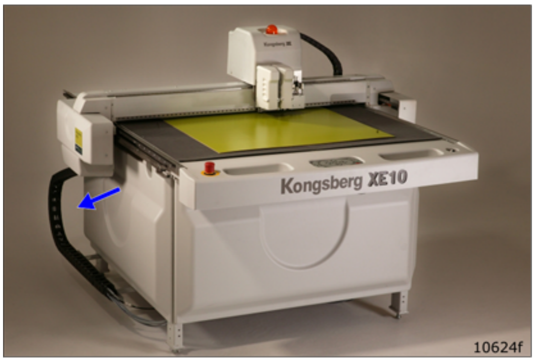
2

The top of the Y-carriage is un-protected in all four directions.

Actions:

- Do not bend down over the table or traverse while the machine is working.

Inside cable chain


Kongsberg XE10
10624f

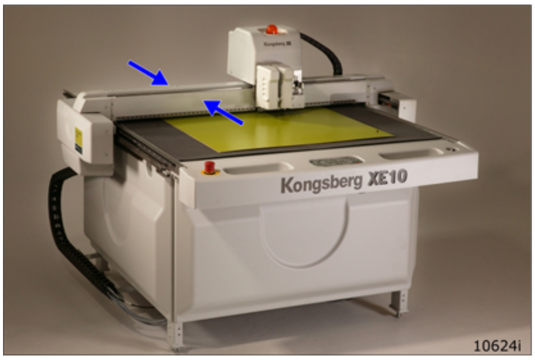
3

There is a risk for squeezing between the cable chain and the table base frame.

Actions:

- Stay out of this area while the machine is working.

Traverse Beam


Kongsberg XE10
10624i

4

The **DynaGuard Safety System** photo cell beam c will stop the movement when hit.

Actions:

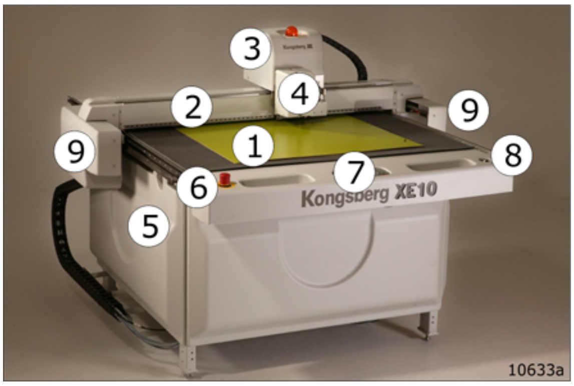
- Stay out of this area while the machine is working.

6. System Description, XE

6.1. Introduction

6.2. Naming conventions

Machine


3
4
2
9
9
1
8
7
6
5
Kongsberg XE10
10633a

1 **Cutting Table**

2 **Traverse**

3 **Y carriage**

4 **Tools**

5 **Main Power Unit** (MPU)

5 **Air Pressure Regulator**

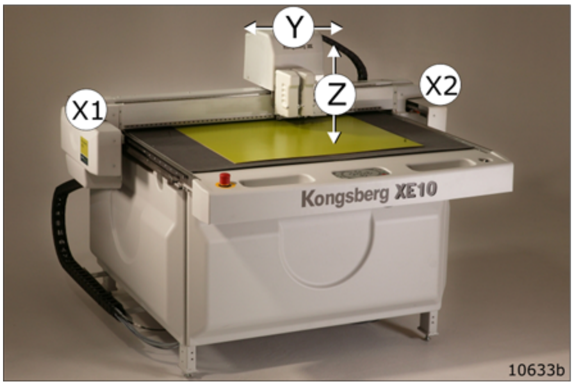
6 **Emergency Stop** button

7 **Operator Panel**

8 **Main Power** on/off switch

9 Traverse Safety Stop switches (**DynaGuard**)

Axes


Y
Z
X1
X2
Kongsberg XE10
10633b

X - **X-axis**

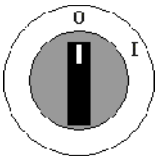
Y - **Y-axis**

X1 - X1 end of traverse

X2 - X2 end of traverse

Z - **Z axis**.

6.3. Main Power Switch

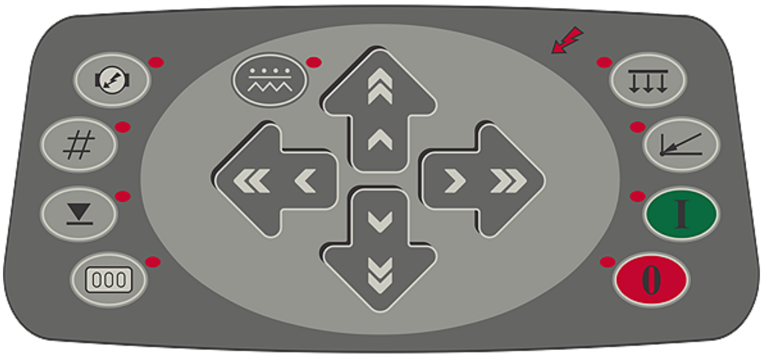


Switch positions:

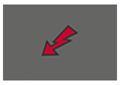
O - the **Main Power** to the machine is switched OFF.

I - the **Main Power** to the machine is switched ON.

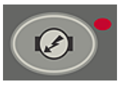
6.4. Operators Panel



Power On

	**Mains Power** on/off indication.

Servo Power On

	**Servo Power** on/off control.

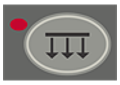
Start

Press this button to **Start Operation**.

Pause / Safety System Reset

Press this button to ***Pause Operation*** and ***Reset Safety System***.

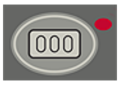
Vacuum On/Off



Press this button to switch **Vacuum On/Off**.

Provides material hold down.

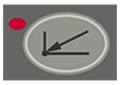
Set Panel Reference Point



Press this button to set **Panel Reference Point**.

If **Fixed Reference Point** is disabled, the current position of **Laser Pointer** is set as the new **Reference Point**.

Move to Table Zero

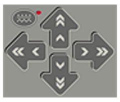


Press this button, then the ***Start*** button, to move the tool head to **Selected Reference Point**.

The **Table Zero Mode** is automatically selected at **Power on**.

The system remains in the **Table Zero Mode** until **Table Zero** movement is completed.

Jog buttons

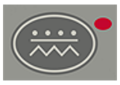


Press the **Jog buttons** to move the tool head in the desired direction.

The system must be in **Pause** mode, i.e. the ***Pause*** button must be lit, for these buttons to be operative.

Note: It is possible to configure the jog direction, see **Option**->**System setup**.

Incremental Jog



Press this button to select **Incremental jog** mode.

Press the button a second time to disable **Incremental jog** mode.

Press the two arrows to move the tool head a large step.

Press the single arrow to move the tool head a small step.

The size of the incremental movement can be changed from **Machine Configuration**->**Setup**.

Tool Down

Press the ***Tool Down*** button to manually operate the machine with a tool in the down position.

Cancel by pressing ***Tool Down*** a second time.

Vacuum release mode

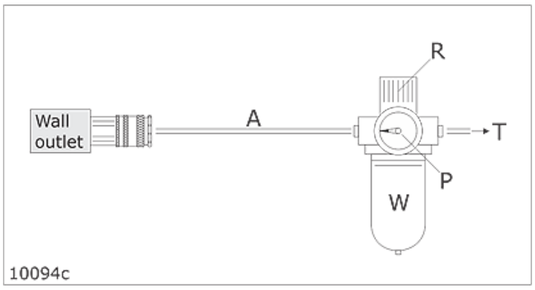
For details about this function, see separate chapter 'Vacuum control'.

If activated for more than 2 seconds, this button activates the **Manual Belt Clamp** function.

6.5. Pressurized Air system

General

The **High Pressure Air System** supplies the valves and tooling with compressed air.



The compressed air input is connected to a combined **Pressure Regulator Valve/Water Trap**.

Wall Outlet - Wall Outlet

A - Air Tube

R - Pressure Regulator Valve

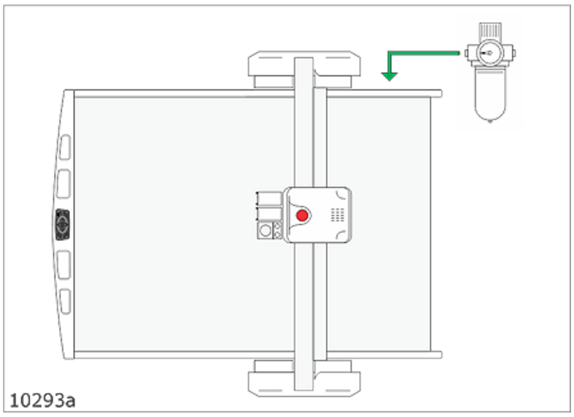
P - Pressure Gauge

W - Water Trap

T - Air Tube to Tools and Valves

For details regarding air supply requirements, see **Site Preparation Manual**.

Air Pressure Regulator settings



The **Air Pressure** should be adjusted to minimum 6 bar (6 kg/cm2, 6*105 Pa).

Recommended pressure level is 7 bar (7 kg/cm2, 7*105 Pa).

6.6. Application programs available

After installation of XE-Guide, the following application programs are available

XE-Guide

Control program for the **Cutting Table**

SysLoad

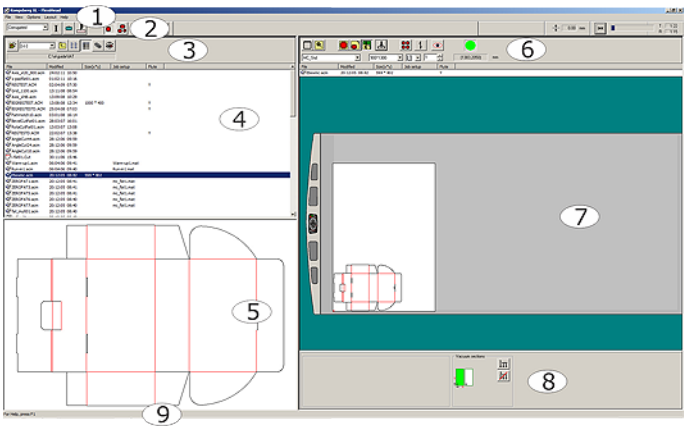
Program for download of updates to **CU–modules**

HWT800

Hardware test program, see separate **HWT800 User Manual**.

7. XE-Guide

7.1. The Graphical User Interface



The XN Graphical User Interface (GUI) contains these main elements:

1 Main Menu

2 Main Toolbar

3 File View Toolbar

4 File View

5 Preview

6 Job View Toolbar

7 Job View

8 ARS Toolbar

9 Status Bar

7.2. The Main Menu

The following functions are available from Main Menu and sub-menus:

File

Open	Open an Input File.
Create a box	Work with 123Box.
Exit	Terminate Xx-Guide.

View

Position Display	Display of table positions and parameters.
View Messages	Message Display; provides a log of system messages.
Customize File View	File View configuration.
View Finished Jobs	List finished jobs when running in Auto Open mode.
Tool bars	Configure GUI tool bars
Status Bar	Configure Status Bar.

Options

Tool configuration	Tool configuration and adjustments.
Job Setup	Select and edit job setup files.
Board Size setup	Edit table of available board sizes.
Toggle Flute Direction	Specify actual flute/grain direction to the system.
Transformation	Specify scale and rotation.
Step and Repeat	Specify multiple copies of current job.

Counter setup	Parameter setting for crease using a matrix. (For folding carton only).
System Option	Enter the System Option dialog.
Table Options	Enter the Table setup dialog.
Registration setup	Configure the ARS system.

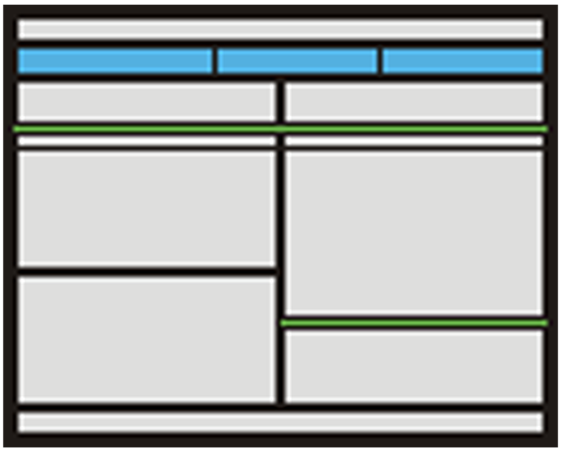
Layout

Toggle Layout Mode	Toggles between single and multi design layout.
Layout setup	Job layout configuration.
Delete	Delete selected design.
Delete All	Delete all designs.
Select All	Select all designs.
Rotate 90	Rotates selected design 90 degrees.
Rotate 180	Rotates selected design 180 degrees.
Rotate	Rotates selected design a user defined angle.

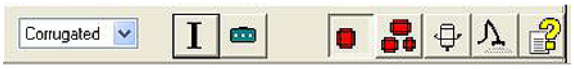
Help

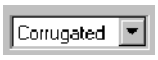
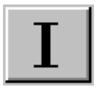
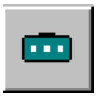
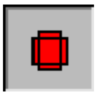
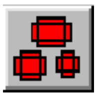
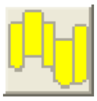
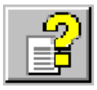
About Xx-Guide	Xx-Guide version information. Information about maintenance intervals. You will find more information about this issue in the Technical Manual.
User Manual	A link to this document.

7.3. The Main Toolbar functions

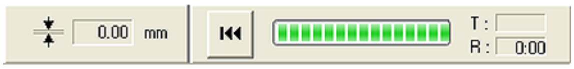


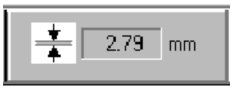
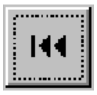
The left part of the Main Toolbar contains the following general functions:

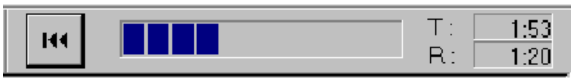


	Selects application from the drop down list.
	View the Message Display.
	Enter Tool Configuration.
	Set Single Design operation.
	Set Multi Design operation.
	Work with 123Box.
	Enter the Help system.

The right part contains the following functions:



	Shows measured thickness of material on the table.
	Rewinds current job.



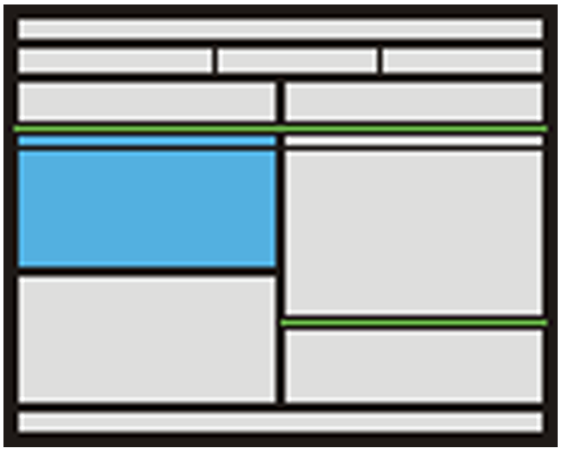
T: Estimated total job time.

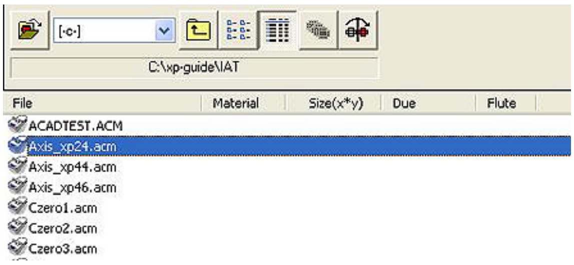
R: Estimated remaining job time.

Main Toolbar configuration

From View->Toolbars, you can configure the **Main Toolbar** to show left / right / none of the Main toolbar.

7.4. File View





C:\xp-guide\IAT

File	Material	Size(x*y)	Due	Flute
ACADTEST.ACM				
Axis_xp24.acm				
Axis_xp44.acm				
Axis_xp46.acm				
Czero1.acm				
Czero2.acm				
Czero3.acm				

A total of 5 columns can be displayed in the **File View**.

The file name is always displayed in column 1. The other 4 columns can be customized in the Customize **File View** dialog.

The files in the **File View** are sorted in normal or reversed order. The sorting is toggled by clicking the header of the columns.

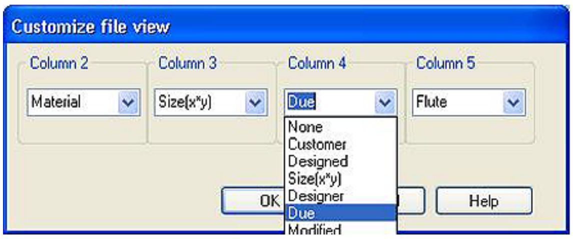
The files are ranged the way they will be executed when Auto Open is activated.

A single click on a file will display the design in the Preview window. When a file is opened, that is selected as a job; the design will be displayed in **Job View**.

Customize File View

The Customize **File View** – dialog is available from:

- Main Menu->View->Customize File View
- File View->Pop-up menu


Customize file view
None
Customer
Designed
Size(x*y)
Designer
Due
Modified
OK
Help

Column 2
Material

Column 3
Size(x*y)

Column 4
Due

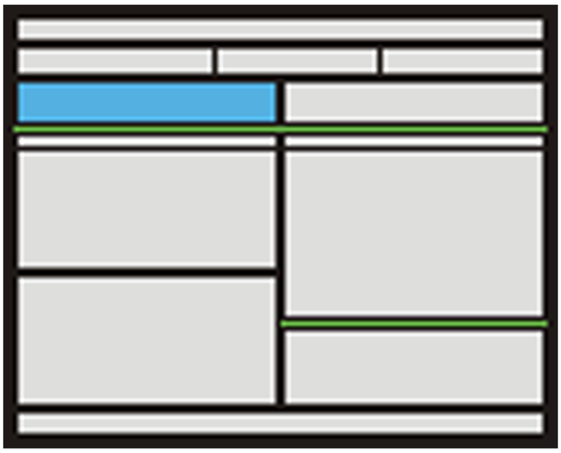
Column 5
Flute

Use the **Customize File View** dialog to define the kind of data which you want displayed in the columns in **File View**.

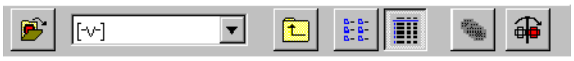
Customize the 4 columns by selecting the appropriate field in the drop down list.

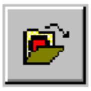
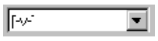
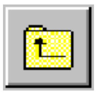
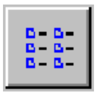
The content of the different fields are File Header - parameters in the Input File, except from the **Size**, which is calculated after the file has been opened.

7.5. File View toolbar



You will find the following buttons in the **File View** toolbar:



	Opens selected file.
	Selects disk drive for input files.
	Up one level.
	Shows file names only.

Shows file names and details.

Auto Open function

Enable **Move Finished File** – mode.

Moves the current job, when finished, to a sub-directory and removes it from the list of files in the **File View**.

Press the button a second time to disable the **Move Finished File** – mode.

Note: You can view finished jobs by:

- selecting **View**->**View Finished Jobs**
- selecting **View Finished Jobs** from the pop-up menu in the **File View**

Auto Open function

Pressing this button activates the **Auto Open** function.

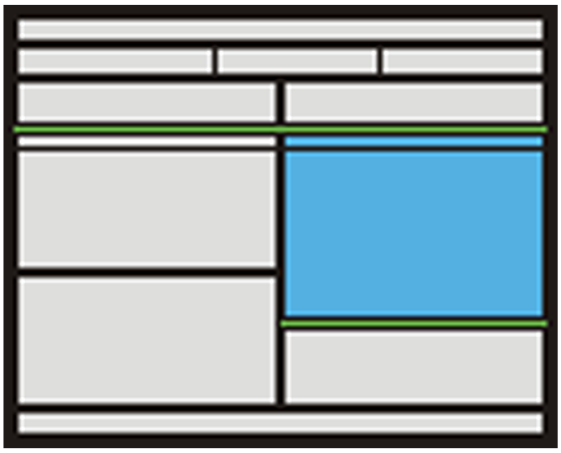
The file at the top of the **File View** list will automatically be opened as a new job when the current job is finished.

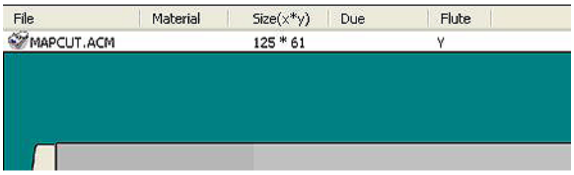
Press the button a second time to disable the **Auto Open** – function.

Note: It is a pre-requisite for this function that the **Move Finished File** – mode is enabled.

When the **Move Finished File** – button shows this face, it indicates that the **Move Finished File** – mode is disabled – no automation.

7.6. Job View





File	Material	Size(x*y)	Due	Flute
MAPCUT.ACM		125 * 61		Y

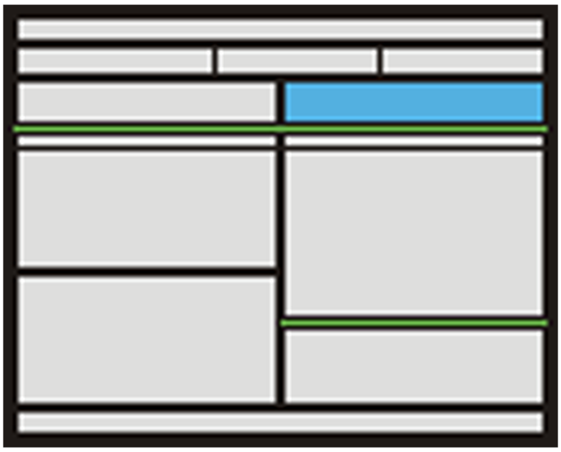
When you open a file, the design is displayed in the Job View window.

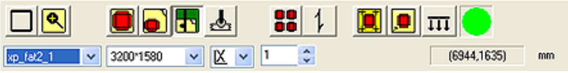
Designs placed in Job View can be manipulated according to the selected layout mode.

Various display options are available from the Job View toolbar.

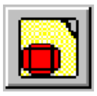
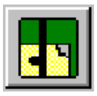
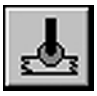
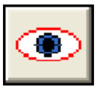
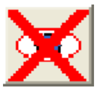
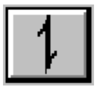
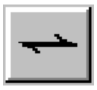
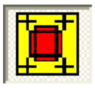
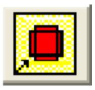
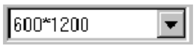
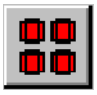
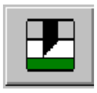
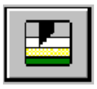
The File Information Bar on top of Job View display some parameters regarding the last Input File opened.

7.7. Job View toolbar



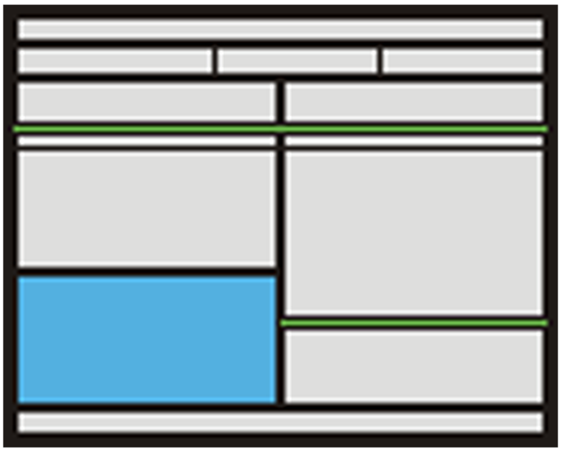


☐	Show **Job view** in full screen. When in full screen display, the button face changes to this:
⊞	Show **Job view** in split screen.
🔍	Enters zoom mode. The cursor changes to a magnifying glass. Select area to be zoomed.
🟥	View design only.

	View design and selected board size.
	View design, selected board size and the table size.
	Enters the **Job Setup** dialog.
	Enter **ARS registration setup** dialog. Work with ARS enabled
	Enter **ARS registration setup** dialog. No ARS functions are enabled
	Rotate direction of flute (corrugated) or grain (folding carton).
	Rotate direction of flute (corrugated) or grain (folding carton).
	Automatic Register System (ARS).
	Register to sheet edge. Enables XL-register functions. The select reference functions are disabled.
L1	Select **Reference point** from the drop down list.
Default	Select a **Job Setup** file from the drop down list.
 600*1200	Select **Board Size** from the drop down list.
	Enter the **Step and Repeat** setup dialog.
0	Number of copies for the **Step and Repeat** function.
	Enter the **Matrix** function. (Matrix function is for Folded Carton application only)
	Button face when the **Matrix** function is enabled.

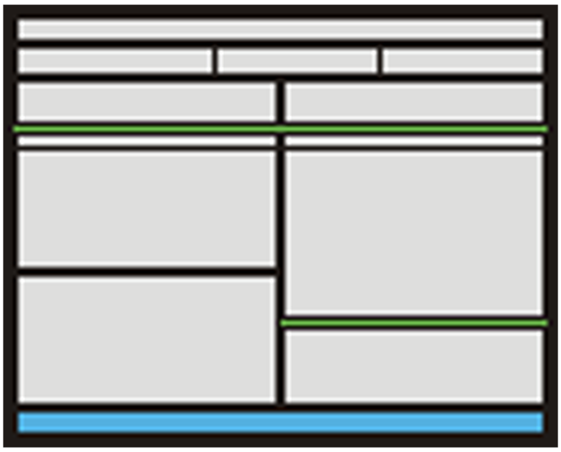
↓↓↓	Vacuum section selection
🟢	Indicates that all designs are inside the **Working area**.
⛔	Indicates that one ore more designs are outside the **Working area**.
(2261,1071) mm	Displays the mouse pointer position relative to the selected **Reference point**.

7.8. Preview



A single click on a file in **File view** will display the job in the **Preview window**.

7.9. Status bar

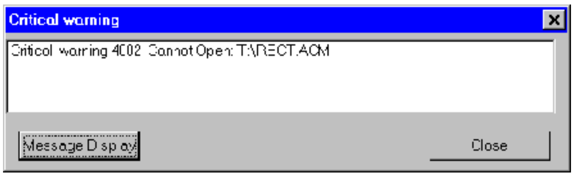


The status bar at the bottom of the GUI shows brief descriptions of various functions in the GUI.

The status bar can be toggled on and off from Main Menu->View->Status bar.

7.10. Critical Warning Display

When a situation occurs that requires an action from the operator, the following message box will be displayed:

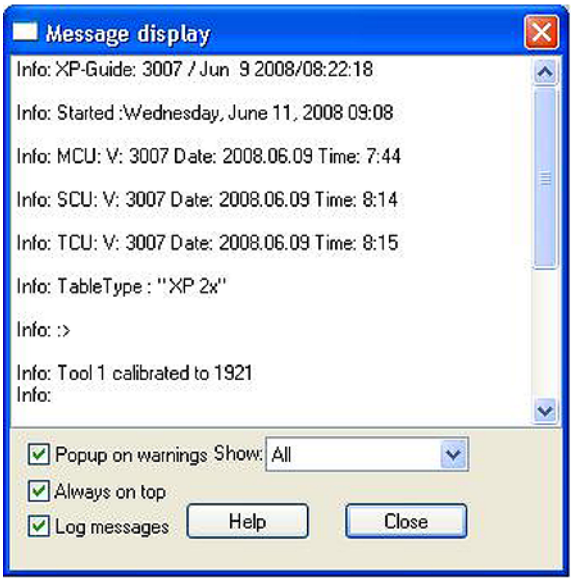


Critical warning 4002 Cannot Open: T:\RECT.ACM

Additional information may be found in the **Message Display**:

7.11. Message Display

I	The **Message display** is available from the **Main Toolbar** button.



```
Info: XP-Guide: 3007 / Jun  9 2008/08:22:18

Info: Started :Wednesday, June 11, 2008 09:08

Info: MCU: V: 3007 Date: 2008.06.09 Time: 7:44

Info: SCU: V: 3007 Date: 2008.06.09 Time: 8:14

Info: TCU: V: 3007 Date: 2008.06.09 Time: 8:15

Info: TableType : "XP 2x"

Info: :>

Info: Tool 1 calibrated to 1921
Info:
```

☑ Popup on warnings Show: All
☑ Always on top
☑ Log messages

The **Message display** offers additional information when troubleshooting the system.

Normally, you will get all the necessary information from the pop-up **Critical Warning** Display.

For additional information, please examine the **Message display**.

Pop-up on warnings

Check this box if you want warnings to be automatically displayed.

Always on top

Check this box if you want the **Message display** to stay on top.

Log messages

The system is prepared for output of additional system information, useful for service and troubleshooting.
For normal operation disable this function to reduce the amount of messages.

Show

The type of information displayed in the **Message display** can be configured to:

1. Critical messages only
2. Critical and important messages
3. All messages.

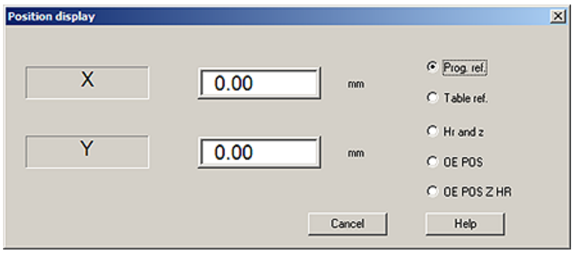
7.12. Position Display

Main Menu->View->Position display

Ctrl + D

Use the set of radio-buttons to select one of the available displays:

Program reference



Position display

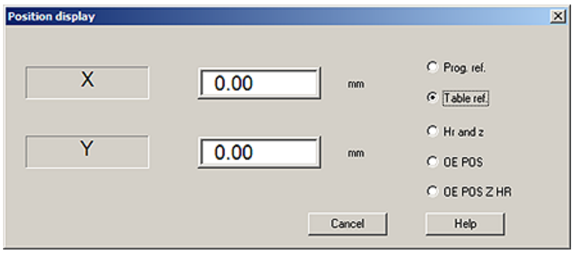
X 0.00 mm

Y 0.00 mm

● Prog. ref.
○ Table ref.
○ Hr and z
○ OE POS
○ OE POS Z HR

Displays table coordinates relative to program reference point

Table reference



Position display

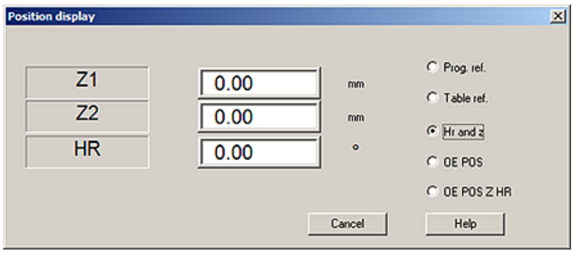
X 0.00 mm

Y 0.00 mm

○ Prog. ref.
● Table ref.
○ Hr and z
○ OE POS
○ OE POS Z HR

Displays table coordinates relative to table reference point

Tool Rotation and Z - axes



Position display

Z1 0.00 mm

Z2 0.00 mm

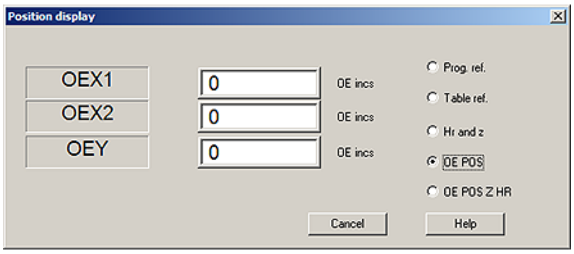
HR 0.00 °

○ Prog. ref.
○ Table ref.
● Hr and z
○ OE POS
○ OE POS Z HR

Display Z and Tool Rotation positions.

- Z shows actual distance from Z axis zero position
- Tool Rotation shows actual angle from Tool Rotation zero
- Material thickness shows measured thickness of material on the table

Encoder count, X and Y

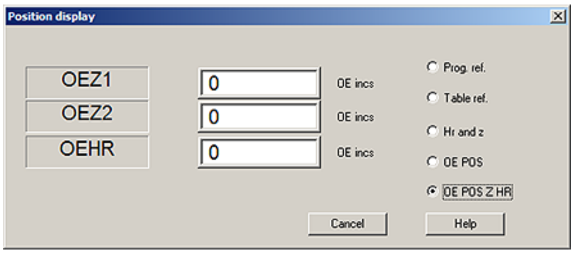


OEX1 0 OE incs
OEX2 0 OE incs
OEY 0 OE incs

○ Prog. ref.
○ Table ref.
○ Hr and z
● OE POS
○ OE POS Z HR

Shows encoder input as read for X1, X2 and Y encoders

Encoder count, Z and Tool Rotation



OEZ1 0 OE incs
OEZ2 0 OE incs
OEHR 0 OE incs

○ Prog. ref.
○ Table ref.
○ Hr and z
○ OE POS
● OE POS Z HR

Shows encoder input as read for Z and Tool rotation encoders

7.13. Accelerator Keys

Key	Function
Ctrl + B	Board Size setup
Ctrl + D	Position Display
Ctrl + F	Toggle Flute Direction
Ctrl + J	Edit Job Setup
Ctrl + O	Open Input File
Ctrl + P	Set ball point pen pressure (N/A)
Ctrl + S	Step And Repeat setup
Ctrl + T	Tool Configuration
F1	Help in active window
Ctrl + Alt + D	Memory dump
Ctrl + Alt + L	Servo Log
Ctrl + Alt + O	System Setup
Ctrl + E	Display axis force

Key	Function
Ctrl + Alt + K	Keyboard command entry

8. Basic Operations

Keep away from **Moving Parts** during operation.

Do not lean on **Racks**, **Guide Ways** or **Traverse** during operation, as this may cause personal injury.

Before starting any operation, make sure that:

- The Table is free from obstructions
- No unauthorized personnel come close to the table

8.1. Introduction

All procedures for how to run the machine are based upon the following assumptions:

- The **User Interface** is up and running.
- The actual **Tools** are properly mounted and adjusted.

8.2. Power On Sequence

Follow these steps to power up the system and get ready to work:

1

Front End PC

Switch on the PC and the monitor.

2

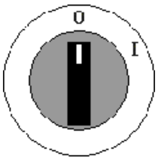


Table Power

Switch the table on using the **Main Power Switch**.

Note: After power off, wait minimum 5 sec. before the system is switched on again.

3

Xx-Guide

Use the mouse, double-click the icon for **XE-Guide**.

Check that no error message indicates faulty conditions.

4

Safety System

Reset the **Safety System** by pressing the ***Stop*** pushbutton.

5

Servo Power

Press the ***Servo On*** pushbutton.

The **Warning Lamp** on top of the Y carriage should be on without flashing.

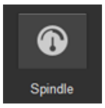
6

Table Zero Sequence

Press ***Start*** pushbutton to complete the **Table Zero Sequence**.

The machine will move to the **Selected Reference Point**.

7



Spindle Warm-up (milling toolhead only)

Run Warm-up sequence by pressing this button in iPC. The spindle warning lamp (red) should flash shortly and then light constantly. This indicates that the spindle rotates. Any malfunction of the lamp must be corrected as soon as possible since the lamp is a safety feature.

8

The table is now ready for operation.

8.3. Reset Safety System

Press ***Pause*** to **Reset Safety System**.

8.4. Power Off Sequence

Follow these steps to power down the system:

1

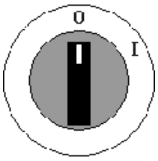
Servo Power

Press the ***Servo On*** pushbutton to switch **Servo Off**.

2

Table Power

Turn **Table Power** off using the ***Main Power Switch***.



Note: After power off, wait minimum 5 sec. before the system is switched on again.

3

Front End PC

To switch off the PC, use the **Operating System** shutdown procedure..

8.5. Continue after Safety Break

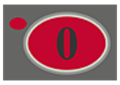
If the **Safety System** is activated, all movements on the table are stopped and the **Warning Lamp** starts flashing.

To continue operation, proceed as follows:

1

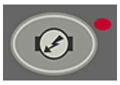
Ensure the table is free from obstructions and ready for operation.

2



Reset the **Safety System** by pressing the ***Pause*** pushbutton.

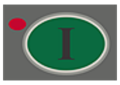
3



The **Warning Lamp** on top of the Y carriage should be constantly lit (not flashing).

Observe that **Servo Power** is switched on,

4



Press ***Start*** to continue.

9. Prepare for a Job

9.1. Introduction

Keep away from **Moving Parts** during operation.

Do not lean on **Racks**, **Guide Ways** or **Traverse** during operation, as this may cause personal injury.

Before starting any operation, make sure that:

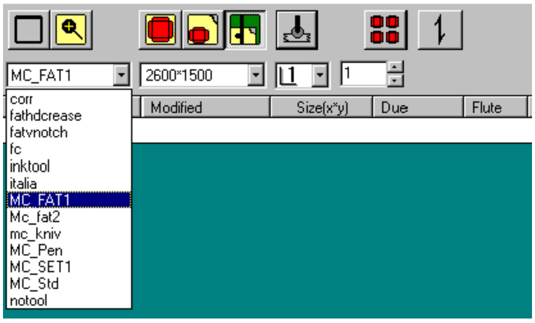
- The Table is free from obstructions
- No unauthorized personnel come close to the table

The **Starting Point** in this procedure is:

- Xx-Guide and table are up and running.
- Properly adjusted tools are mounted.

Use this chapter as a check – list when changing from one job to another.

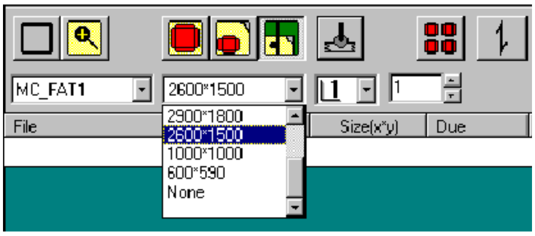
9.2. Job Setup


MC_FAT1
2600*1500
1
1
corr
fathdcrease
fatvnotch
fc
inktool
italia
MC_FAT1
Mc_fat2
mc_kniv
MC_Pen
MC_SET1
MC_Std
notool
Modified
Size(x*y)
Due
Flute

Job Setup is a table that links Logical tool numbers (P - numbers) in the Input File to physical tools on the machine and describes their behavior (87).

The Job Setup information is stored as a file on the front end PC. Select Job Setup file from the Job Setup drop down list.

9.3. Board Setup



Position the material for the job on the table.

Select Board Size from the Board Size drop down list.

Note : Board size information is used for calculating Step & Repeat. If Step & Repeat is not used, this setup is optional.

9.4. Open an input file

From **File View**, open **Input Files** in one of following ways:

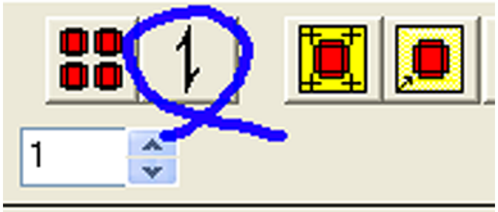
➡	Double click on a file.
	Select a file and click the **Open** button.
➡	Click on a file, hold the left mouse button down, drag the file into **Job View** and release it.
	When **Auto Open** is enabled and activated the files will be opened automatically (204).

The **Input File** formats available are:

File extension	Description
.acm	Kongsberg acm – format. This is the default input format for Kongsberg XN. Described in the Technical Reference manual for XN.
.plt	HPGL. Described in the Technical Reference manual for XN.
.dxf	DXF. See Appendix about DXF input tuning (214).
.ard	ArtiosCAD. See Appendix about the ArtiosCAD module CAD-X (214).
.cf2	CFF2. See Appendix about the ArtiosCAD module CAD-X (214).
.ddes	DDES. See Appendix about the ArtiosCAD module CAD-X (214).

The format is selected from the System Setup dialog (81). Standard file extensions will be automatically recognized.

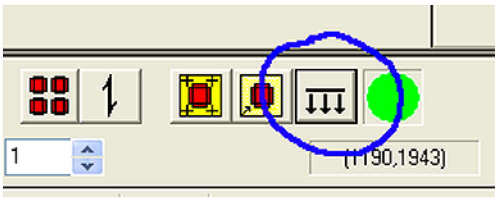
9.5. Flute/Grain Direction



Use the **Toggle Flute Direction** button to set correct direction for the actual job.

Verify that the **Flute/Grain Direction** corresponds to the material.

9.6. Vacuum Section Selection



From the **Vacuum Section** setup – dialog, configure a suitable vacuum area for the job.

Select **Vacuum Sections** that corresponds to the outline of your material.

Proper selection is important to achieve the best possible material hold down.

9.7. Speed Setting

Specify if this is a **High Accuracy** or **High Speed** job.

The machine speed during execution will have important impact on the final result.

For some combinations of tools and materials, you can run with full speed, for other combinations, the speed and/or the acceleration has to be reduced. For this purpose, the following alternatives are available:

- Select between High Quality, Normal or High Speed mode (**Options**->**System Option**->**System**).
- Reduce the overall acceleration (**Options**->**System Option**->**Speed Setup**->**Acceleration**).

- Reduce the speed and acceleration for the Job setup line (**Job Setup**).

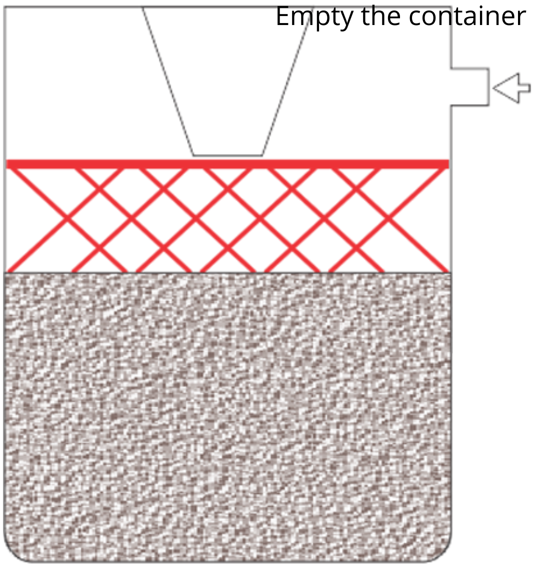
9.8. Job Execution

Before execution, check this:

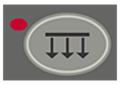
1 Verify that the display of the job in Job View is reasonable.

2 Ensure that all settings are proper.

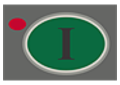
3 If you are milling, ensure the vacuum cleaner container is prepared. Empty the container regularly.



4 Press **Vacuum On** to start the vacuum pump.



5 Press **Start** to execute the job.



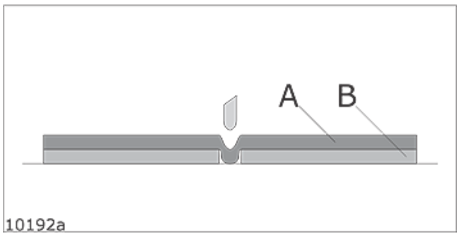
9.9. Corrugated production

Corrugated Production without **Registration Marks** is straight forward following the procedure described in the *Prepare for a Job* - chapter.

Recommended tooling is described in **Esko Tooling Guide**.

9.10. Folded Carton Production

Introduction



Using a matrix for folding carton sample making is a two-step process:

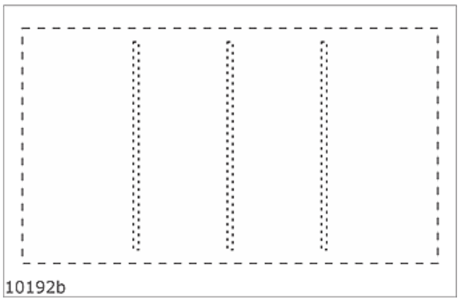
1. Prepare the matrix B with a channel underneath each crease line.
2. Place the material to be processed on top of the matrix and execute the program. An exact crease line is prepared when the material is forced down into the matrix channel.

Sample Creasing

When creasing into a channel the nominal value for crease depths should equal the material thickness.

Fine tuning depths slightly up or down may be necessary to optimize crease quality for each material.

Samplemaking Procedure

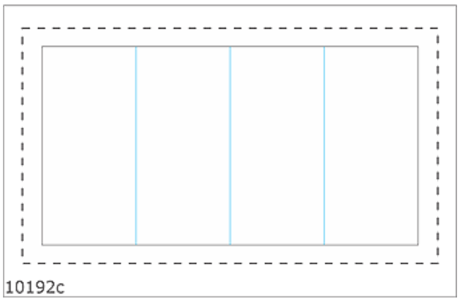


- Select **Folding Carton** application.
- Ensure that the surface of the table is free from obstructions.
- Ensure that the **Job Setup** information is correct for the material.
- From **File View**, select the **Input Program file** for matrix preparation.

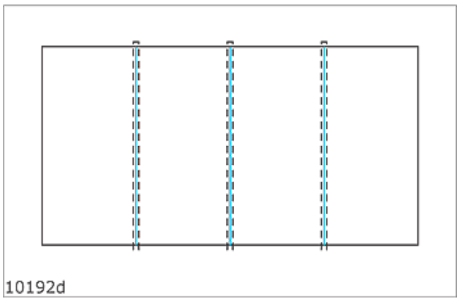
- Click on the matrix icon and disable the **Matrix Function**.
- Position a sheet of matrix material on the table.
- Switch vacuum on. It is important that vacuum stays on during the whole process in order to keep the matrix in place.

- Ensure that you run with a suitable **Program Reference point.**
- Press *Start* to execute the job.

- Enable the **Matrix Function**.
- In the same dialog:
- - Select the **Fixed** value radio button
  - Enter the thickness of the matrix material in the corresponding field.
- If the thickness of the matrix material and the material to be cut is equal, use the **Automatic** function.


10192c

- From **File View**, select the **Input Program file** for cutting the sample.
- Position the sheet to be cut on top of the matrix.
- Press *Start* to execute the job.


10192d

- If more than one sample is to be produced, repeat the procedure using the same matrix.

Matrix function and ArtiosCAD

ArtiosCAD has functions to automate the process, see **Service Guide for ArtiosCAD – Kongsberg integration** available on the Xx-Guide CD.

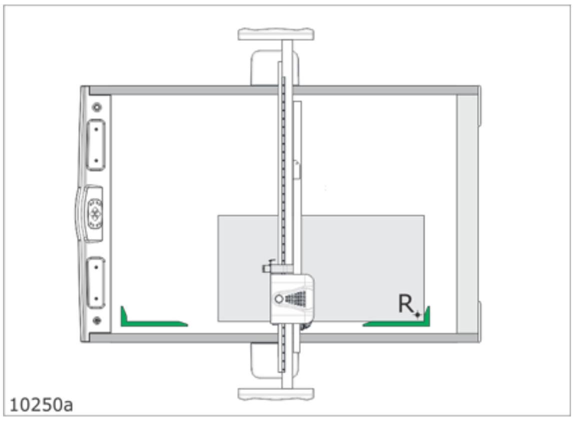
9.11. Make a Pen Plot

Pen Plot without **Registration Marks** is straight forward following the procedure described in the *Prepare for a Job* - chapter.

Ensure the **Ballpoint Pen** is clean and ready to use.

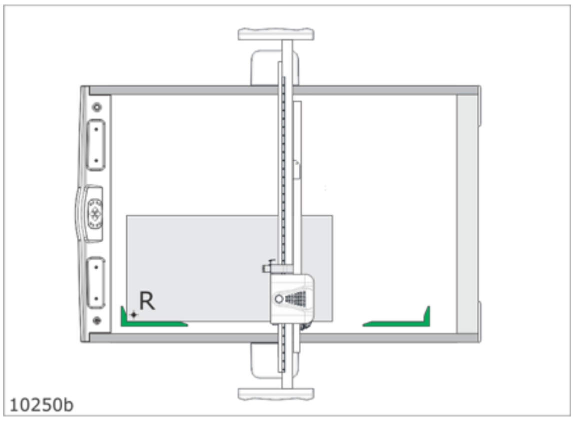
10. How To Procedures, Advanced

10.1. Jobs including Reverse Score



Step 1 - the sheet is aligned towards the **Right Ruler**.

Reverse Operations are completed.



Step 2 - the sheet is aligned towards the **Left Ruler**.

A typical use of **Reverse Score** is when you want to add a **Crease** line on the front side of a material that you normally prepare from the rear side.

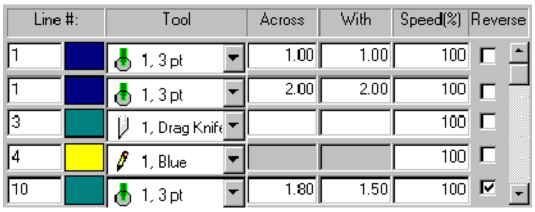
Reverse Score is available by modifications of the actual **Job Setup**.

This function requires that the table is equipped with **Left and Right rulers**.

Proceed as follows:

1. Open the **Job Setup** file for editing.
2. Identify line for reverse score or add a line for this function.
3. Open the More dialog for this line, enable **Reverse Score**.
4. When executing the job with this **Job Setup** selected, the **Reverse Score** function will be carried out for the specified logical tool(s).
5. Follow the instructions displayed when executing the job.

The picture shows a **Job Setup** with reverse creasing with logical tool no 10:



Line #:		Tool	Across	With	Speed(%)	Reverse
1	🟦	1, 3 pt	1.00	1.00	100	☐
1	🟦	1, 3 pt	2.00	2.00	100	☐
3	🟩	1, Drag Knif			100	☐
4	🟨	1, Blue			100	☐
10	🟩	1, 3 pt	1.80	1.50	100	☑

10.2. Different Reference Point settings

To define or modify reference point settings, go to the *Set Reference point wizard*.

Reference points are selected from the **Job View Toolbar**.

10.3. Change Tool in a Job

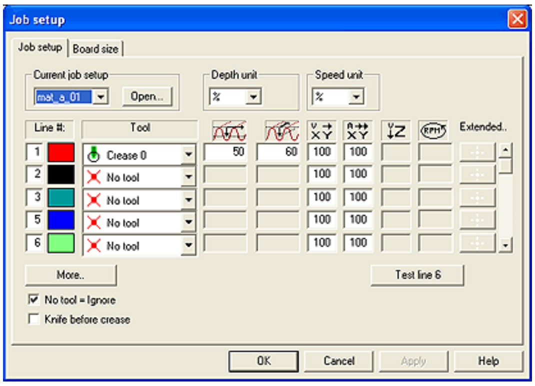
Sometimes, you would like more tool combinations than available in the tool head.

This document describes through one example how this can be solved by using two different job setup files:

You have a job where you want to run P1 with a crease tool and P2 with a knife tool.

Due to other required tool combinations, it is not possible to have those two tools mounted at the same time.

Run P1 using the first job setup file. This job setup file specifies running P1 with the crease tool and ignore data for P2:



Current job setup: mat_a_01

Depth unit: %

Speed unit: %

Line #:		Tool							Extended..
1	🟥	Crease 0	50	60	100	100			
2	■	No tool			100	100			
3	■	No tool			100	100			
5	■	No tool			100	100			
6	🟩	No tool			100	100			

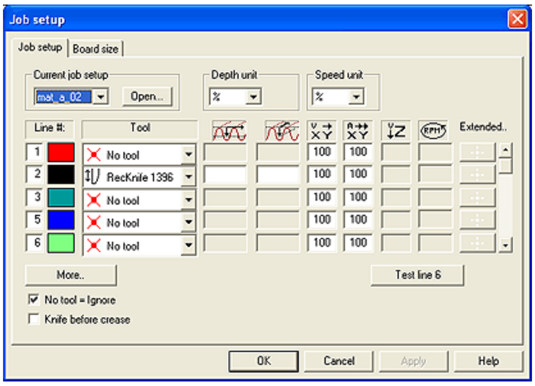
☑ No tool = Ignore

☐ Knife before crease

Insert the crease tool in the tool head and run the job.

Run P2 using the second job setup file.

This job setup file specifies running P2 with the knife tool and ignore data for P1:


Job setup
Job setup
Board size
Open...
More..
Test line 6
OK
Cancel
Apply
Help

Current job setup: mat_a_02

Depth unit: %

Speed unit: %

Line #:		Tool							Extended..
1	🟥	No tool			100	100			
2	⬛	RecKnife 1396			100	100			
3	🟦	No tool			100	100			
5	🟦	No tool			100	100			
6	🟩	No tool			100	100			

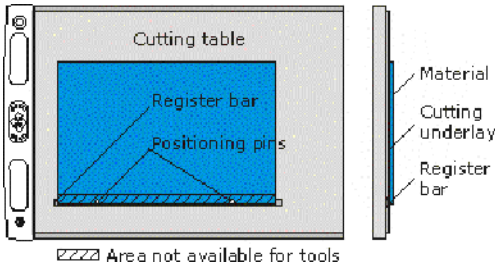
☑ No tool = Ignore

☐ Knife before crease

Insert the knife tool in the tool head and run the same job.

10.4. Work with Register Bar

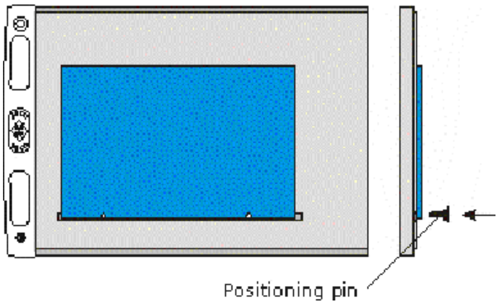
The **Register Bar** is an aid when the material needs registrations that fits the requirements of a specific printing press or die cutter.


Cutting table
Register bar
Positioning pins
Material
Cutting underlay
Register bar
Area not available for tools

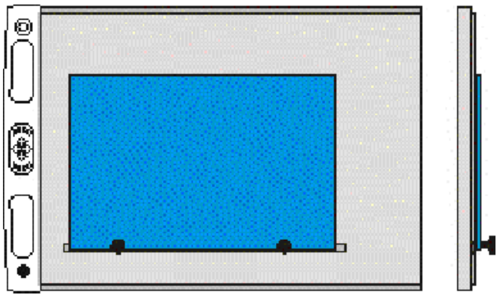
On XN, the register bar is mounted along the X - axis as illustrated at left.

- Register bar - Register bar fixed to the table.
- Material - Sheet of material with pre-punched holes that fit the Positioning pins on the Register bar.
- Positioning pins. Use these pins to fix the sheet of material in a correct position on the table. When the sheet is fixed and vacuum is switched on, you must remove the pins.
- Cutting underlay - Cutting underlay.
- Area not available for tools - This area is outside the working area of the machine.

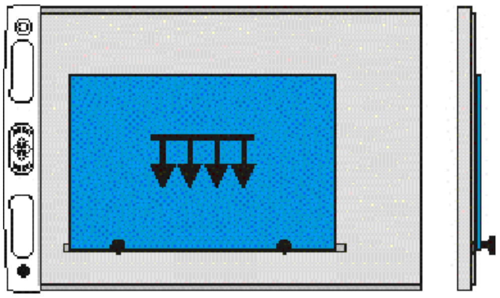
Work Flow


Positioning pin

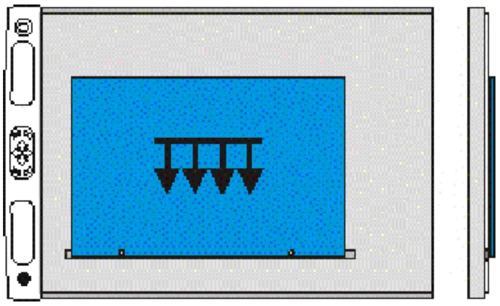
- Place the sheet of material onto the cutting table and align the holes in the material with the positioning pin holes.
- Insert the positioning pins.



- When both positioning pins are in place, the sheet is correctly positioned.



- Switch *Vacuum on*.

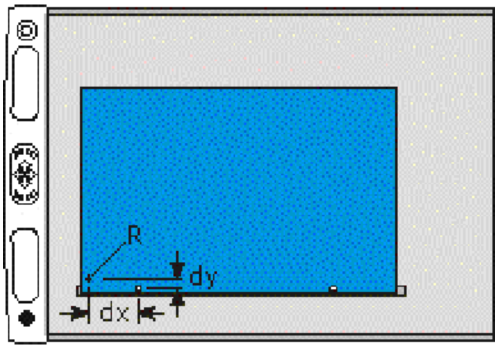


IMPORTANT:

Remove the Positioning pins.

Now, the machine is ready for operation.

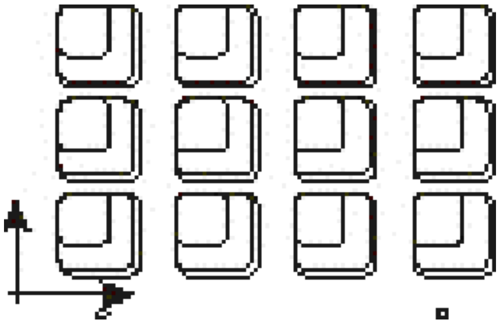
Reference point setting



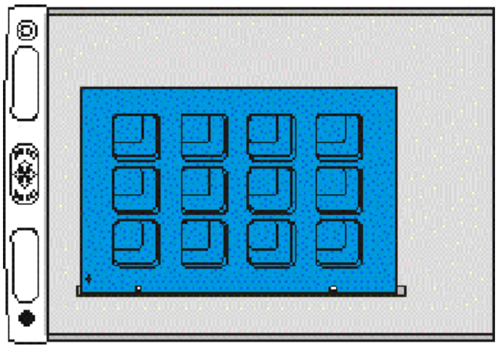
When working with register bar, select one of the available Reference points

(**Option->Table options**) and set a reference point in a fixed position relative to one of the Positioning pins (R in the illustration).

This position should be used as origin during geometry design and CAM file generation.



When preparing the job in the CAD - system, use the same Reference point as origin.



This work flow ensures exact positioning of the geometry relative to the Positioning pins.

11. System Setup

11.1. Introduction

This chapter will explain functions and parameters that are important for the **XE-system** to run properly.

Examine each step carefully to ensure proper settings:

One time adjustments completed at the factory

To be repeated if necessary.

1 *Adjust X1 to X2 Angle*

2 *Register Table Size*

3 *Set Ruler Position*

4 *Set Main Reference Point*

5 *Map Table Top Surface*

6 *Vacuum Setup*

Adjustments to customize the table

1 *Set Reference Point*

2 *Set Table Speed*

3 *Set Table Acceleration*

4 *Jog Settings*

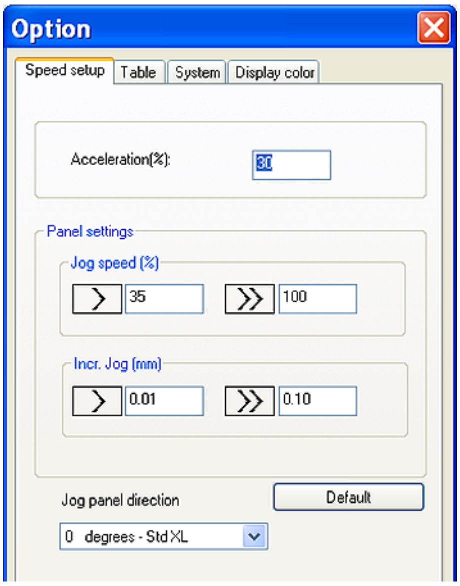
5 *Set Table Top Reference*

7 *Board Size*

11.2. Speed Setup

Main Menu->**Options**->**System Option**->**Speed Setup**

Ctrl+Alt+O


Option
Speed setup
Table
System
Display color
Panel settings
Default

Acceleration(%): 30

Jog speed (%): 35, 100

Incr. Jog (mm): 0.01, 0.10

Jog panel direction: 0 degrees - Std XL

11.3. Table Acceleration

Options->**System Option**->**Speed Setup**->**Acceleration**

Use this setting to reduce the overall acceleration on the machine.

11.4. Table Speed

Select between High Quality, Normal or High Speed mode (**Options**->**System Option**->**System**).

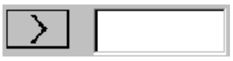
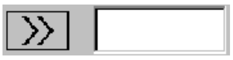
In **Job Setup**, reduce the speed for the actual line.

11.5. Jog Settings

Continuous Jog speed

Options->**System Option**->**Speed Setup**->**Jog Speed**

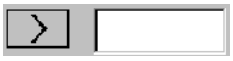
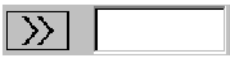
The **Continuous Jog Speed** can be reduced to a % value of the maximum jog speed:

	Enter the wanted value in the low **Jog Speed** edit box.
	Enter the wanted value in the high **Jog Speed** edit box.

Incremental Jog Step Size

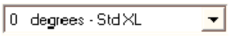
Options->**System Option**->**Speed Setup**->**Incr. Jog**

The size of the **Incremental Jog** movements can be customized.

	Enter the wanted value in the short **Jog Increment** edit box.
	Enter the wanted value in the long **Jog Increment** edit box.

Jog Directions

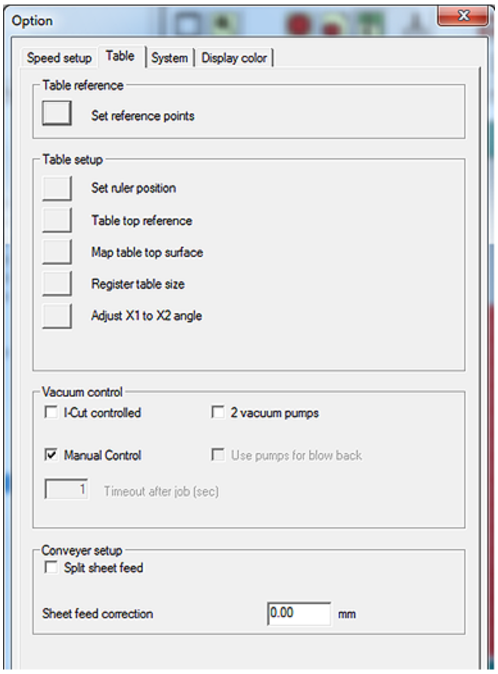
Options->**System Option**->**Speed Setup**->**Jog Panel Direction**

 0 degrees - Std XL	Specify jog direction for the ***Manual Jog*** joystick on the **Operator Panel**.

11.6. Table Setup

Main Menu->Options->Table Option

CTRL+R


Option
Speed setup
Table
System
Display color
Table reference
Set reference points
Table setup
Set ruler position
Table top reference
Map table top surface
Register table size
Adjust X1 to X2 angle
Vacuum control
Conveyer setup

☐ I-Cut controlled
☐ 2 vacuum pumps
☑ Manual Control
☐ Use pumps for blow back
1 Timeout after job (sec)
☐ Split sheet feed
Sheet feed correction 0.00 mm

11.7. Set Reference Point

Main Menu->Options->Table Option->Set Reference point

Use this wizard to establish Reference Points.

The **Main Reference Point** is a fixed position on the **Cutting Table** marked as a cross of drilled holes.

The Set Reference point wizard is an aid for adding or changing the table reference points.

Procedure:

Press the Set Reference Points button to set up any fixed reference points.

Follow the instructions given by the wizard and define the number of fixed references you want.

As many as 10 points can be defined.

Click the OK button.

i-cut Main reference

Press this button to establish the correct Main reference point for i-cut operations.

11.8. Set Ruler Position

Main Menu->Options->Table Option->Set Ruler position

If your table is equipped with **Rulers**, please complete the wizard for Left and **Right Ruler**.

For the table to operate properly an exact registration of the **Ruler Positions** is necessary. This is a one time job, but it can be necessary to repeat the procedure if mechanical maintenance has been carried out on the table or traverse.

Correct registration of the Right Ruler is required when Reverse Operations are carried out.

Procedure:

- Press the Set Ruler Position button.
- Follow the instruction given by the wizard and define the left ruler position.
- Repeat the procedure for the right ruler.

11.9. Set Table Top Reference

Main Menu->Options->Table Option->Set Table Top Reference

Use this function to complete a Tool Height Reference calibration.

The Tool Height is measured in current position and the reference to the table top surface is updated.

The **Table Top Reference** function should be carried out:

- After mechanical adjustments of traverse or tool head.
- When cutting through material is not working properly.
- After any change of cutting / milling underlay, for instance, after adding or removing the milling underlay.

Procedure:

1. Remove all materials from the table surface.
2. The cutting underlay remains in place.
3. If the table is equipped with a conveyor belt, avoid measuring directly on the belt junction.
4. Execute the **Table Top Reference** function.
5. In the wizard, press OK to start measurement.

11.10. Map Table Top Surface

Main Menu->Options->Table Option->Map Table Top Surface

To assure correct **Cutting Depth**, the surface of the **Table Top** is measured in order to create a map.

It is recommended to execute this function if the **Cutting Mat** is worn out and after the **Cutting Mat** has been replaced.

Procedure:

1. If the table is equipped with a **Conveyor Belt**, move the belt junction away from the table surface.
2. Execute the **Map Table Top** function.
3. Follow the instructions given by the wizard.

11.11. Register Table Size

Main Menu->Options->Table Option->Register Table Size

This wizard moves the **Tool Head** from edge to edge of the **Cutting Table** in order to measure the table size.

This registration is normally done just once.

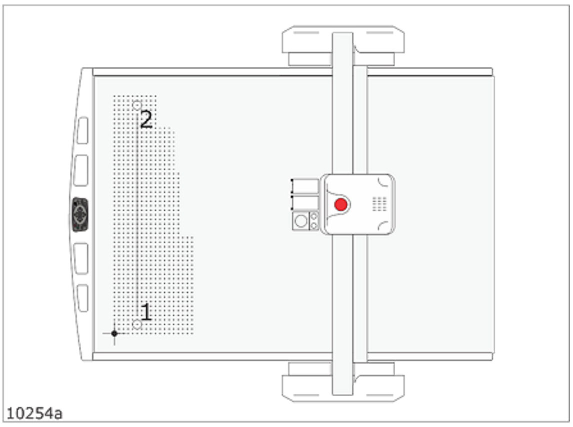
Procedure:

1. Execute the **Register Table Size** function.
2. Follow the instruction given by the wizard.

11.12. Adjust X1 to X2 Angle

Main Menu->Options->Table Option->Adjust X1 to X2 Angle

Use this wizard to obtain correct angle between X axis and Y axis.



Procedure:

1. Execute the **Adjust X1 to X2 Angle** function.
2. Follow the instructions exactly as given by the wizard.

Note: Select a set of drilled vacuum holes (1 and 2) in the **Table Top** as reference.

11.13. Vacuum Control

Options->**System Option**->**Table Setup**->**Vacuum Control**

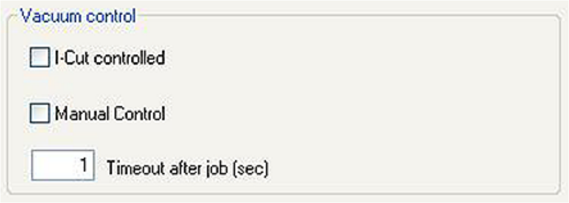
Note: Vacuum quick release and vacuum section selection will not work before the Vacuum push-button on the **Operator Panel** has been operated once.

Vacuum control modes

Two control modes are available, selectable from the dialog:

- Disable 'I Cut controlled' function to select Xx vacuum control.
- Enable 'I Cut controlled' function to select i-cut vacuum control.

XE vacuum on/off control


Vacuum control

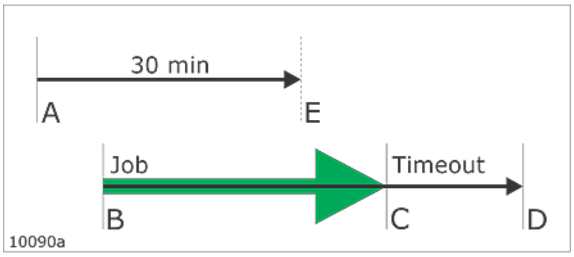
☐ I-Cut controlled

☐ Manual Control

1 Timeout after job (sec)

Two modes of vacuum control is available:

- Manual (the **Manual control** function is enabled): Vacuum on / off is controlled from the Vacuum push-button on the **Operator Panel**.
- Automatic (the **Manual control** function is disabled). The function is illustrated as follows:



A	Vacuum is switched on using the *Vacuum on* push-button. If no job is started within 30 min. after the vacuum is switched on, the vacuum pump is switched off automatically (E).
B	A job is started. The vacuum pump will be started automatically.
C	The job is finished.
D	The vacuum pump is switched off a time 'Timeout' after the job is finished. The time is entered in the Vacuum control dialog shown above.

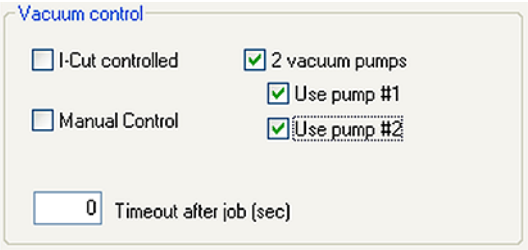
i-cut vacuum control

Pressing the Vacuum on pushbutton will start the vacuum pump.

Pressing the button a second time will stop the pump.

Note: When running i-cut, the 'i-cut vacuum control' should be enabled.

Using two vacuum pumps



Vacuum control

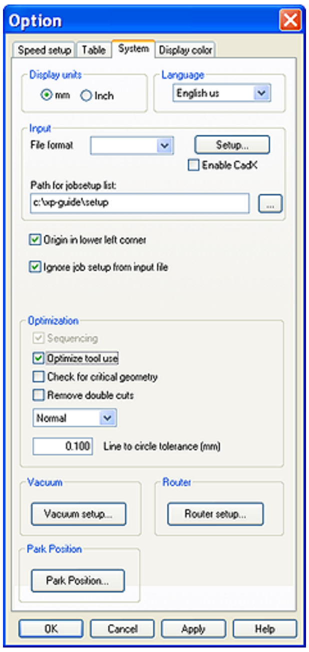
☐ I-Cut controlled
☑ 2 vacuum pumps
☑ Use pump #1
☐ Manual Control
☑ Use pump #2
0 Timeout after job (sec)

If your machine is equipped with two vacuum pumps (option), a pump enable / disable setting is available:

- Enable **2 vacuum pumps**
- Select if pump 1 or pump 2 or both should start when *Vacuum on* is pressed.
- If both are selected, start of the second pump will be delayed.

11.14. System Options

➡	**Main Menu**->**Options**->**System Option**->**System**
➡	Ctrl+Alt+O


Option
Speed setup
Table
System
Display color
Setup...
...
Vacuum
Vacuum setup...
Router
Router setup...
Park Position
Park Position...
OK
Cancel
Apply
Help

Display units: ● mm ○ Inch

Language: English us

Input

File format:

☐ Enable CadX

Path for jobsetup list: c:\xp-guide\setup

☑ Origin in lower left corner

☑ Ignore job setup from input file

Optimization

☑ Sequencing

☑ Optimize tool use

☐ Check for critical geometry

☐ Remove double cuts

Normal

0.100 Line to circle tolerance (mm)

11.15. Display Units

Options->System Option->System->Display units

Select unit to be used for the GUI.

11.16. Language

Options->System Option->System->Language

Select language for the GUI.

11.17. Input File

Options->System Option->System->Input File format

Input file formats

Select one of the available formats in the drop down list.

ACM is the standard CAM format.

The formats available are:

File extension	Description
.acm	Kongsberg acm – format. This is the default input format for Kongsberg XP. Described in the Technical Reference manual for XP.
.plt	HPGL. Described in the Technical Reference manual for XP.
.dxf	DXF. See Appendix about DXF input tuning (193).
.ard	ArtiosCAD. See Appendix about the ArtiosCAD module CAD-X (193).
.cf2	CFF2. See Appendix about the ArtiosCAD module CAD-X (193).
.ddes	DDES. See Appendix about the ArtiosCAD module CAD-X (193).

Standard file extensions will be automatically recognized.

Setup

Enter this dialog for advanced input file format setting.

For ACM and HPGL, use the setup dialog to specify the programming increment for the input file.

For DXF, CFF2, DDES, ARD, see ArtiosCAD User manual for more information.

Enable CAD-X

CAD-X enabled allows for the following input formats in addition to the formats mentioned above: DXF, CF2, DDES, ARD.

If none of these formats are used, leave the function disabled.

Origin in lower left corner

Causes the entire input file coordinates to be offset, using the lower left corner of the job as reference.

The lower left corner of the job will now always be in the selected Reference Point.

Note! i-cut and ArtiosCAD users should leave this function OFF.

Ignore Job Setup from Input file

Inside an Input File, it is possible to specify a Job Setup file to be used during program execution.

Enable this function to ignore the specified Job Setup file.

Note: Most CAD systems do not add Job Setup file information to the Input File.

11.18. Optimization

Options->**System Option**->**System**->**Optimization**

Sequencing

This function will sort the input file in order to minimize tool changes.

The execution order will be determined by the tool type, so that pen is executed before crease which is executed before knife.

Some functions depends upon sequencing being active, as reverse score.

Note! i-cut and ArtiosCAD users should leave this function OFF.

Optimize tool use

This function will reduce the movement with tool up to a minimum, making the execution on the table as fast as possible.

Note! i-cut and ArtiosCAD users should leave this function OFF.

Check for critical geometry

Optimizes cut directions for reduced paper tear hazards.

Note! i-cut and ArtiosCAD users should leave this function OFF.

Remove double cuts

This function will remove any double cuts.

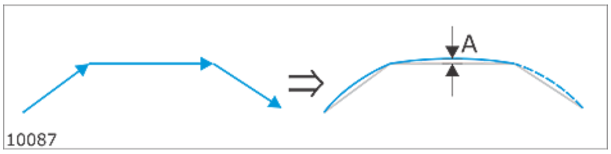
Used together with the **Job Layout** function.

High Quality, Normal , High Speed

Select mode of operation.

This setting will have impact on the performance regarding speed and quality.

Line to circle tolerance



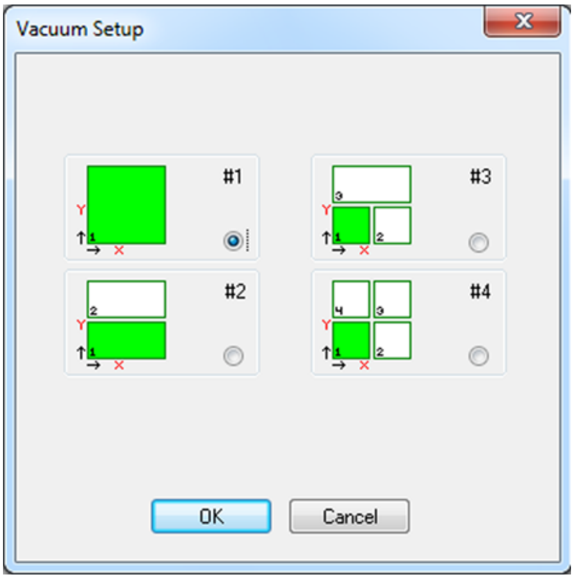
Specifies the maximum allowed arrow height A when straight lines are converted to circles.

Maximum allowed arrow height value is 0.2 mm / 0.08 inch.

This setting will have impact on the performance regarding speed and quality.

11.19. Vacuum Setup

11.19.1. Vacuum Section Configuration



Pressing the **Vacuum Setup** - button opens up a new dialog where the vacuum section configuration for the actual machine is specified.

This setup is a one-time job as long as the vacuum section solution on the machine remains un-changed.

The setup should correspond to the actual hardware.

The selected setup will determine which vacuum section configuration that will be available in the user interface.

11.20. Park Position

Options->**System Option**->**System**->**Park Position**

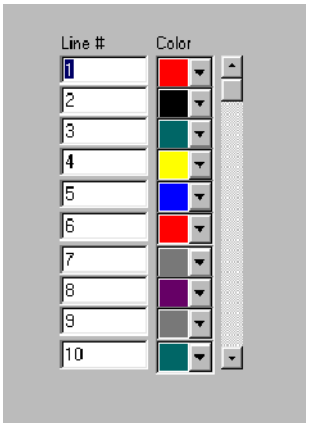
The following functions are available:

Park position from file	The park position is specified in the CAD system and transferred to XL via the input file.
Go to reference point after job	Move to the selected reference point after job finished.
Selectable park position	Enter co-ordinates (X,Y) for the park position. The co-ordinates are relative to the selected reference point.

●	Set park position in current position. Press this button to established a park position in current laser pointer position.
Park position at end of job	The park position is in the lower right corner of the rectangle enclosing the job.

11.21. Display Color

➡	**Options**->**System Option**->**System**->**Display Colors**



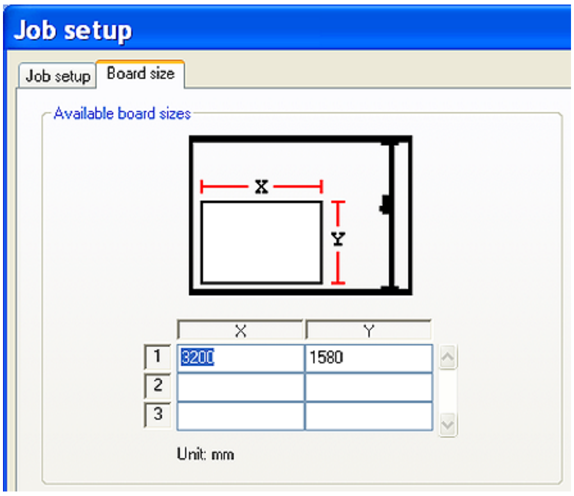
Line #	Color
1	🟥
2	⬛
3	🟩
4	🟨
5	🟦
6	🟥
7	⬜
8	🟪
9	⬜
10	🟩

This dialog defines what colors to be used for each line in **Job Setup** when a job is displayed in **Job View**.

Colors are changed by clicking on any of the combo boxes and selecting the wanted color. Additional lines can be added at the bottom of the list.

11.22. Board Size

➡	Main Menu->Options->Board Size setup
	Job View Toolbar->Board Size
➡	Pop-up dialog in Job View
➡	Ctrl + J



	X	Y
1	3200	1580
2		
3		

The list of available board sizes is maintained from the Board size dialogue.

To edit already defined boards, edit the values directly in the table.

To add new boards, go to the last line in the table and add the new material to the empty line.

Press the Apply button to save the new values.

Select the right board size from the Job View->Board Size drop down list.

This will ensure a correct size of the displayed board in Job View.

11.23. Change Flute/grain direction

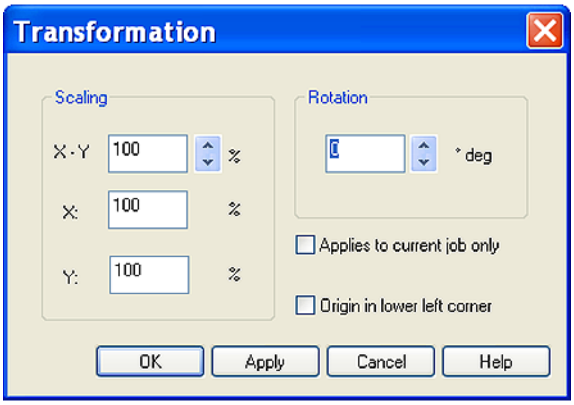
Flute / grain direction is altered from:

➡	Main Menu->Options->Toggle Flute Direction
↕ ↔	Job View Toolbar->Toggle Flute Direction
➡	Pop-up dialog in Job View
➡	Ctrl + F

Correct setting of flute / grain direction is important in order to obtain correct cutting/creasing depth.

11.24. Transformations

➡	Main Menu->Options->Transformation
➡	Pop-up dialog in Job View
➡	Ctrl + Alt + T



X-Y: 100 %

X: 100 %

Y: 100 %

Rotation: 0 ° deg

☐ Applies to current job only

☐ Origin in lower left corner

Scaling X/Y

Enter a % value in the edit box to scale the design.

A value less than 100 will decrease the size, and a value greater than 100 will increase the size of the design.

Use the Up/down arrows to step the scaling in steps of 10%.

Scaling X, Scaling Y

Enter a % value in the edit boxes to perform differential scale of the design.

Note:

Unfortunately, the picture in Job view does not show the design with differential scaling, only common scaling. But the result on the table is according to the input.

Rotation

Enter a rotation degree value in the edit box to rotate the design.

See table below for simple rotation angle calculation.

Use the Up/down arrows to step the rotation in steps of 90 degrees.

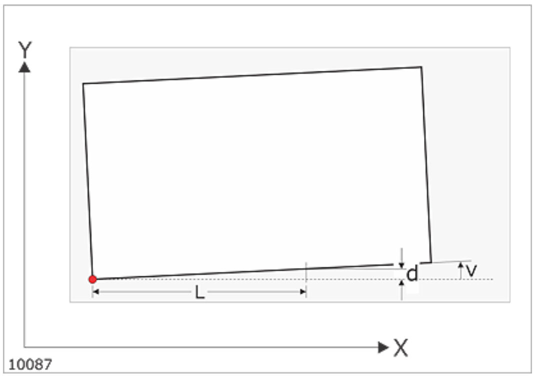
Example:

A value of 90 will rotate the design 90 degrees in counter clock wise direction.You can enter both + and - values.

Current Job Only

Check this box to make these transformations valid for the current selected input file only.

Rotation angle calculation



Use the table below to calculate the angle from a simple measurement.

In a distance L from the lower left corner, measure the deviation from the horizontal line (d).

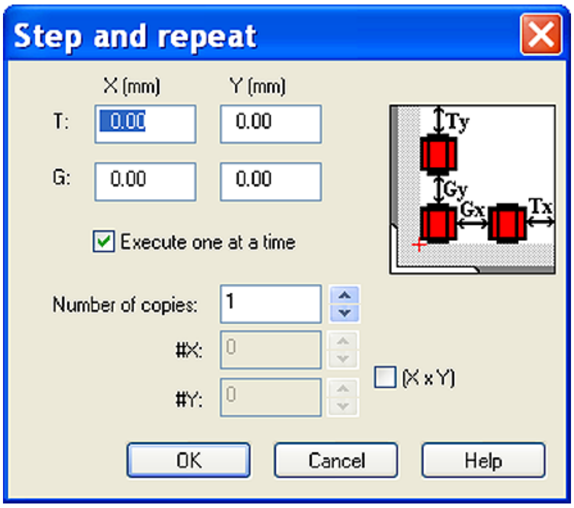
Find the corresponding d – value in the table below and read the angle v in degrees.

L = 1 m / 40 inches.

d (mm)	v (deg)	d (mm)	v (deg)	d (in)	v (deg)	d (in)	v (deg)
0,5	0,029	20	1,146	1/64	0,022	21/32	0,940
1	0,057	21	1,203	1/32	0,045	11/16	0,985
1,5	0,086	22	1,260	1/16	0,090	23/32	1,029
2	0,115	23	1,318	3/32	0,134	3/4	1,074
3	0,172	24	1,375	1/8	0,179	25/32	1,119
4	0,229	25	1,432	5/32	0,224	13/16	1,164
5	0,286	26	1,489	3/16	0,269	27/32	1,208
6	0,344	27	1,547	7/32	0,313	7/8	1,253
7	0,401	28	1,604	1/4	0,358	29/32	1,298
8	0,458	29	1,661	9/32	0,403	15/16	1,343
9	0,516	30	1,718	5/16	0,448	31/32	1,387
10	0,573	31	1,776	11/32	0,492	1	1,432
11	0,630	32	1,833	3/8	0,537	1 1/8	1,611
12	0,688	33	1,890	13/32	0,582	1 1/4	1,790
13	0,745	34	1,947	7/16	0,627	1 3/8	1,969
14	0,802	35	2,005	15/32	0,671	1 1/2	2,148
15	0,859	36	2,062	1/2	0,716	1 5/8	2,326
16	0,917	37	2,119	17/32	0,761	1 3/4	2,505
17	0,974	38	2,176	9/16	0,806	1 7/8	2,684
18	1,031	39	2,233	19/32	0,850	2	2,862
19	1,088	40	2,291	5/8	0,895		

11.25. Step and Repeat

▦	Job View Toolbar->Step and Repeat
➡	Pop-up dialog in Job View



Step and repeat

	X (mm)	Y (mm)
T:	0.00	0.00
G:	0.00	0.00

☑ Execute one at a time

Number of copies: 1

#X: 0

#Y: 0

☐ (X x Y)

Use this function to create multiple copies of a job.

T - Trim (distance from sheet edge).

G - Gap (distance between each item).

Execute one at a time

This function depends upon Sequencing being enabled.

When enabled, one and one design is completed.

If disabled, all crease lines in all designs are completed before the knife lines are carried out.

(XxY)

The Step and Repeat layout is available in two modes, determined by the (XxY) check box:

(XxY) disabled

Select a suitable board size, and specify the number of copies in the Number of Copies edit box.

The number of copies will be distributed on the specified board with Y-axis priority, that is, one Y-column of jobs will be filled up before a new one is established.

(XxY) enabled

You specify the number of copies in the #X and #Y edit boxes.

The total number of copies will be X x Y.

The job will be distributed in X columns and Y rows regardless the size of the board.

The Execute one at a time checkbox determines whether each copy should be completed before moving on to the next.

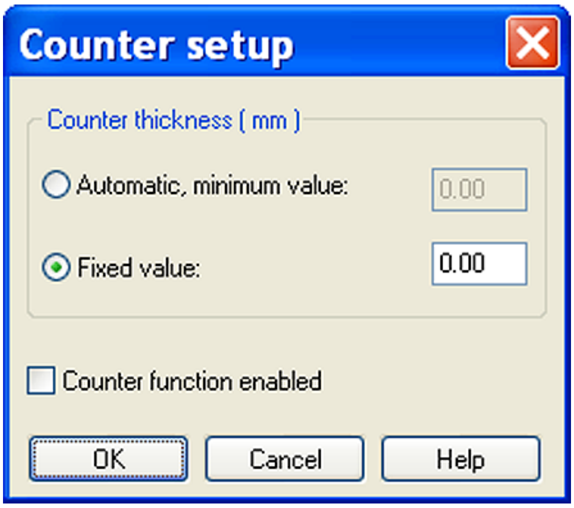
Alternatively, all crease operations for all copies are completed before moving on to knife operations, and so on.

Note: If Sequencing is disabled, job execution will be as Execute one at a time.

11.26. Counter setup dialog

➡	Main Menu->Options->Counter Setup
	File View Toolbar->Matrix

This function is available when Application is set to Folding Carton.



Counter setup

Counter thickness (mm)

○ Automatic, minimum value: 0.00

● Fixed value: 0.00

☐ Counter function enabled

The Counter function is used when the job is executed on top of a matrix.

The purpose of this function is to avoid cutting through the matrix.

Counter thickness, Automatic, minimum value

Used when the thickness of the matrix and the material to be cut is equal.

The thickness of the matrix and the material will be measured.

The cutting depth is set to the half of the measured value.

If the matrix thickness in this manner becomes less than the minimum value specified, the value specified will be used.

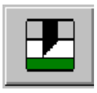
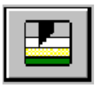
The minimum value should be within 0.1 - 8 mm (0.004 - 0.3 ").

Counter thickness, fixed value

The specified value is used as the matrix thickness. The fixed value should be within 0.1 - 8 mm (0.004 - 0.3 ")

Counter function enabled

Use this check box to enable/disable the counter function. The Matrix button in the File View toolbar will change face accordingly:

	The **Counter** function is available, but disabled.
	The **Counter** function is enabled.

12. Reference Points and Coordinate System

All X and Y coordinates in the Input File uses the selected Reference Point as origin.

Two modes of operation are available:

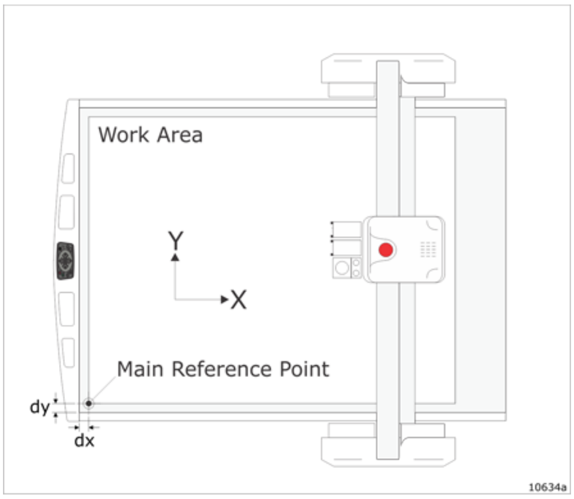
Fixed reference point

	Select a **Reference Point** from the **Select Reference point** drop down list.

Panel reference point

	• From the **Select Reference point** drop down list, select **Panel Ref Point**. • Position the Laser pointer at the desired reference point.
	• Press ***Init***.

The Main Reference point position



The fixed reference point number 1 is defined as the Main Reference point.

The other fixed reference points (2 – 10) are all specified relative to the Main reference point.

Thus, moving the Main reference point will move these reference points as well.

The Main reference point has to be correctly positioned in order to obtain:

- A full working area.
- Correct sheet feed operation.
- Correct handling of long jobs

Using the Main reference point during program execution ensures correct operation.

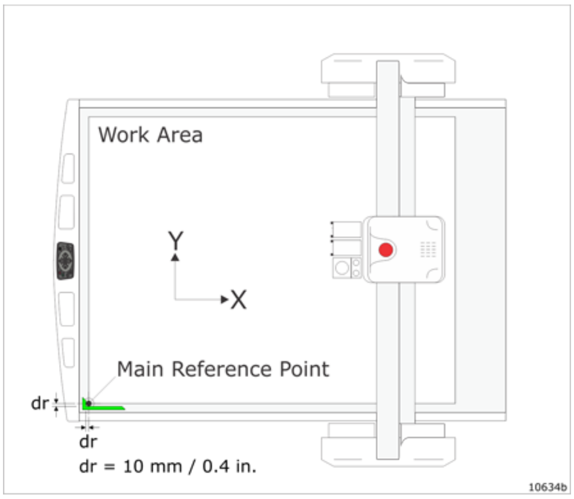
The Main Reference point for i-cut

For i-cut to run properly, the Main Reference point should be set in a specific position on the table, using i-cut reference point setting wizard (79).

After i-cut reference point setting, do not modify the position of the Main Reference point.

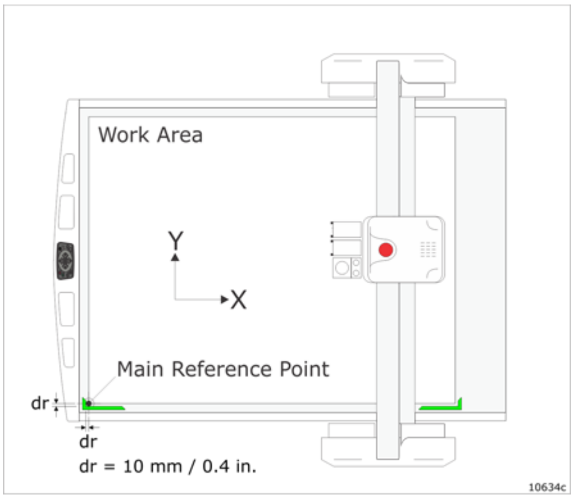
If you need a reference point in another position on the table, use one of the other reference points available (2 – 10).

Rulers and reference points


Work Area
Y
X
Main Reference Point
dr
dr
dr = 10 mm / 0.4 in.
10634b

The ruler system ensures an easy and correct positioning of the material on the table.

The Main Reference point shall be defined 10 mm inside the ruler.


Work Area
Y
X
Main Reference Point
dr
dr
dr = 10 mm / 0.4 in.
10634c

When you use the lower right ruler, the Reference Point will automatically be moved to an identical distance from the right ruler, as it is defined from the left ruler.

The lower right ruler is normally used for reverse score operations.

At the same time the direction of the X axis is reversed.

13. Job Setup

13.1. Introduction

Job Setup is a table that links Logical tool numbers (P - numbers) in the Input File to tools on the machine and describes their behavior.

The Job Setup information is stored as a file on the front end PC.

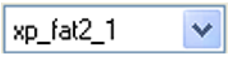
Notes

- All Job Setup files must have extension .mat
- All Job Setup files have the identifier FMT 2000 as the first line in the Job Setup file.

Typically, the Job Setup is different for the different materials used.

Therefore, it is recommended to have one Job Setup file for each material type used.

13.2. Select Job Setup files

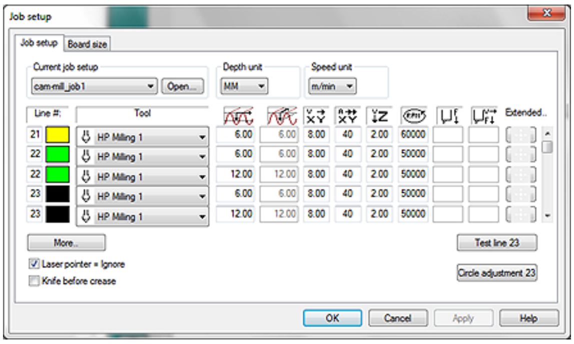
 xp_fat2_1	Select a **Job Setup** file from the drop down list in **Job View**.
	Invoke the **Job Setup** dialogue and select a **Job Setup** file from the drop down list in the dialogue.

13.3. Create and edit Job Setup files

The **Job Setup** dialogue is available from:

➡	**Main Menu->Options->Job Setup**
	The **Job View** tool bar button.
➡	Pop up menu in **Job View**

Ctrl + J



Job setup

Current job setup: cam-mill_job1

Depth unit: MM

Speed unit: m/min

Line #:		Tool									Extended..
21	🟨	HP Milling 1	6.00	6.00	8.00	40	2.00	60000			
22	🟩	HP Milling 1	6.00	6.00	8.00	40	2.00	50000			
22	🟩	HP Milling 1	12.00	12.00	8.00	40	2.00	50000			
23	⬛	HP Milling 1	6.00	6.00	8.00	40	2.00	50000			
23	⬛	HP Milling 1	12.00	12.00	8.00	40	2.00	50000			

☑ Laser pointer = Ignore

☐ Knife before crease

1. Job Setup is edited line by line. The parameters are described below.
2. When finished editing, use the Apply function to save to current or to a new file name.
3. Each line in Job Setup can be tested using the Test Line function. Follow the instructions in the dialog.

13.4. Job Setup Parameters

Depth unit

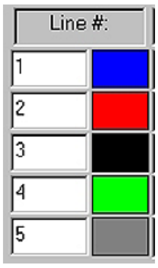
Specify if the depth unit is mm / inch or percentage (%).

Speed unit

Specify if the speed unit is mm/min / ips or percentage (%).

Line

Logical tools can be numbered from 1 to 99. A maximum of 30 logical tools are available.



Line #:	
1	🟦
2	🟥
3	⬛
4	🟩
5	▨

The color defined for each logical tool is displayed in **Job View** as shown.

The color for each logical tool number is specified in **Options->System Option**.

Tool

Select the tool to be used for this line from the drop down list.

Depth

Depth can be set either in mm/inch or in % of material thickness.Different values can be entered for With and Across the Flute.

	With the flute
	Across the flute

Entering a positive value specifies a depth measured from the top of the material, but:

- For knife cutting, a value = 0 specifies through-cut.
- For pen, crease, drill and router, a value = 0 specifies the top of the material.

If you specify a T+/- value, the value specifies a distance from the cutting underlay.

T0 specifies cutting or milling through the material down to the cutting underlay.

A positive T-value will increase the cutting / creasing depth.

Note: The T - function is available only when mm/inch is selected as depth unit.

X/Y speed

V → X Y	The speed can be reduced to an absolute value or to a percentage (%) of maximum speed, depending upon the 'Speed unit' setting. This value affects tool down movements only.

X/Y acceleration

A ↠ X Y	The acceleration can be reduced to a percentage (%) of the maximum acceleration. This value affects tool down movements only.

Z-axis Speed

V ↓ Z	The speed can be reduced to an absolute value or to a percentage (%) of maximum speed, depending upon the 'Speed unit' setting.

RPM

RPM	Specify RPM for the Milling tool.

Laser pointer = Ignore

This function specifies the behavior of lines with tool type 'No-tool':

Function disabled - the line is executed using laser pointer (verify mode).

Function enabled - the line is ignored during program execution (ignore mode).

Knife before crease

Use this function to force all knife movement to be executed before the crease movements.

Normally this option should be turned off.

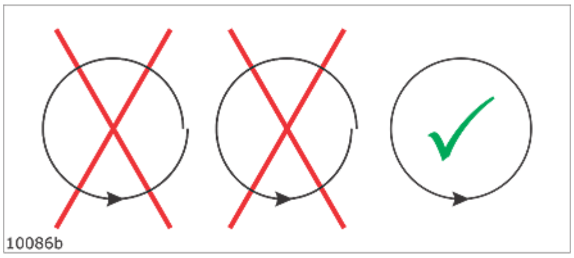
It is recommended to use this option if the crease lines are done with a V-Notch tool.

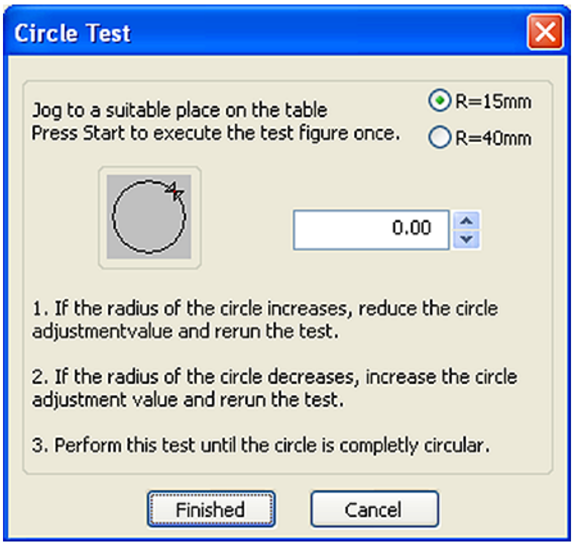
Test line n

Select this function to execute a test figure with the selected tool n. The figure executed is a square 40 x 40 mm (1.6 x 1.6 inches).

Use this function as a quick way to verify correct adjustments for the different tools.

Circle adjustment line n





Jog to a suitable place on the table
Press Start to execute the test figure once.

1. If the radius of the circle increases, reduce the circle adjustmentvalue and rerun the test.

2. If the radius of the circle decreases, increase the circle adjustment value and rerun the test.

3. Perform this test until the circle is completly circular.

The **Circle lag** parameter determines the quality of circles when cutting with knife.

The value will be different for different materials.

Complete this wizard to obtain a proper adjustment of the **Circle lag** parameter.

Select between two different circle sizes, R=15 and R=40 mm.

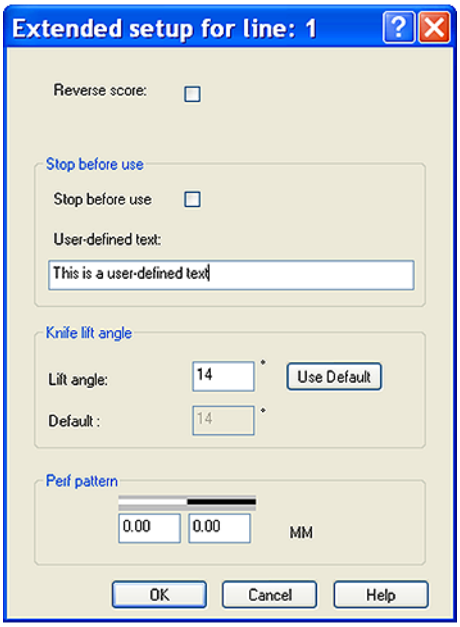
Note: We recommend that the **Circle lag** value is set to 0 before the first figure is executed.

13.5. Extended

For each line in Job Setup, an **Extended Setup** is available:

- This button face indicates that some of the extended parameters are set.

- This button face indicates that none of the extended parameters are set.



Extended setup for line: 1

Reverse score: ☐

Stop before use

Stop before use ☐

User-defined text: This is a user-defined text

Knife lift angle

Lift angle: 14 °

Default : 14 °

Perf pattern

0.00 0.00 MM

Reverse Score

Enable this check box to specify that the tool shall work on the front side of the material.

Stop Before Use

When this function is enabled, the execution will stop at the beginning of this line and an operator message is displayed.

The text to be displayed is entered into the User-defined text: – field.

Note:

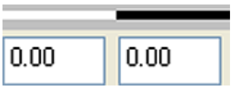
Enable Sequencing if **Stop before use** is used in combination with Multi-pass

Knife lift angle

If the change in direction is above this value (in degrees), the tool is lifted.

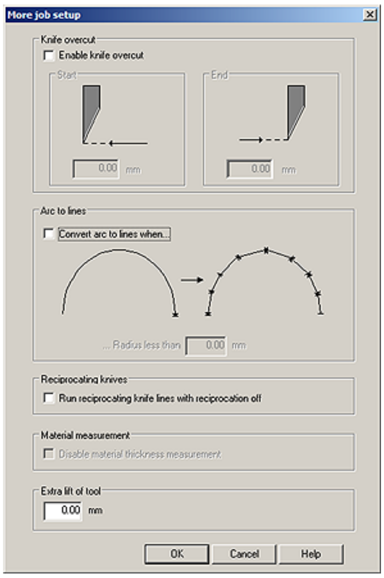
If the knife tool has a lag, the knife lift angle is 14 degrees.

Perf pattern

 0.00 0.00	Specify a perforating pattern in the two edit boxes. The first specifies a tool up length and the second a tool down length.

13.6. More

Job Setup->**More**



☐ Enable knife overcut

Start: 0.00 mm

End: 0.00 mm

☐ Convert arc to lines when...

... Radius less than 0.00 mm

☐ Run reciprocating knife lines with reciprocation off

☐ Disable material thickness measurement

Extra lift of tool: 0.00 mm

The following functions are available:

OverCut

Check this box to enable or disable the Knife Over-cut function.

Applies to knife tools only.

Specify the size of the over-cut at start and end of consecutive cut lines.

When the direction change between two consecutive lines is bigger than 13.5 degrees, an over-cut corner action is performed.

Arc to Line

Arc to Line will apply to knife tools only.

The radius is the maximum radius where the Arc to Line function will be executed.

In order to make a more correct cut this function will minimize angular and sideways forces onto the cutting knife.

This is achieved by splitting circles into straight line segments and turn the cut direction for each segment. Thus, the knife is lowered into the material where there is no cut before.

Reciprocating knife with motor off

To run the Reciprocating knife with motor switched off, enable the function: 'Run reciprocating knife lines with reciprocation off' .

Disable material thickness measurement

When this function is enabled, no material thickness measurement is carried out.

The following rules applies:

- In Job setup, the T – function must be used for depth settings.
- In Job setup, the Depths unit must be set to mm/inches (Percent not allowed).
- During tool up movements, the knife is lifted to its top position.

Note: This function is for knife tools only.

Extra lift of tool

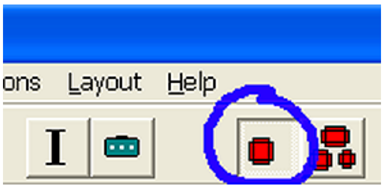
Add extra lift height to tools when moved in up position. Useful for warped boards or uneven surfaces.

14. Job Layout

14.1. Introduction

The system can operate in either **Single Design Layout** mode or **Multi Design Layout** mode

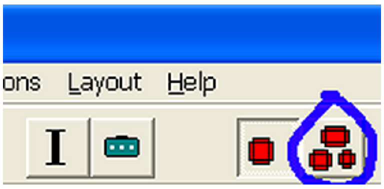
Single Design Layout



Press the Single Design Button to select **Single Design** layout mode.

When a design is opened in this mode it is always located relative the selected reference point. Only one design can be placed on the table. It can be further manipulated with **Rotation**, **Scaling** or with **Step and repeat**.

Multi Design Layout



Press the Multi Design Button to select **Multi Design** layout mode.

When a design is opened from File view, the first design will be located relative to the reference point as in single design layout. The following designs will be placed according to the settings of the Job Layout Snap function.

If a design is opened using drag and drop, it can dropped anywhere inside **Job View**.

The bar on top of **Job View** is showing the name of the selected design.

Notes:

- By using the Multi Design functions, you can locate your design anywhere inside the Job View area. The red and green “traffic light” will show if the work is inside the work area boundaries or not.
- A combination of Multi Design and ARS is not supported.

14.2. Multi design layout functions

Note: All functions described here are available from Main Menu->Layout and from the Pop-up menu in Job view.

Select a design

A selected design is always shown in pink.

After a design is opened it is always selected.

It can also be selected by clicking on a line in the design or holding the left mouse button down and drag a square over the designs to select.

Select all designs

All designs are selected with Ctrl+A or by selecting Select All from the menus.

Delete selected designs

Selected designs are deleted by pressing the Del key or by selecting Delete from the menus.

Delete all designs

All designs are deleted selecting the menu item Delete All.

Rotate selected designs

Selected designs can be rotated with the functions Rotate 90, Rotate 180 or Rotate.

Positioning selected designs with the mouse

Selected designs can be positioned by holding the left mouse button down on a selected element and move the mouse.

They can be dropped anywhere or snapped to existing designs depending upon the Snap function settings.

Positioning selected designs with the arrow keys

Selected designs can be positioned with keyboard arrows and placed in the JobView depending upon the Snap function settings. The step size is defined in Job Layout Setup->Nudge.

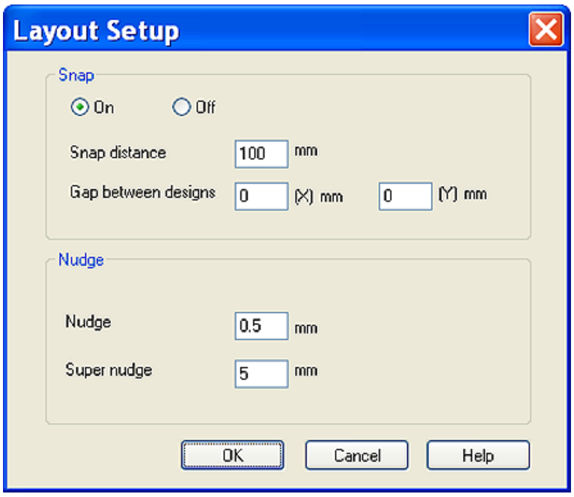
Step and repeat on selected designs

In Multi Design layout, Step and Repeat works on selected designs only.

14.3. Job Layout Setup

➡ **Main Menu->Layout**

Ctrl+L



● On ○ Off

Snap distance 100 mm

Gap between designs 0 (X) mm 0 (Y) mm

Nudge

Nudge 0.5 mm

Super nudge 5 mm

Snap

The snap function is turned on and off by ticking the radio buttons on and off.

Snap distance

When the snap function is on, a design will be snapped to another design if it is positioned closer than the snap distance.

Gap between designs

This parameter defines the distance between designs after a snap function is completed.

Nudge

Fine positioning with the arrow keys on the keyboard.

Nudge step

Defines the step the design is moved with when pressing an arrow key.

Super nudge step

Defines the step the design is moved with when pressing an arrow key together with the Shift key.

15. Tool Configuration and Adjustment

15.1. Combination of Tools

The XE / i-XE machine is equipped with two general tool positions. Some restrictions applies regarding the combination of different tools.

Use this cross-reference table to search possible combinations:

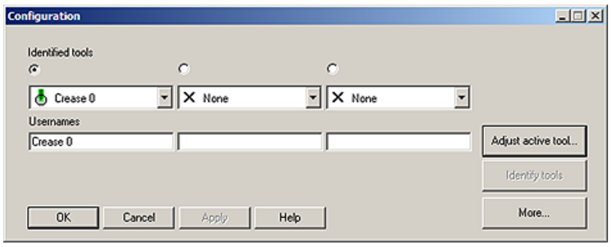
	PressCut	Static knife	HiForce knife	VibraCut knife	HF-VibraCut knife	Crease tool	VariCut	Pen tool	RotaCut	Meas. foot
PressCut	-	Yes	-	-	-	Yes	-	Yes	-	Yes
Static knife	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HiForce knife	-	Yes	-	-	-	Yes	-	Yes	-	Yes
VibraCut knife	-	Yes	-	-	-	Yes	-	Yes	-	Yes
HF-VibraCut knife	-	Yes	-	-	-	Yes	-	Yes	-	Yes
Crease tool	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VariCut	-	Yes	-	-	-	Yes	-	Yes	-	Yes
Pen tool	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes
RotaCut	-	Yes	-	-	-	Yes	-	Yes	-	Yes
Meas. foot	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-

Note: Psaligraphy Knife tool is treated as a **Hi-Force Knife Tool**.

15.2. Tool Configuration

	Main Toolbar->**Tool Configuration**
➡	**Main Menu**->**Option**->**Tool Configuration**
➡	Ctrl + T

The Tool Configuration dialog is used for all tool settings and adjustments.



Identified tools
● Crease 0
○ None
○ None

Usernames
Crease 0

The **Tool Type** mounted is identified by hardware codes inside each tool.

Current tool configuration is displayed under **Identified tools**.

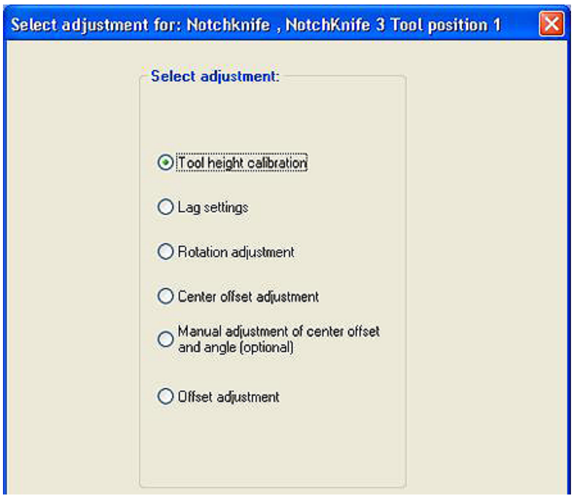
When a new tool is inserted, it will be identified to the system automatically.

By default, the system creates a username from the tool type and its serial number.

E. g. a knife with serial number 3020 will be named **Knife 20**

Use the Usernames edit boxes beneath each drop down box to give each tool a nickname you want to associate the tool with.

15.3. Adjust Active Tool



Select adjustment for: Notchknife , NotchKnife 3 Tool position 1

Select adjustment:

- ● Tool height calibration
- ○ Lag settings
- ○ Rotation adjustment
- ○ Center offset adjustment
- ○ Manual adjustment of center offset and angle (optional)
- ○ Offset adjustment

From the **Adjust Selected Tool** – dialog, all **Tool Adjustment Wizards** are executed.

The following procedures are general descriptions of how to adjust the tools.

See the description of each **Tool Type** for more specific information:

We recommend using a sheet of **Folded Carton** material, 5-6 mm / 0.2 inch, when executing the adjustments.

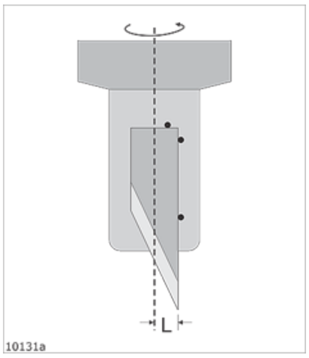
Note: All tools need to be adjusted in the position they will be used.

Before any adjustment, complete a **Table Top Reference** function.

➡	**Options**->**System Option**->**Table Setup**->**Table Top Reference**

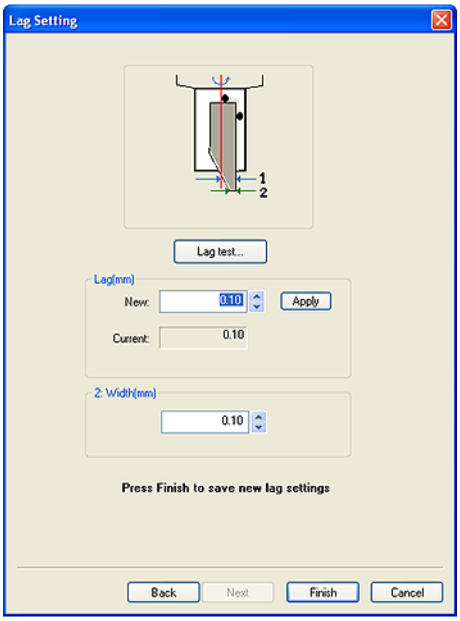
➡	**Main Menu->Machine->Table Top Reference**
⤓	**Machine Panel Toolbar**->**Table Top Reference**

15.4. Lag Settings (for Rotating Tools)



1. In the **Configure Tool dialog**, select the tool to be adjusted.
2. Press the **Adjust Active Tool** button to enter the **Wizard Selection dialog**.
3. Select **Lag Settings**
4. Follow the instructions given to enter correct values.
5. Repeat the procedure for all rotating tools.

Lag Setting



Lag(mm)

New: 0.10

Current: 0.10

2: Width(mm)

0.10

Press Finish to save new lag settings

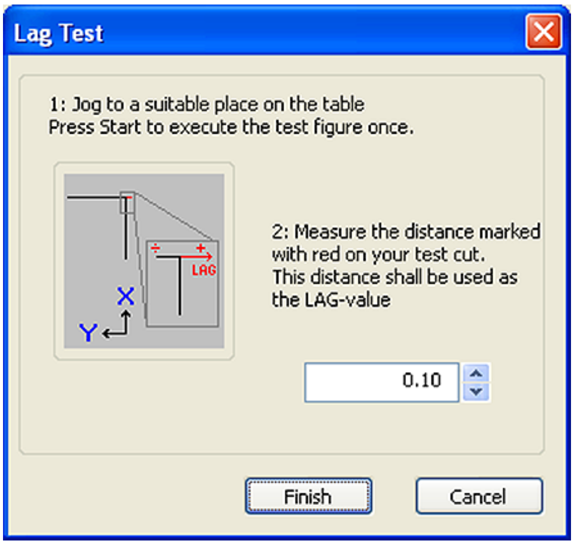
Lag – lag value. This is the distance from the rotation center to the back of the knife blade.

Enter the value as measured or as found using the Lag test, see below.

Width – knife bottom width

Enter the measured knife bottom width.

Lag Test


Lag Test

1: Jog to a suitable place on the table
Press Start to execute the test figure once.

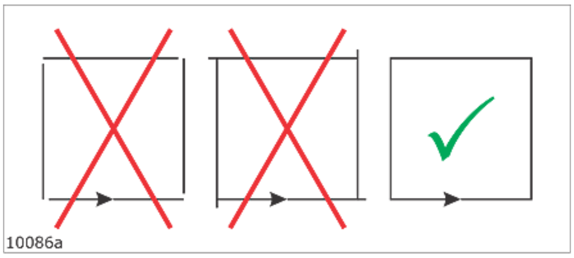
2: Measure the distance marked with red on your test cut.
This distance shall be used as the LAG-value

0.10

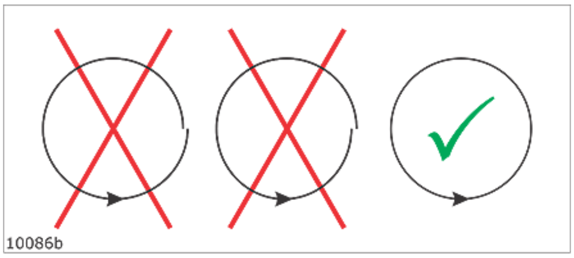
Run this wizard to obtain correct **Knife Lag** value.

Follow the instructions in the dialog.

Add the measured value to the displayed value.



Circle Lag



Circle quality is determined by a parameter called **Circle Lag**. The parameter value will vary depending upon the actual material.

Therefore, the adjustment is located in the **Job Setup** dialog.

15.5. Tool Height Calibration

C systems are equipped with **Automatic Tool Height Calibration**.

Thus, the system will run without any manual height calibration.

If you would like to add an offset to the measured height, use the **Tool Height Calibration** dialog:

1. Select the **Tool** to be adjusted

2. Press the **Adjust Active Tool** button to enter the wizard selection dialog.
3. Select **Tool Height Calibration**
4. Follow the instructions given by the wizard, step by step.
5. Repeat the procedure for all tools.

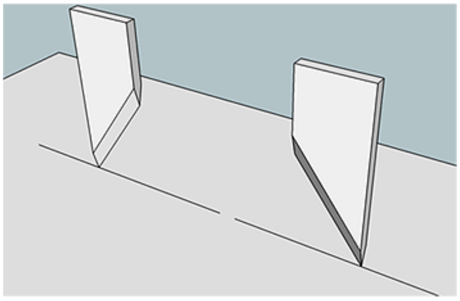
Typical use of this function is to add depth in order to ensure proper through-cut in difficult materials.

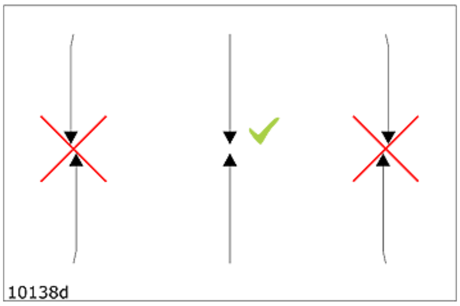
15.6. Rotation Adjustment (for Rotating tools)

Optimal **Angular Offset** may vary with different material strength and thickness.

The adjustment can be done using the adjustment wizards, or by a manual adjustment procedure:

Adjustment using Wizard





1. Select the **Tool** to be adjusted.
2. Press the **Adjust Active Tool** button to enter the wizard selection dialog.
3. Select **Rotation adjustment.**
4. Follow the instructions given by the wizard, step by step.
5. Repeat the procedure for all **Tools** mounted.

Manual Adjustment

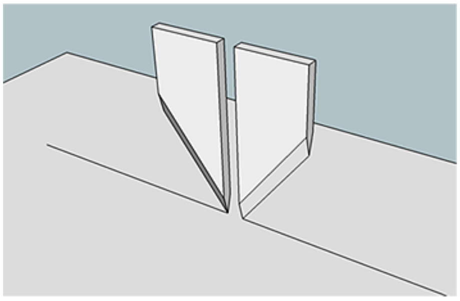
1. Place an appropriate test material on the table, and switch **Vacuum On**.
2. From **Tool Configuration** dialog, select one **Tool**.
3. Press **Adjust Active Tool** to enter the **Wizard Selection Dialog**.
4. Select **Manual Adjustment of Center Offset and Angle**.
5. Enter value for the **Angular Offset** and select **Activate**.
6. Note that the **Tool** will rotate as the new value is activated.
7. Press ***Tool Override Down***, and **Jog** approximate 10 cm to make a test cut.
8. Press ***Tool Override Down*** once more to lift the **Tool** again.
9. Press ***Tool Override Down*** once more to lower the **Tool** again.
10. Note how the knife enters into the material.
11. Press ***Tool Override Down*** once more to lift the **Tool** again.

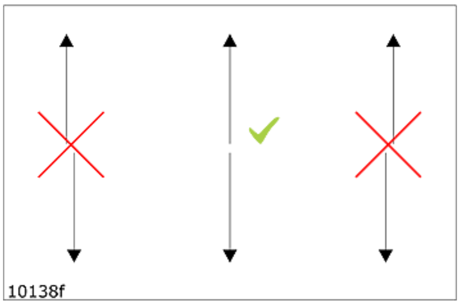
12. If knife enters exact into the cut, the angle is correct; select **Finish** to exit.
13. If seen in the cutting direction, the knife enters to the left of the cut, the **Angular Offset Value** should be decreased. Repeat from point 5.
14. If seen in the cutting direction, the knife enters to the right of the cut, the **Angular Offset Value** should be increased. Repeat from point 5.

15.7. Center Offset Adjustment

The adjustment can be done using the **Adjustment Wizards**, or by a **Manual Adjustment** procedure:

Adjustment using Wizards





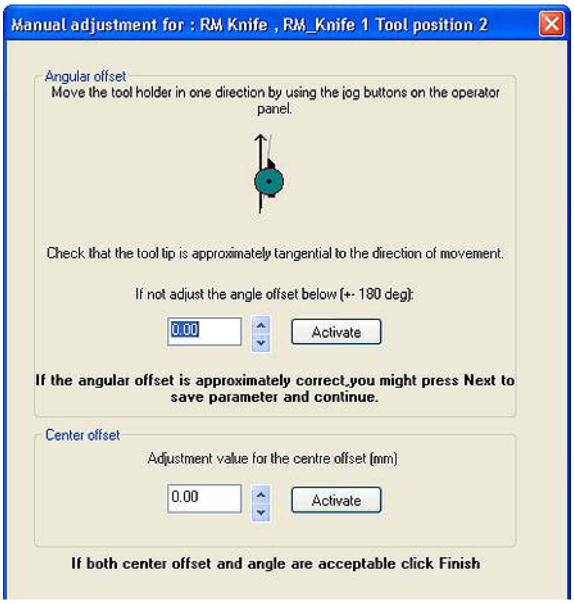
1. Put an appropriate test material, that means a thin paper on the table (any significant material thickness will create a misleading offset in this wizard).
2. Switch vacuum on.
3. Select the **Tool** to be adjusted.
4. Press the **Adjust Active tool** button to enter the wizard selection dialog.
5. Select **Center Offset Adjustment**.
6. Follow the instructions given by the wizard, step by step.
7. Repeat the procedure for all **Tools** mounted.

Manual Adjustment

1. Place an appropriate test material on the table, and switch **Vacuum On**.
2. From **Tool Configuration** dialog, select one **Tool**.
3. Press **Adjust Active Tool** to enter the **Wizard Selection Dialog**.
4. Select **Manual Adjustment of Center Offset and Angle**.
5. Enter value for the **Center Offset** and select **Activate**.
6. Note that the **Tool** will move as the new value is activated.
7. Press ***Tool Override Down***, and **Jog** approximate 10 cm to make a test cut.
8. Press ***Tool Override Down*** once more to lift the **Tool**.
9. Press the **Jog** button for the return direction shortly, just to turn the **Tool**.
10. Press ***Tool Override Down*** once more to lower the **Tool**, and **Jog** the same distance back.
11. Press ***Tool Override Down*** once more to lift the **Tool**.

12. The two cuts should follow exactly the same path.
13. If exact, the **Center Offset** is correct, select **Finish** to exit.
14. If not, modify the **Center Offset Value** and repeat from point 6.

15.8. Manual adjustment of Center Offset and angle



Manual adjustment for : RM Knife , RM_Knife 1 Tool position 2

Move the tool holder in one direction by using the jog buttons on the operator panel.

Check that the tool tip is approximately tangential to the direction of movement.

If not adjust the angle offset below (+- 180 deg):

0.00

If the angular offset is approximately correct,you might press Next to save parameter and continue.

Adjustment value for the centre offset (mm)

0.00

If both center offset and angle are acceptable click Finish

Sometimes, it might be necessary to fine-tune the adjustments obtained using the wizards.

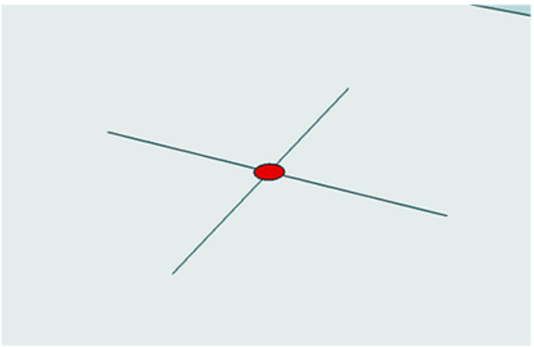
Use this dialog to modify the adjustment values for angle and center offset.

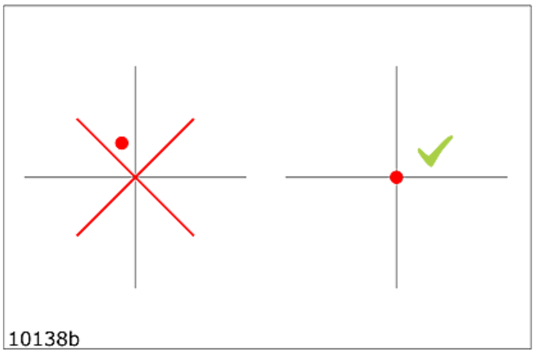
1. Select the tool to be adjusted.
2. Press the **Manual adjustment of....** button to enter the adjustment dialog.
3. Key in or use the up/down arrows to specify the wanted offset.
4. Press Activate to enter the value.
5. Test the new settings.

Note:

All tools should, by default, be close to correct angle when the adjustment value is 0. The Manual adjustment of.... function is useful if you want to test a tool for correct behavior before program execution.

15.9. Tool Offset





The **Laser Pointer** is the reference:

1. Place an appropriate test material on the table, and switch **Vacuum On**.
2. Select the **Tool** to be adjusted.
3. Press **Adjust Active Tool** to enter the **Wizard Selection Dialog**.
4. Select **Offset Adjustment**.
5. A cross is made by the **Tool** to be adjusted.
6. The **Laser Pointer** is positioned in the center of the cross.
7. If necessary, jog the **Laser Spot** into the center of the cross.
8. Follow the instructions given by the wizard, step by step.

15.10. Maintain Tool List (More...)

The **More..** dialog contains selections to **Ignore**, **Delete** or **Add** to the **Tool List**.

The **Tool List** contains **Tools** that you can select for the available **Tool Positions**.

Ignore Automatic Tool Identification

Ignore Automatic Tool Identification may be used when the **Automatic Tool Detection** fails, and manual tool selection is necessary.

If **Ignore Automatic Tool Identification** is checked, **Tool Setup** remains unchanged after:

- **Table Zero Position** sequence
- **Identify Tools** function

Delete Tool

Use **Delete Tool** when a **Tool** is no longer in use.

The deleted **Tool** will no longer be available in the **Tool List** in the **Edit Layer** dialog.

Add Tool

Use **Add Tool** to

- Add new **Tools**
- Add tools that fails during **Automatic Tool Detection**

The **Tool** is added to the **Tool List**.

16. Tooling System

⚠	**Knife Blades and Milling bits are extremely sharp.** **Take care when handling Knife Tools and Milling bits.**
⚠	**Laser Radiation.** **Do not stare into beam!** **The tool head is equipped with a class II laser pointer. Emitted laser power < 1 mW.**

16.1. Introduction

⚠	**Knife Blades and Milling bits are extremely sharp.** **Take care when handling Knife Tools and Milling bits.**
⚠	**Laser Radiation.** **Do not stare into beam!** **The tool head is equipped with a class II laser pointer. Emitted laser power < 1 mW.**

In this chapter, all tools are explored:

- General description
- How to operate
- How to adjust

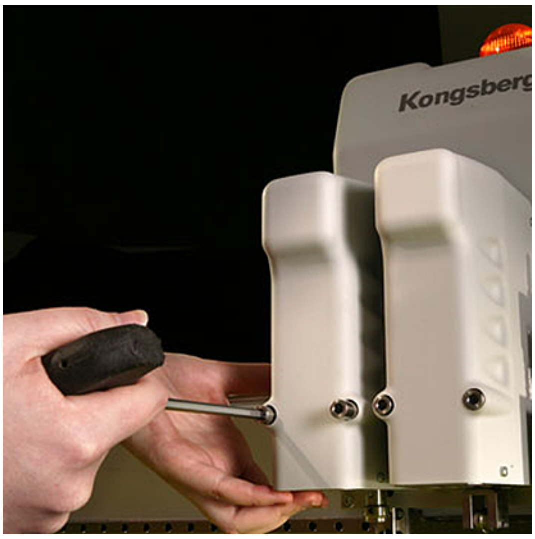
16.2. Tool Handling and Care

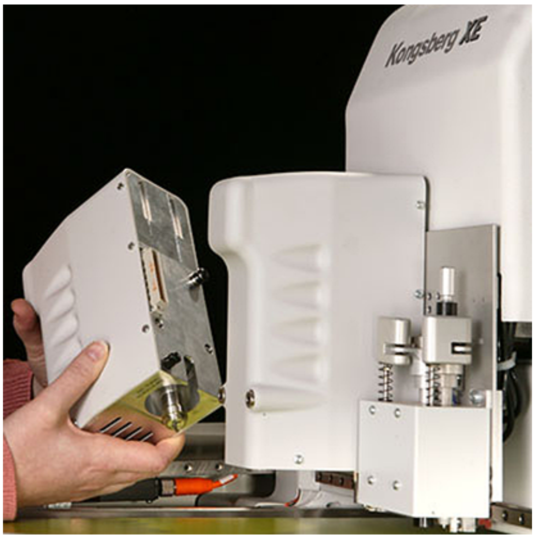
All **Tools** are precision instruments and should be treated as such to ensure proper operation.

Take special care when:

- **Tools** are inserted or removed from their stations. No excessive force should be applied.
- **Tools** should not come in contact with hard surfaces while removed from their stations either temporarily or for storage.
- The **Tools** and their stations should be kept clean with a soft brush.

16.3. How to Replace a Tool





When mounting a tool onto the P1 or P2 Tool Positions, ensure that the guide pins and the electrical connector fits those on the bracket.

Use an Allen Key, 6 mm, to fix the tool.

Ensure both screws are properly fixed.

16.4. Two or more tools of the same type

Each **tool** is identified to the system by **Tool Type**.

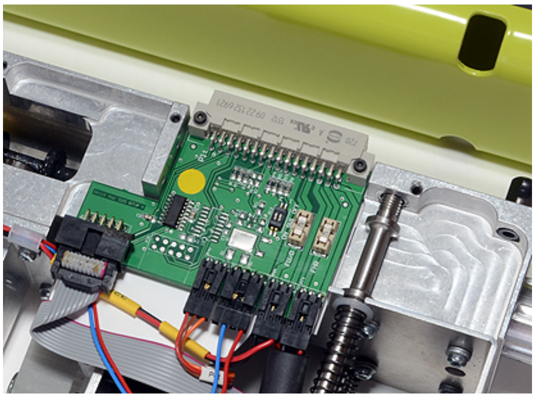
In addition, it is possible to identify up to four different **tools** of the same type.

One example:

If you have two different **Static Knife Tools**, you can specify one to be number 1 and one to be number 2.

In this way, all **Adjustment Parameters** will be stored and recalled automatically as the **tool** is mounted onto the machine.

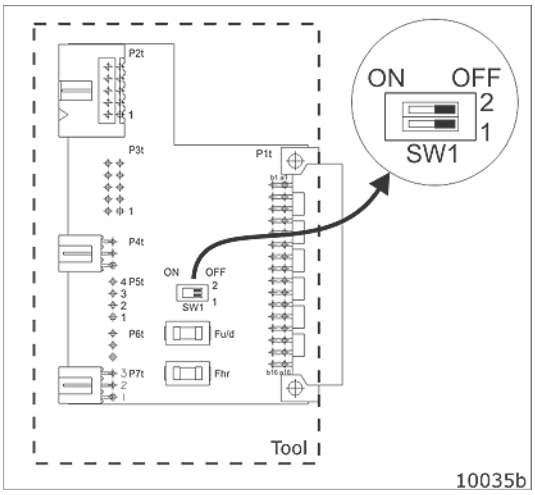
How to define individual Tool Numbers



Inside each **Tool**, there is a **Tool Board**.

By means of dip-switches, you can specify 4 unique **Tool Numbers**.

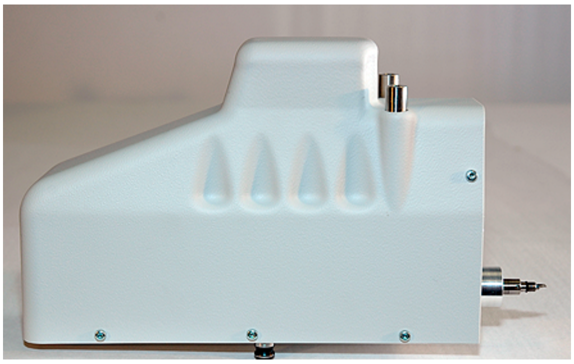
The different **Tool Numbers** are defined as follows:


P2t
1
P3t
1
P1t
b1 a1
P4t
ON
OFF
2
1
SW1
4 P5t
3
2
1
P6t
Fu/d
3 P7t
2
1
Fhr
b16 a16
ON
OFF
2
1
SW1
Tool
10035b

Tool Number	Tool Board switch setting
Tool 1	1 & 2 off
Tool 2	1 on & 2 off
Tool 3	1 off & 2 on
Tool 4	1 & 2 on

Note: There are some restrictions, see **Technical Manual** for more information.

16.5. PressCut Knife Tool



The **PressCut Knife Tool** is a special knife tool for vinyl cutting.

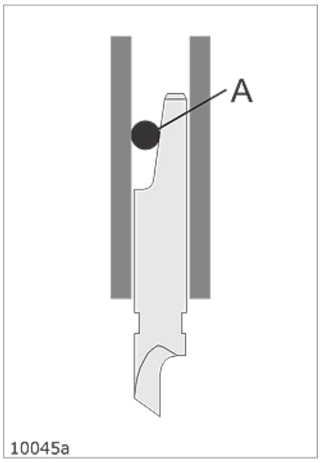
The **Cutting Depth** is controlled by the downward knife pressure.

The pressure is adjustable from **Selected Job**->**Edit Layer** dialog.

For applications where a more accurate depth control is required, a simple foot solution is available.

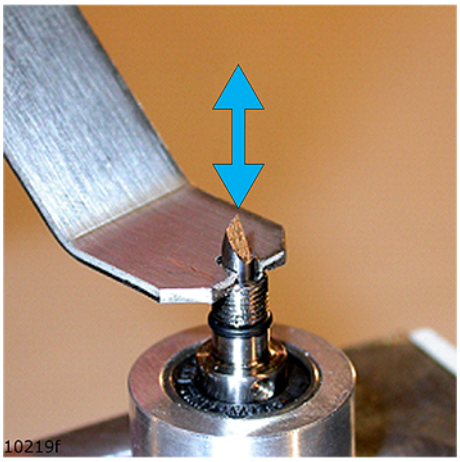
The tool is prepared for a wide range of **Knife Blades**.

Replace Knife Blade



This figure shows how the **Knife Blade** is fixed inside the **PressCut Knife Tool**.

The friction between the **Alignment Pin** A and the **Knife Blade** keeps the **Knife Blade** in place.



A special hand tool is available as an aid when replacing **Knife Blades**.

Use this hand tool when removing and inserting **Knife Blades** into the tool.

When inserting a new **Knife Blade**, ensure the blade is correctly positioned relative to the **Alignment Pin**.

Tool Adjustment

For this tool, complete the following adjustments:

Adjustment	Description
Tool Height	Correct tool height relative to table top. During the tool down movement, the PressCut tool moves down until the material surface is detected and the proper knife pressure is achieved. Therefore, no tool height adjustment is necessary for this tool.
Lag Setting	Nominal value is 0.
Tool Rotation	Adjust tool angle tangential to moving direction. It can be difficult to see, when cutting in vinyl, if the knife angle is correct positioned. We recommend using a sheet of folded carton when executing this wizard.
Center Offset	Adjust **Tool** sideways until centered.
Tool Offset	Adjust offset relative to **Laser Pointer**.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration* chapter

Tool Pressure

The **PressCut Knife Tool** can run with a **Constant Tool Pressure** or a **Speed Dependent Tool Pressure**.

Both parameters are described and specified in the Job setup structure.

PressCut Knife Down Force

F	Specify the **Knife Pressure** when running the **PressCut Knife Tool**.

	The pressure is entered as a ‰ value of maximum, that is a value from 1 to 1000. The knife pressure is modified if **Speed Dependent Tool Pressure** is specified, see below.

The **Knife Pressure** specified in the **Layer** structure is automatically adjusted.

During the tool down movement, the **PressCut Knife Tool** moves down until the material surface is detected and the proper **Knife Pressure** is achieved.

The **Knife Pressure** needed will vary depending upon the material.

For a typical **Vinyl Cutting Job**, a recommended start parameter is **Knife Pressure** = 65-70 gram and **Speed Dependent Tool Pressure** = 50%.

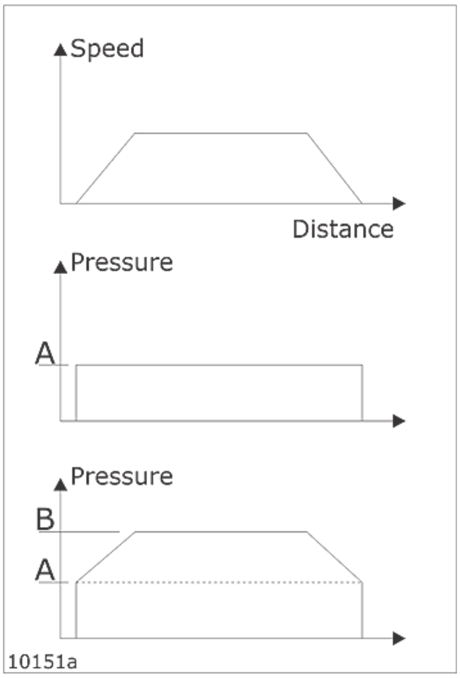
Note:

For the **PressCut Knife Tool** to work properly, a sharp **Knife Blade** is critical.

Pay special attention to the tip of the **Knife Blade**, as it is easy to break.

Speed Dependent Tool Pressure

	The **Speed Dependent Tool Pressure** function adds pressure to the **Knife Blade** depending upon the speed of the machine. The function can be illustrated as follows:



The upper curve illustrates the speed of the machine when executing a line.

Curve A illustrates the **Knife Pressure** if the **Speed Dependent Pressure** is set to 0; the pressure is constant from start to stop.

The**Knife Pressure** level is as specified by the **Knife Pressure** parameter, see previous chapter.

Curve B illustrates the **Knife Pressure** when the **Speed Dependent Tool Pressure** is set to 100.

When running at full speed, the pressure is the double of the **Knife Pressure** A.

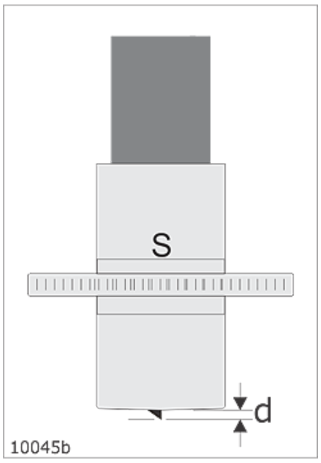
This function is useful as it allows a lower pressure in both ends of a line where the speed is low at the same time as you get a higher pressure when running at full speed.

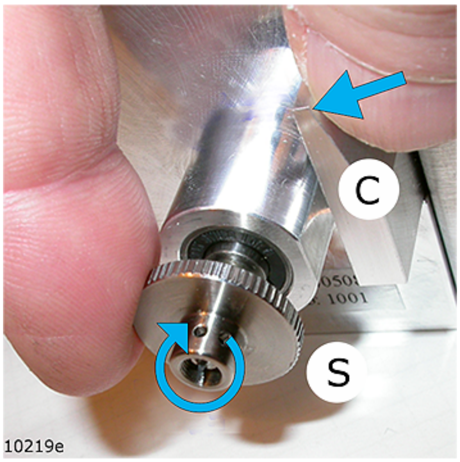
Note: The maximum **Speed Dependent Tool Pressure** is 200%.

Foot solution

Normally, the **PressCut Knife Tool** is used without the foot mounted.

When the foot is mounted, the **Cutting Depth** d is controlled by the adjustable screw S.

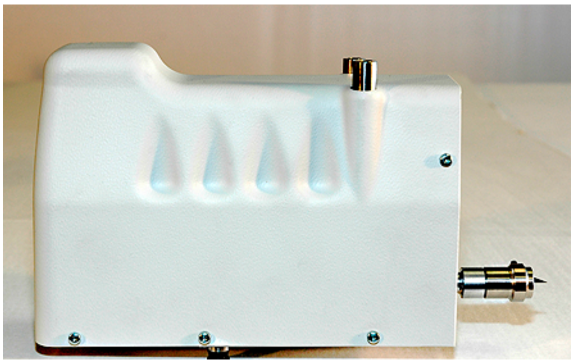




Procedure:

1. Press clamp C as indicated to lock the **Knife Shaft**.
2. Turn the screw S to adjust the **Cutting Depth**. When seen from the **Knife Blade** side, a clockwise adjustment will increase the **Cutting Depth**.

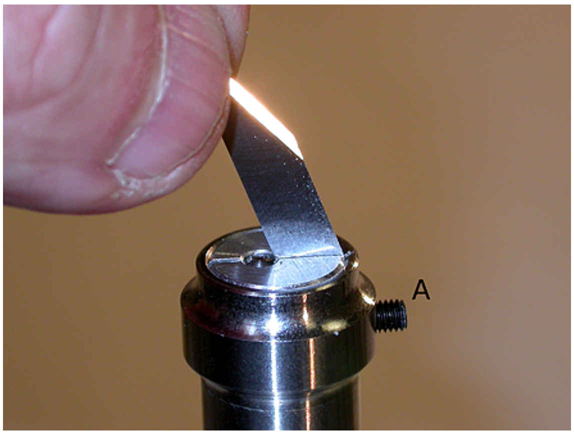
16.6. Static Knife Tool



The Static Knife tool is a general purpose knife tool for cutting:

- Corrugated and folded carton
- Varnish blankets

Replace knife blade



Loosen screw A and replace the knife blade as shown at left.

Push the knife blade down as the screw is fixed.

Tool Adjustment

For this tool, complete the following adjustments:

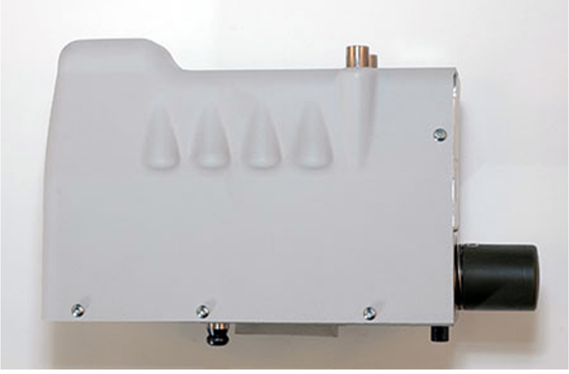
Adjustment	Description
Tool Height	Correct tool height relative to table top
Lag Setting	Nominal value is 0.
Tool Rotation	Adjust **Tool Angle** tangential to **Moving Direction**.
Center Offset	Adjust **Tool** sideways until centered.
Tool Offset	Adjust offset relative to **Laser Pointer**.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration* chapter

16.7. VibraCut Knife Tool

The **VibraCut Knife Tool** is available in two models:

VibraCut knife tool



Running with 6000 RPM and amplitude +/- 0.15 mm (0.006 inches), this tool is recommended for light duty **Corrugated Materials**.

High Frequency VibraCut knife tool

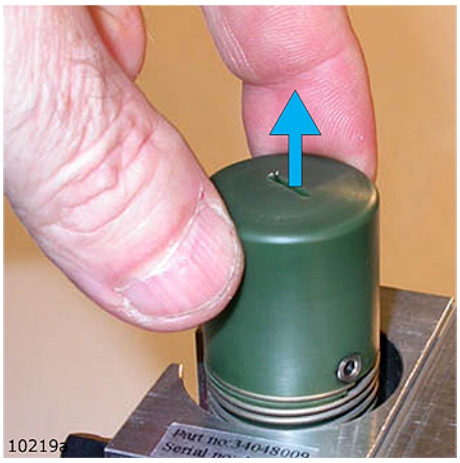
Running with 12000 RPM and amplitude +/- 0.6 mm (0.024 inches), this tool is recommended for more demanding **Corrugated Materials**.

Note: **Hearing Protection** is recommended when working with this tool.

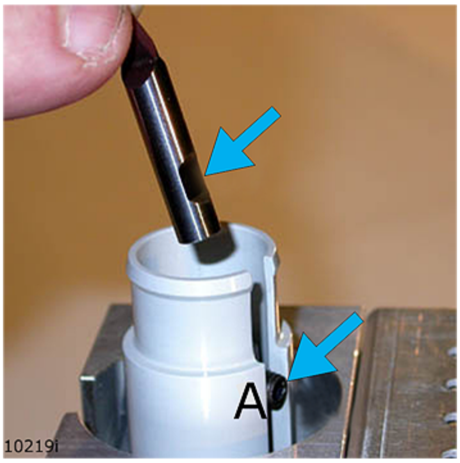
Common to both models:

- To reduce material tear, a foot is available.
- The same set of **Knife Adapters** can be used.

Replace Knife Blade



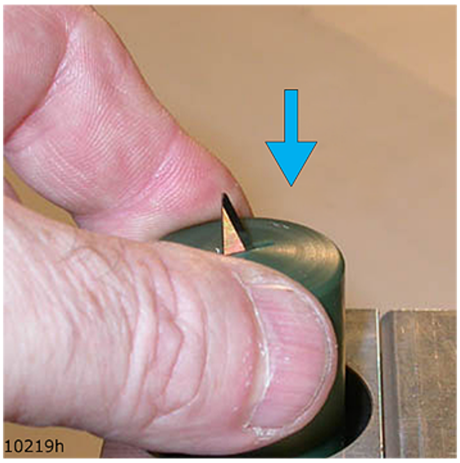
Pull straight out to remove the **Knife Foot**.



Loosen the screw A and replace the **Knife Blade**.

Ensure the **Knife Blade** has correct position relative to the screw.

Push the **Knife Blade** down while the screw is fixed.



Extreme care should be taken when inserting the **Knife Foot** again.

Keep fingers away from **Knife Blade** as illustrated at left.

Tool Adjustment

For this tool, complete the following adjustments:

Adjustment	Description
Tool Height	Measured automatically, possible to add an **Offset Value**.
Lag Setting	The **Knife Lag** depends upon the **Blade Adapter**. Nominal value is 0-3 mm.
Tool Rotation	Adjust **Tool Angle** tangential to **Moving Direction**.
Center Offset	Adjust **Tool** sideways until centered.
Tool Offset	Adjust offset relative to **Laser Pointer**.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration* chapter

16.8. VariCut Knife Tool

Introduction

VariCut is a special knife tool for applications where the accuracy of the cutting depth is critical.

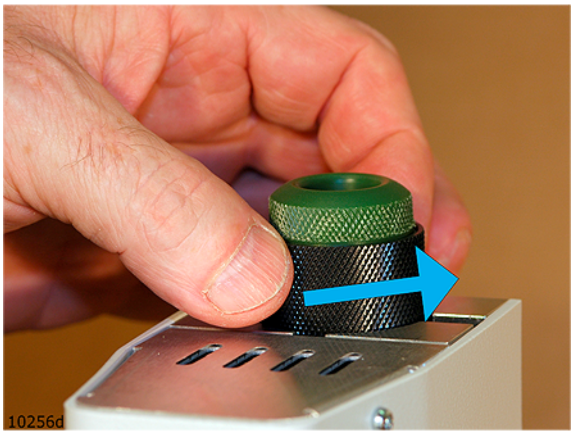
The foot is floating on top of the material.

The cutting depth depends upon how far out from the foot the knife extends.

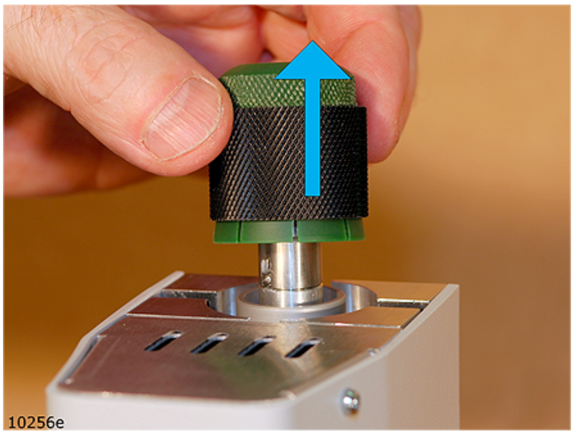
The cutting depth is configurable from the XE-Guide Job setup dialog.

Note: As the depth is specified as the distance the knife sticks out from the foot level, it is recommended to run with job setup depth specified in mm/inch

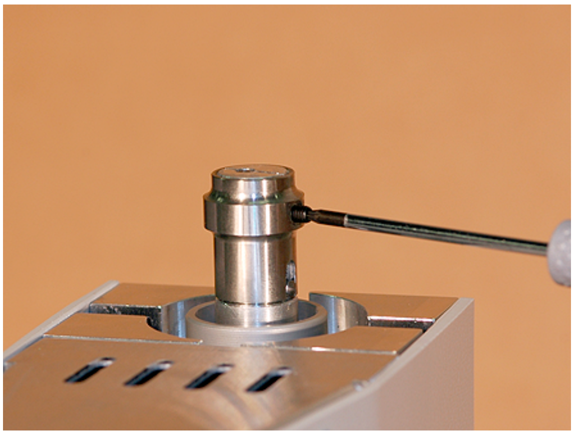
Replace knife



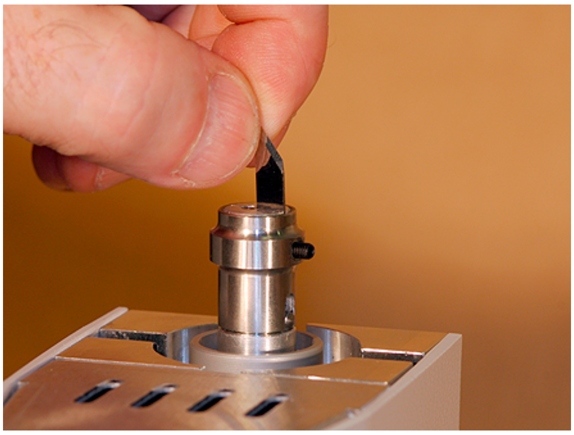
Turn to loosen the locking ring.



Pull off the foot



Loosen the screw for blade fixture.



Insert a new knife blade into the holder.

Carefully push the blade towards the bottom of the slit as the screw is fixed.

Tool Adjustment

For this tool, complete the following adjustments:

These adjustments are carried out with the foot removed:

Adjustment	Description
Tool Height	See below
Lag Setting	The **Knife Lag** depends upon the **Blade Adapter**. Nominal value is 0-3 mm.
Tool Rotation	Adjust **Tool Angle** tangential to **Moving Direction**.
Center Offset	Adjust **Tool** sideways until centered.
Tool Offset	Adjust offset relative to **Laser Pointer**.

These adjustments are carried out with the foot mounted:

Tool Height

Correct tool height relative to table top.

- The VariCut knife tool should be adjusted to a level where the foot is lifted 1 - 2 mm / 0.04 - 0.08 inches by the material.

- The procedure is as follows:

1. Using the wizard, adjust the height until the foot is touching the surface.
2. From that level, add the lift distance.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration* chapter

Zero reference for the VariCut knife tool cutting depth

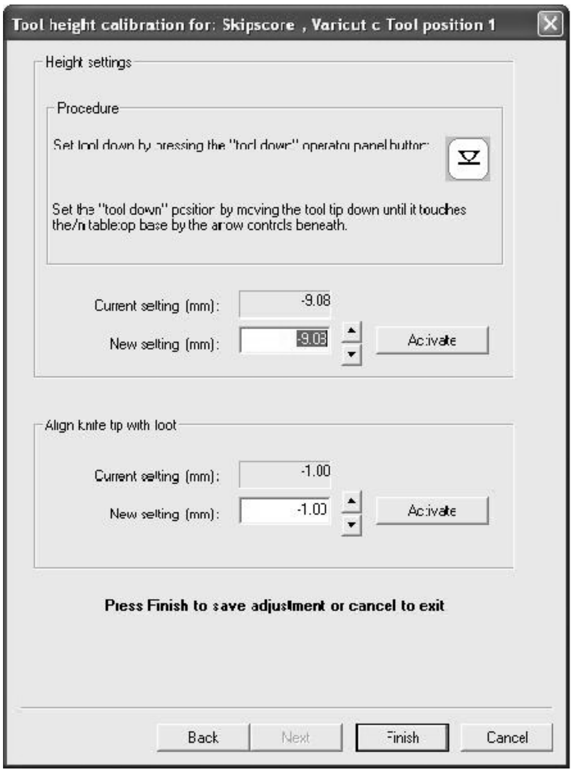
The cutting depth specified in the Job setup dialog is automatically adjusted.

A prerequisite for correct operation, is that the zero reference for the knife is properly adjusted.

There is a separate 'Height adjust wizard' available for the VariCut tool. Using this wizard should provide a proper setting.

If you want to fine tune the depth setting even more, a manual method is described here:

- Ensure the above mentioned adjustments are properly completed.
- From the Tool Configuration dialog, select the tool to be adjusted.
- Select Tool height adjustment.
- This dialog appears:



Tool height calibration for: Skipscore , Varicut c Tool position 1

Height settings

Procedure

Set tool down by pressing the "tool down" operator panel button:

Set the "tool down" position by moving the tool tip down until it touches the/in tabletop base by the arrow controls beneath.

Current setting (mm): -9.08

New setting (mm): -9.08

Align knife tip with foot

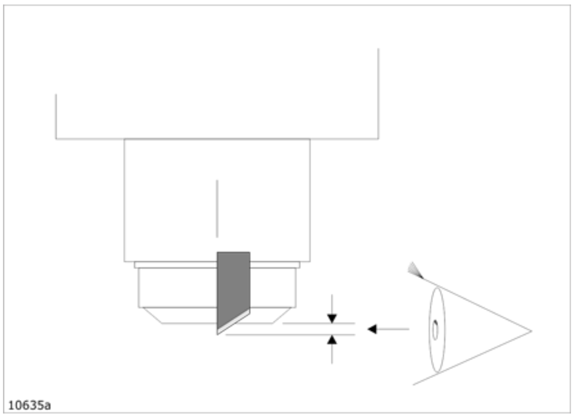
Current setting (mm): -1.00

New setting (mm): -1.00

Press Finish to save adjustment or cancel to exit

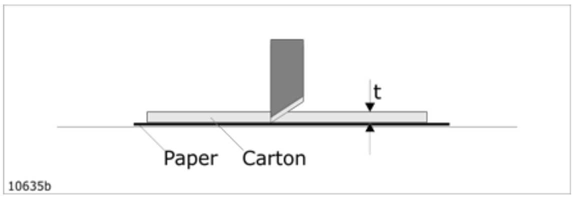
In this dialog, the upper part "Height settings" is used for the "Tool height" adjustment as described above.

The zero reference for the cutting depth is adjusted in the section "Align knife tip with foot".



Visually inspect the knife tip and adjust the "Align knife tip with foot" value until the tip of the knife is aligned with the foot.

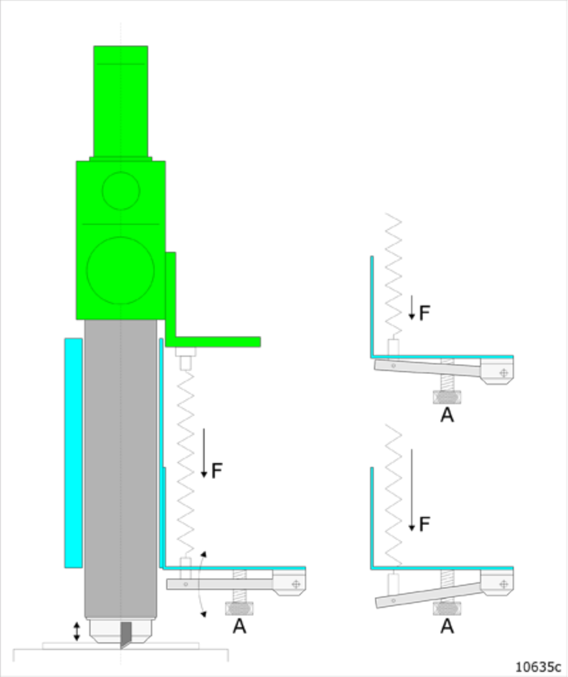
This operation completes the rough adjustment of the knife cutting depth.



For fine adjustment, proceed as follows:

1. Use a sheet of carton with known thickness t.
2. On the cutting table, place the carton on top of a sheet of paper as illustrated at left.
3. Prepare a job setup file with P1 = VariCut and specify a cutting depth = t.
4. Execute the IAT-file 'square01.acm' and check the cutting depth.
5. Adjust the "Align knife tip with foot" value and repeat the procedure until the knife cut is exactly through the carton without cutting into the paper beneath.
6. Now the VariCut cutting depth is properly adjusted.

Adjust foot pressure



The downwards foot pressure has to be adjusted depending upon the actual material.

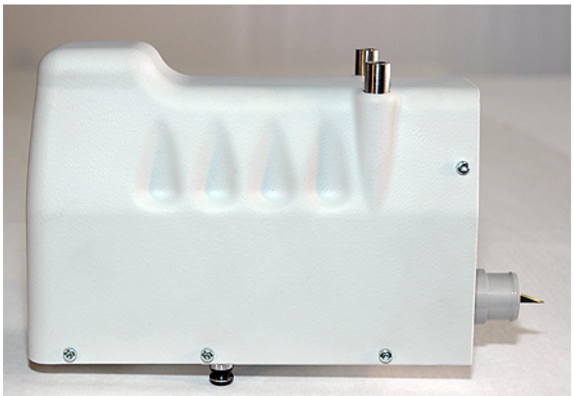
The pressure F is adjusted with the knob A.

The illustration shows how to adjust to obtain a Low or High pressure.

If you are cutting in a hard material, the pressure has to be increased in order to keep the knife down.

If you are cutting in a soft material, the pressure should be reduced in order not to scratch the surface of the material.

16.9. Hi-Force Knife Tool



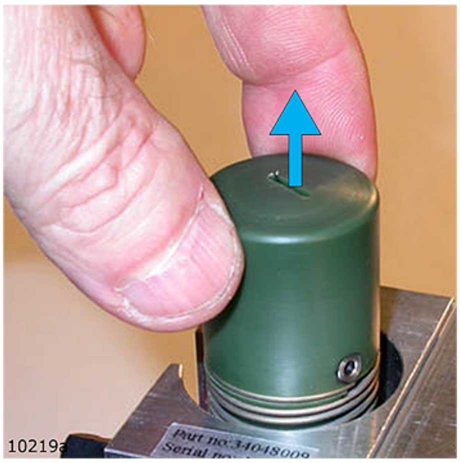
The **Hi-Force Knife Tool** is a general purpose knife tool suitable for cutting a wide range of materials.

As the name indicates; this tool is prepared for a higher tool pressure compared to the **Static Knife Tool**.

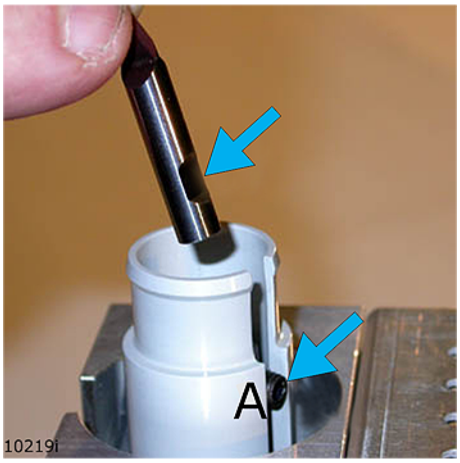
The tool is prepared for a wide range of **Knife Blades**.

To reduce material tear and also to keep the material down as the **Knife Blade** is pulled out, a **Knife Foot** is available.

Replace Knife Blade



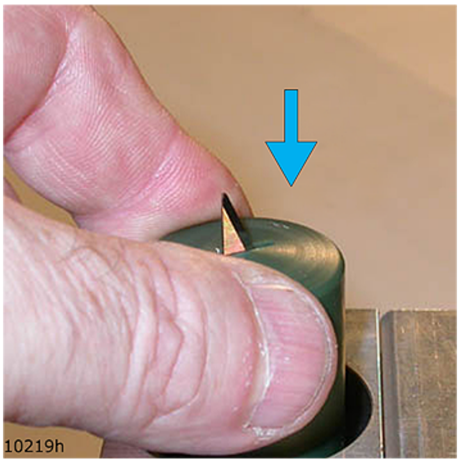
Pull straight out to remove the **Knife Foot**.



Loosen the screw A and replace the **Knife Blade**.

Ensure the **Knife Blade** has correct position relative to the screw.

Push the **Knife Blade** down while the screw is fixed.



Extreme care should be taken when inserting the **Knife Foot** again.

Keep fingers away from **Knife Blade** as illustrated at left.

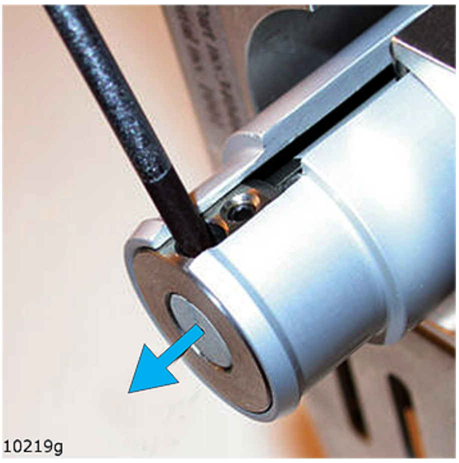
Tool Adjustment

For this tool, complete the following adjustments:

Adjustment	Description
Tool Height	Measured automatically, possible to add an **Offset Value**.
Lag Setting	The **Knife Lag** depends upon the **Blade Adapter**. Nominal value is 0-3 mm.
Tool Rotation	Adjust **Tool Angle** tangential to **Moving Direction**.
Center Offset	Adjust **Tool** sideways until centered.
Tool Offset	Adjust offset relative to **Laser Pointer**.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration* chapter

Replace Knife Adapter



To remove the **Knife Adapter**, just pull it out from the holder.

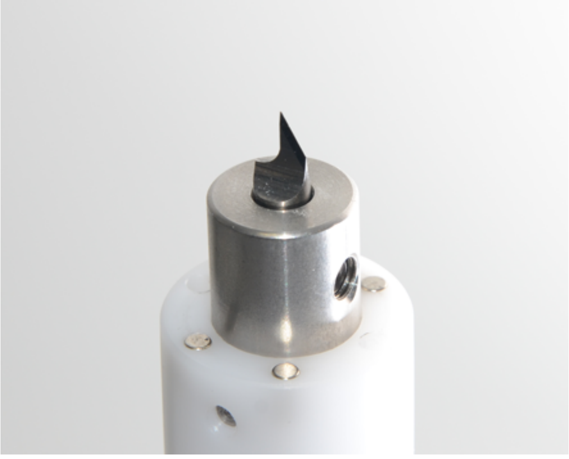
16.10. Psaligraphy Knife

Note: In XE-Guide, this tool is treated as a **Hi-Force Knife Tool**.

Psaligraphy Knife is a tool for cutting of fine details in paper and folding carton.

Replace Knife Blade

⚠ Warning: Sharp tool



For **Knife Blade** change, remove the foot.

The locking screw will always point towards the cutting direction

Note: Be extremely careful when mounting the foot.

Tool Adjustment

For this tool, complete the following adjustments:

Adjustment	Description
Lag Setting	The **Knife Lag** depends upon the **Blade Adapter**. Nominal value is 0-3 mm.
Tool Height	Measured automatically, possible to add an **Offset Value**.
Tool Rotation	Adjust **Tool Angle** tangential to **Moving Direction**.
Center Offset	Adjust **Tool** sideways until centered.
Tool Offset	Adjust offset relative to **Laser Pointer**.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration and Adjustment* on page 90 chapter.

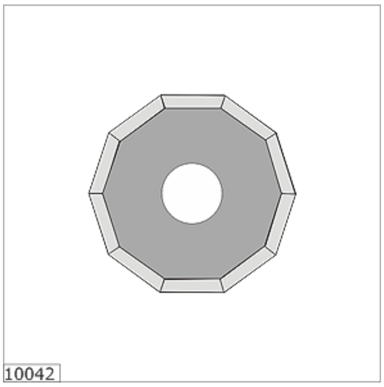
16.11. RotaCut Knife Tool

The **RotaCut Knife Tool** is a special tool for cutting light materials, as thin fabric.

Maximum **Cutting Depth** is 2 mm / 0.07 inch.

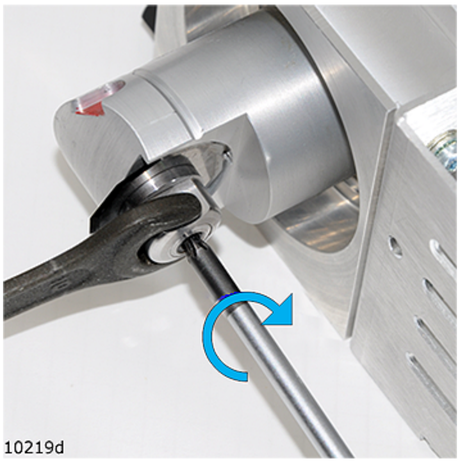
Note: Due to the characteristics of this knife tool, some restrictions apply to the use of it:

- It is not suitable for curves with small diameter.
- It is not suitable for designs containing short lines in combination with sharp angles.



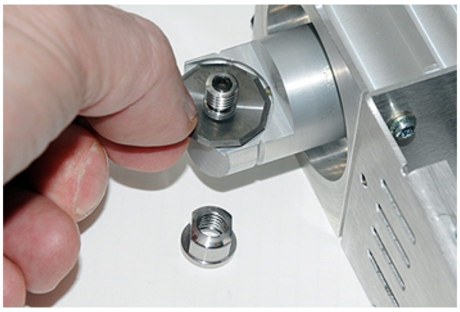
The **RotaCut Knife Tool** is prepared for **Decagonal Knife Blades**, ø25 mm / 1 inch.

How to replace the Knife Blade



1

Use the spanner and the hexagonal screw driver to remove the **Knife Blade** fixing nut.

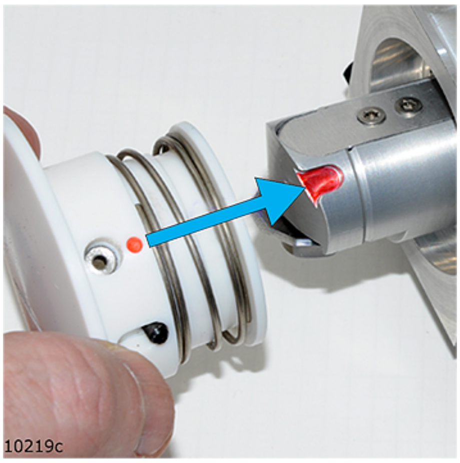


2

Carefully remove the old **Knife Blade** and insert the new one.

Ensure the **Knife Blade** is properly seated.

Mount the nut and fix it properly.



3

Observe the **Guide Pin** in the foot and the groove in the **Tool Shaft**.

Position the foot onto the **Tool Shaft** as shown at left.

Push the foot into position.

A self-locking mechanism ensures the foot is kept in place.

Note: Be careful not to hit the sharp **Knife Blade**.

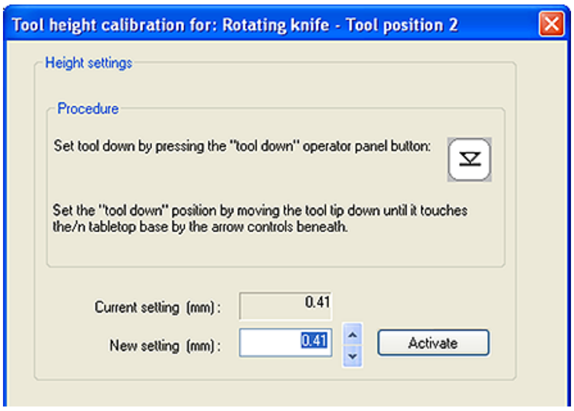
4

Verify by hand that the foot movement is smooth.

Tool Adjustment

The **RotaCut Knife Tool** is adjusted in the same way as the other C tools regarding rotation angle and offset.

Tool Height is manually adjusted:



Tool height calibration for: Rotating knife - Tool position 2

Set tool down by pressing the "tool down" operator panel button:

Set the "tool down" position by moving the tool tip down until it touches the/n tabletop base by the arrow controls beneath.

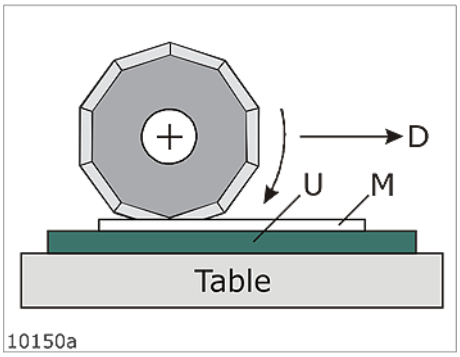
Current setting (mm) : 0.41

New setting (mm) : 0.41

Tool Height

Tool Height for RotaCut is manually adjusted using the tool height adjustment wizard available from the **Tool configuration** dialog.

Follow the instructions in the dialog.



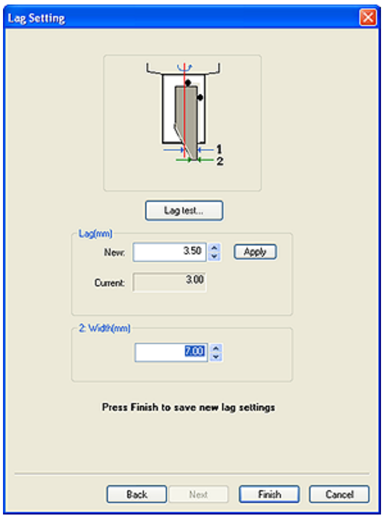
Be careful, though, not to adjust the cutting depth too deep into the **Cutting Underlay** (figure at left).

U - cutting underlay

M - material

D - X/Y moving direction

Tool Setup for RotaCut Knife Tool



Lag Setting

New: 3.50

Current: 3.00

2: Width(mm) 7.00

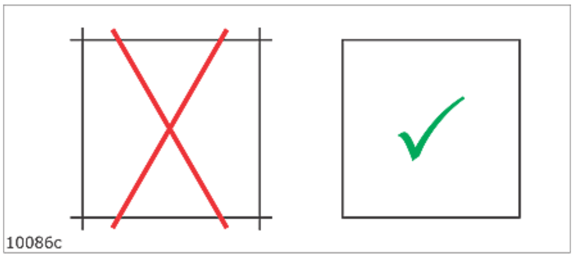
Press Finish to save new lag settings

Correct setting of **Lag**- and **Width** - values are shown.

Lag: 3.5 mm / 0.14 inch

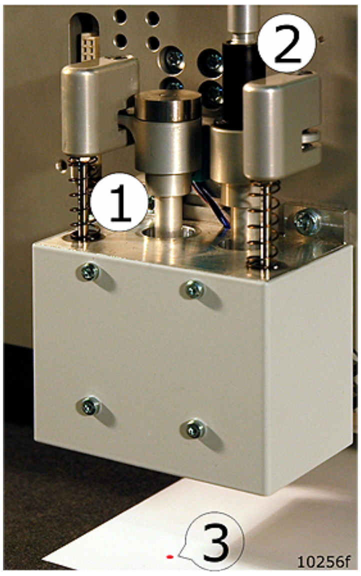
Width: 7.0 mm / 0.28 inch

Note: After modifying these values, the input-file has to be re-opened.



Use the **Lag** and **Width** parameters to achieve proper corner cutting.

16.12. Multi-Function Unit



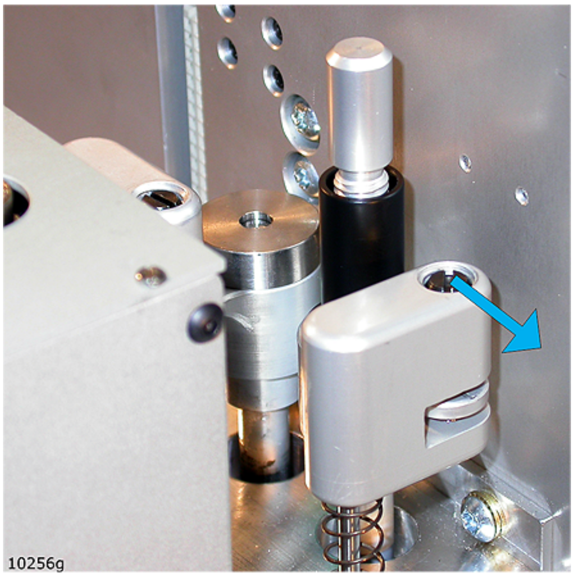
1. Tool Height Measuring tool
2. Ballpoint Pen / Ink Tool
3. Laser spot

16.13. Ballpoint Pen / Ink Tool

The **The Ballpoint Pen Tool** is available for pen drawing.

Tool pressure is adjustable by a knob on top of the tool.

Replace tool

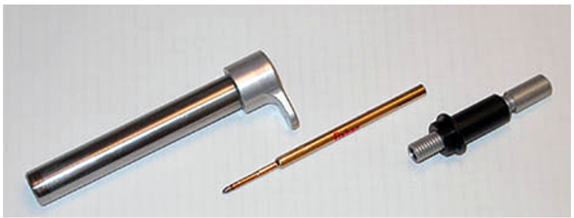


Turn the pen tool bracket clockwise to release the pen.

Remove the pen tool from the pen holder.

After the Ballpoint pen insert has been replaced, insert the pen tool into the pen holder and turn the bracket counter-clockwise to engage the pen tool again.

Pen tool

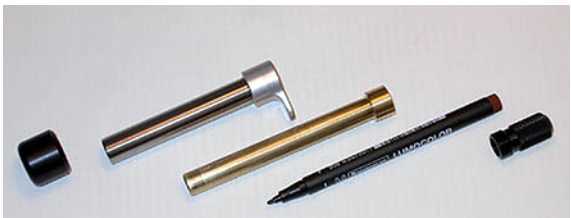


From left:

- Pen tool
- Ballpoint pen insert
- Locking knob with pressure adjustment screw

.

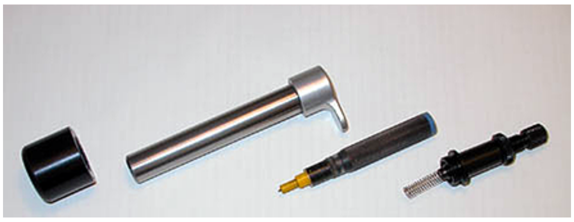
Lumocolor Ink Tool



From left:

- Sealing - to be used when the tool is out of use.
- Lumocolor pen tool
- Lumocolor sleeve
- Lumocolor pen insert
- Locking knob.

Koh-i-Noor Ink Tool



From left:

- Sealing - to be used when the tool is out of use.
- Koh-i-Noor pen tool
- Koh-i-Noor pen insert
- Locking knob.

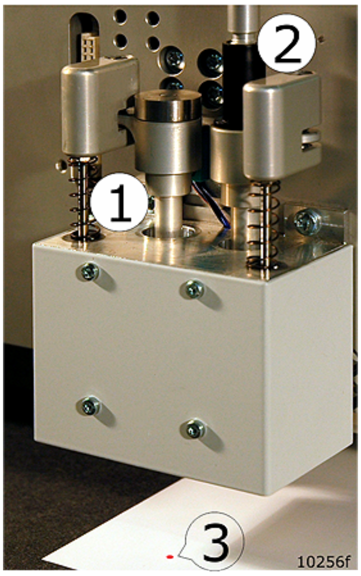
Tool Adjustment

For this tool, complete the following adjustments:

Adjustment	Description
Tool Height	Correct tool height relative to table top. The Pen tool should be adjusted to a level where the pen is lifted 1 - 2 mm / 0.04 - 0.08 inches by the material.
Center Offset	Adjust tool sideways until centered.
Tool Offset	Adjust offset relative to laser pointer.

For more information about how to run the **Adjustment Wizards**, see the *Tool Configuration* chapter

16.14. Measuring Foot

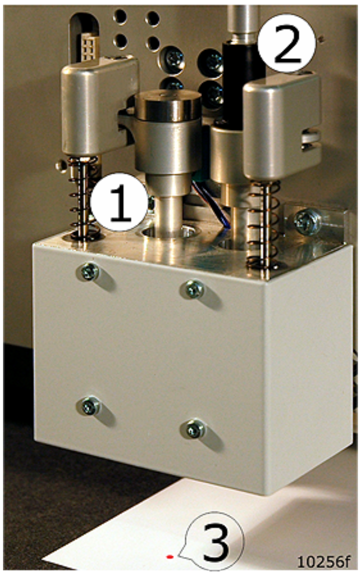


The Measuring foot **Measuring Foot** (1) has 3 functions:

1. Measure the thickness of the material on the table
2. **Map Table Top Surface**.

No adjustments are necessary.

16.15. Laser Pointer



The **Laser Pointer** (3) is a Class II laser beam **Pointing Device**.

Wavelength: 650 nm, 1 mW.

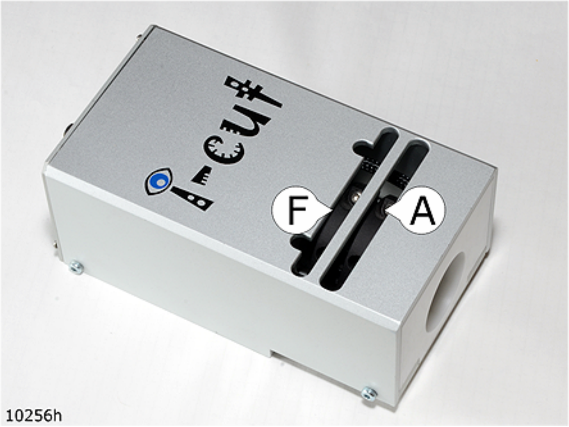
The **Laser Pointer** is used in adjustment wizards and job execution to indicate current position on the table.

The **Laser Pointer** is lit as long as it indicates the correct current position.

If there is no manual operation of the table, the **Laser Pointer** will be switched off after a 30 sec. time out.

Pressing any button on the **Operators Panel** will switch the **Laser Pointer** on again.

16.16. i-cut camera



Two adjustments are available:

A - adjust the aperture.

F - adjust camera focus.

17. Maintenance

More information about maintenance is available in the **Maintenance Manual**.

Warning

Main Power should be switched off before cleaning is carried out.

17.1. Daily maintenance

- Inspect the equipment in order to prevent any irregularities.
- The table surface should be kept clean at all times.
- The room should be cleaned regularly.
- Use a vacuum cleaner to keep the inside of the conveyor belt clean.

17.2. Weekly maintenance

The guide-ways and the bearings should be thoroughly cleaned and oiled very lightly.

The automatic draining action of the air pressure reduction valve should be controlled:

- Switch off the air compressor and allow the air pressure to fall.
- Switch on the air compressor and check that any water in the glass bowl of the pressure reduction valve drains out automatically during the first few seconds of operation.
- Remove and clean the bowl if the automatic draining action does not operate or if it appears to be an excessive amount of dust in the bowl.

17.3. Maintenance, external equipment

All external equipment, as PC, Vacuum pump and compressor should be maintained according to the User Manual for the actual equipment.

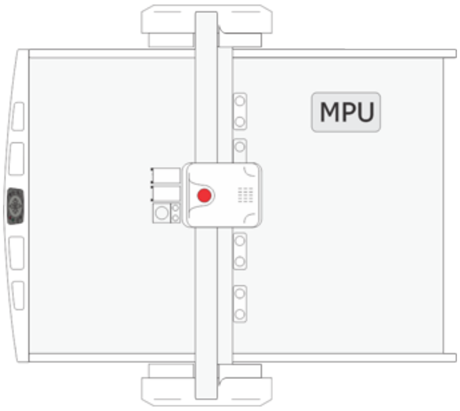
18. Fuse replacement

Before starting the Fuse Replacement procedure:

- Switch **Power Off** using the **Main Power Switch**
- Remove the **Main Power** plug from the wall socket

18.1. MPU

MPU Location

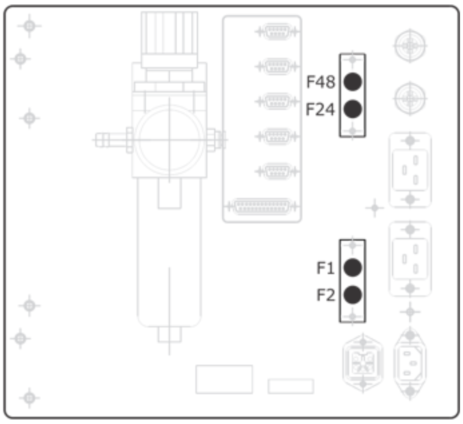


Note: MPU location is model dependent.

All fuses are located on the rear side of the Main Power Unit (MPU).

MPU 2007 fuses (MPU 32569006)

Fuse Location

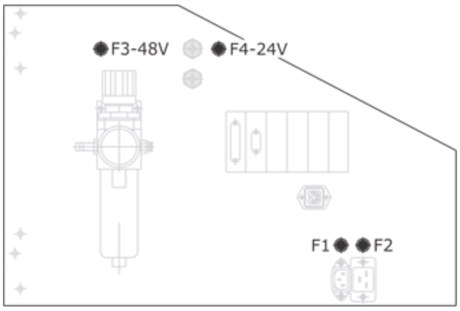


Fuse Details

Fuse name	115V	230V
Main power fuse F1 and F2	T 10A 250V (5x20 mm)	T 5A 250V (5x20 mm)
F24	T 6,3A 250V (5x20 mm)	T 6,3A 250V (5x20 mm)
F48	T 15A 250V (5x20 mm)	T 15A 250V (5x20 mm)

MPU Fuses (MPU 32562308)

Fuse Location



Fuse Details

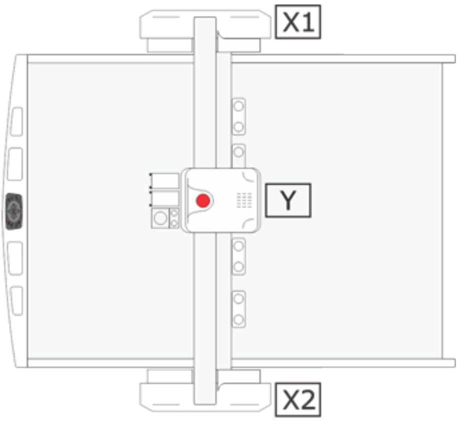
Fuse name	115V	230V
Main power fuse F1 and F2	T 10A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)	T 5A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)
Servo power fuse F3	T 15A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)	T 15A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)
+24V fuse F4	T 4A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)	T 4A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)

Procedure

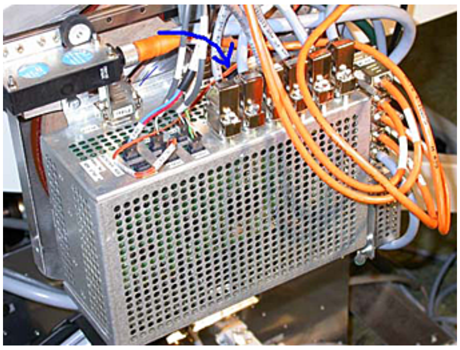
1. Remove base cover in front of MPU.
2. Pull out the MPU cabinet to access the rear side.
3. Remove one fuse and check with ohm - meter. If blown, replace with a new identical fuse.
4. Repeat for each fuse.
5. Replace base cover
6. Insert main power cable into the wall socket and turn main power ON

18.2. X1

X1 Amplifier Location



Fuse Location



Procedure

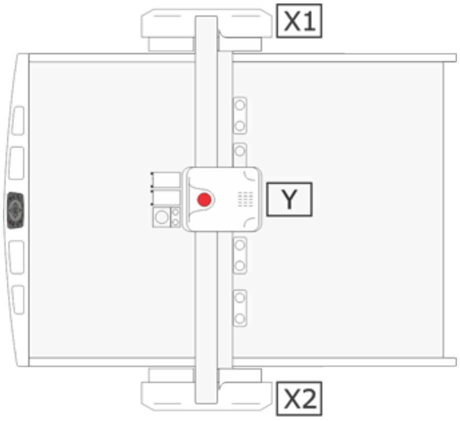
1. Remove X1 cover
2. Remove fuse Fx1, check with ohm - meter. If blown, replace with a new identical fuse.
3. Replace X1 cover.
4. Insert main power cable into the wall socket and turn main power ON

Fuse Details

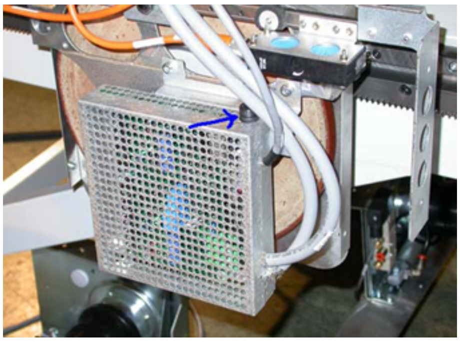
T 8A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)

18.3. X2

X2 amplifier Location



Fuse Location



Procedure

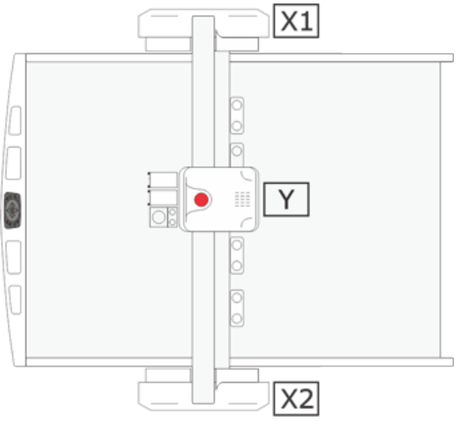
1. Remove X2 cover
2. Remove fuse Fx2, check with ohm - meter. If blown, replace with a new identical fuse.
3. Replace X2 cover.
4. Insert main power cable into the wall socket and turn main power ON

Fuse Details

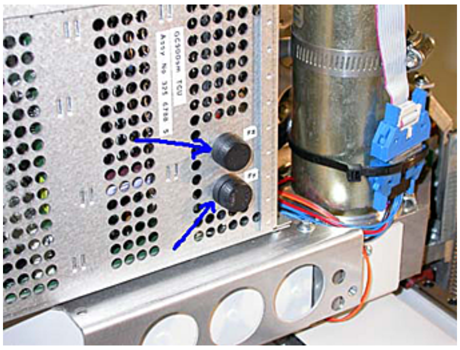
T 8A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)

18.4. Y/Z fuse

Y/Z amplifier Location



Fuse Location



Procedure

1. Remove Y cover
2. Remove fuse Fy or Fz, check with ohm - meter. If blown, replace with a new identical fuse.
3. Replace Y cover.
4. Insert main power cable into the wall socket and turn main power ON

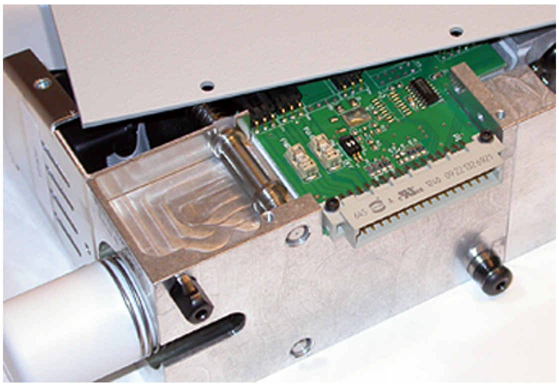
Fuse Details

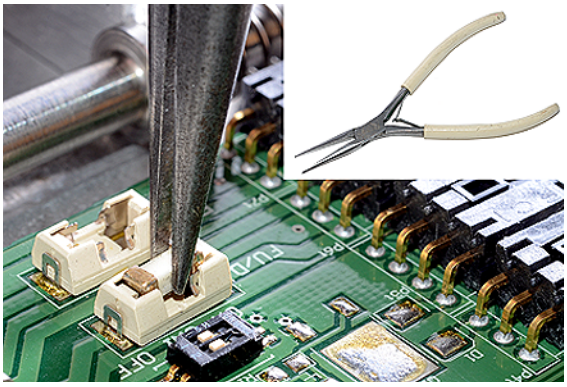
Fy: T 8A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)

Fz: T 2A 250V 1 1/4 x 1/4 in (6,3 x 32 mm)

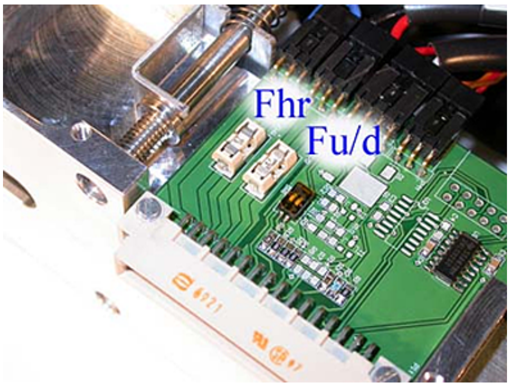
18.5. Tool Rotation/Reciprocating knife/Tool up_down

Tool Board Location





Fuse Location



Fhr - Tool rotation fuse.

Fu/d - Tool up/down or tool reciprocation fuse.

Procedure

1. Fuses are available on the Tool Board inside the actual tool.
2. Remove the plastic cover on the tool.
3. Remove fuse Fhr or Fu/d, check with ohm - meter. If blown, replace with a new identical fuse.
4. Insert main power cable into the wall socket and turn main power ON
5. For information about fuse sizes, see table below.

Fuse Details

Tool head	Function	Fuse	Fuse size	Fuse type
Crease tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
Crease tool	Tool u/d	Fu/d	0,5	T 0,5A 125V NANO (42441600)
Hi-force knife tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)

Hi-Freq VibraCut knife tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
Hi-Freq VibraCut knife tool	Vib.	Fu/d	4	T 4A 125V NANO (42444828)
Presscut knife tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
Presscut knife tool	Tool u/d	Fu/d	0.75	T 0,75A 125V NANO (42442541)
RotaCut	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
RotaCut	Knife RPM	Fu/d	2	T 2A 125V NANO (42441618)
Static knife tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
Static knife tool	Tool u/d	Fu/d	0,5	T 0,5A 125V NANO (42441600)
VariCut knife tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
VariCut knife tool	Knife depth	Fu/d	0.5	T 0,5A 125V NANO (42441600)
VibraCut knife tool	Tool rotation	Fhr	2	T 2A 125V NANO (42441618)
VibraCut knife tool	Vib.	Fu/d	2	T 2A 125V NANO (42441618)

19. Install software

For information about software installation, see the **Installation Manual** for the actual machine.

Available on the Documentation DVD.

20. Frequently Asked Questions

20.1. Machine

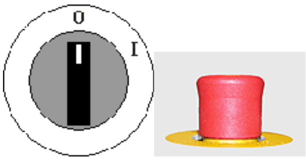
My machine does not react when switching on

Please check electrical connection, do you have 230V? Is there enough compressed air, 7bar?

Check all main fuses in the MPU, see *Fuse Replacement*

Check all connections at the MCU behind the control panel

Check all connections at the start up button and the emergency buttons:



Safety system won’t reset

Make sure all sensors are aligned correctly, check the black dots on the side of the traverse

Are all transmitters pointing correctly to their receiver? Check if the red light is shining on the receiver. If necessary, adjust by bending the transmitter/receiver holder

During start up: X1/X2/Y servo error

This is probably caused by a defect in an amplifier board. Please contact Esko for technical support

During start up: X1/X2/Y fuse error

Check the fuse of the motor

If problem persists, it is likely to be the amplifier board malfunctioning. Please contact Esko for technical support

“Missing compressed air”

Check if you still have 7 bar at the MPU

Are the hoses not bending? Can the compressed air flow easily?

Do you hear air escaping? Check for leaks

Is the connection at the head leaking air or broken?

20.2. Tools

After cutting, the design is difficult to remove from waste

Check tool height

After cutting, the corners are still fixed to the waste

Check tool lag

Bad quality in cutting, paper/cardboard tears

Check rotation of the tool

Offset in cut/crease lines

Check tool center offset

Offset between cut lines and crease lines

Check tool offset

Machine is milling in the carpet and table top

The milling bit is lowering inside the **Chuck**. Please fix the **Chuck** with the appropriate tool.

Milling: "Inverter not started yet"

After touching the safety unit, you need to wait for 10 seconds after resetting safety for the milling inverter to activate

If problem persists, check the connection at the tool head of the milling spindle. Is the big green cable still well connected?

Check all connections of the milling spindle: at tool head, inside cover X1 and at the inverter

Check serial connection between inverter and PC: connection OK? COM port changed lately?

If problem still persists, contact Esko

2 or 3 tools are working at the same time

Check your compressed air, make sure you have 7 bar

Check compressed air connection at the head. Is it well connected or is it leaking air?

Machine is milling in the milling underlay

Check vacuum zones. Are all necessary zones open? You can close non-covered areas to strengthen the vacuum.

Check the force of the vacuum cleaner. It happens the vacuum cleaner is heightening the milling carpets. Try to adjust the force by using the regulator on the spindle / vacuum cleaner.

20.3. Xx-Guide

Xx-Guide doesn't want to make connection with the machine

Make sure you first switch on the machine and then Xx-Guide, not the other way around

If there was a software update recently, check if the firmware on the machine and Xx-Guide are of the same version

Check the serial connection between PC and MCU

Check the connection at the emergency button

20.4. i-cut

Outside table limit

Check your starting point. If you are using a random starting point (X), make sure the design fits the table

When working with regmarks, make sure you reset "placement offset" before starting a new job.