CoCut Standard 4X4

Manual

EUROSYSTEMS
Soft- und Hardware S.à.r.l.

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Important information for clients CoCut

Please check the merchandise after the reception upon completeness and announce possible absence of single parts immediately to your trader.
CoCut is available in two different versions: CoCut ***Professional*** and CoCut ***Standard***
The single versions differ in the complexity of functions.

The **scope of delivery** of a CoCut version always includes:

- Program CD
- Manual (apart from online buy)

Code number

The sticker is on the inner side of the manual cover. In case of online buy code number is delivered via email.

Important information for clients CoCut

System requirements

- As minimum requirement we recommend a Pentium 1.5 GHz with 512 MB RAM.
- Windows XP from SP1, Windows Vista
- minimum graphic resolution 800 x 600 pixel with 16 colors
- Host program: CorelDRAW Version from 10, alternatively Illustrator from 8, Freehand from 8, AutoCAD from 14 (Professional only)

Second-user license

Requirement for its use is a registered main license.

With the CoCut-second -user license you purchase an adequate further program with dongle that can be used specially separated from your main system. The second-user license is especially suitable for branches or for the mobile application. Order congestions or plant extensions can thus be handled flexibly. The installation of the second-user license is identical with the installation of the main version.

Second-user license

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Phone: ++49 6502-9288-11

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www.eurosystems.lu

under the category **Support/FAQ**

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- Version-No.: e.g. EuroCUT Professional 6.502
- Dongle or serial number of respective product

Thank you for your understanding that inqueries by phone can only be handled by using this phone number.

Other direct dialling numbers that may be known to you are reserved for purchase and sales department.

In order to guarantee a smooth and competent support for yourself and others, we kindly ask you to get registered.

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CoCut uses the OpenCV

(Open Source Computer Vision Library)

CoCut uses the OpenCV

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About this manual

With this manual you receive CoCut. This manual is divided in *8 chapters*.

In chapter ***„Quickstart and installation“*** the installation of CoCut on your Windows computer will be explained. Please follow the installation instruction carefully as the correct installation is the basic for the smooth usage of CoCut.

The chapter ***„How to work with CoCut?“*** is an introduction in handling, tools and functions. The functional principle will be concretized by means of practical examples.

In chapter ***„Reference part“*** all menus and their menu items in their chronological order are explained. This chapter is thought of as *reference book* and should be used in case of doubts about the exact functioning of a command.

In chapter ***„Reference part display preview“*** all menus and their menu items in the display preview in their chronological order are explained. As chapter "Reference Part" it is thought of as *reference book* and should be used in case of doubts about the exact functioning of a command.

In the next chapter all ***„Toolbars“*** are described. Toolbars contain important tools that are placed in a freely movable toolbar.

In chapter ***„Tips and tricks/trouble-shooting“*** we have explained a selection of daily problems from our hotline and support experience and give you information for dealing with technical problems.

Typographical orientation guides

Display	Meaning
Bold	**Headlines**
Italic	*Indications, accentuations*
Bold, italic	Menus, fields, options e.g. ***new***-command
CAPITAL LETTERS	Name of keys on the keyboard e.g. INS, SRTG, …
KEY1+KEY2	The plus (+) between the key names means that the first key must be kept pressed while pressing the second key. Afterwards, let go the two keys.
KEY1,KEY2	A comma (,) between the key names means that you press the keys one after the other and let them go. Shortcuts and hotkeys
…	Three dots after menu entries and commands always mean that, when activating, a dialog window will be opened.

1 Introduction

CoCut Standard 4X4™ is add-on software for cutting vinyl from CorelDRAW™, Illustrator and Freehand. In conjunction with one of these professional illustration programs CoCut Standard 4X4 cuts yous designs at the push of a button.

Its sophisticated vinyl processing possibilities allow direct control of cutting speed, knife pressure and output precision. Cut by color, multi copies, weeding frames and material optimization are additional features of this exceptional plug-in.

1.1 What CoCut Standard 4X4 Can Do?

- CoCut Standard 4X4 is able to work with many different cutters and adapt to their particular features. Among these are cutters of well-known manufacturers such as Summa, Mimaki, Roland, Graphtec, Zünd etc.
- CoCut Standard 4X4 automatically converts lines to cutable contours.
- Cutting by color
- Cutting preview of vinyl width and display of the amount of vinyl used.
- Positioning, resizing, duplicating, etc. of objects.
- CoCut Standard 4X4 evaluates the data produced by the host program and prepares it for cutting on the selected cutter.
- CoCut Standard 4X4 can cut even extremely large drawings without any difficulty. You can resize and segment your drawings to any scale you wish, no matter what the size of the drawing in the host program.
- If the drawing is too wide for your cutter, it will be automatically sectioned, i.e. divided so that your cutter can cut it.
- You can set up default values for printing and speed for different materials. These values can be stored in a material database for reuse at any time.
- While your cutter is cutting, you can continue working with CorelDRAW or any other Windows program. The cutter works in the background.

1.1 What CoCut Standard 4X4 Can Do?

2 Quickstart and installation

2.1 Quickstart

2.1.1 How to Install CoCut?

2.1.1.1 Step 1: Connection

Cutter control via USB

Install cutter USB drivers, which were delivered by the cutter manufacturer. Please use the instructions given by cutter manual.

Cutter control via COM port (serial)

Make sure, that cutter and serial Windows port are configured **identically**.

You´ll find this port configuration in the system *Control Panel* under: *System/Hardware/Device Manager/Ports/Communications Port*. Select via double click the respective port (e. g. COM1) and activate *Port Settings.*

Default settings are: Bits per second: 9600 or 19200, Data bits: 8, Parity: None, Stop bits: 1, Flow control: Hardware

Check also Resources: COM 1: I/O Range 03F8 and IRQ 4 and COM 2: I/O Range 02F8 and IRQ 3 respectively

2.1.1.2 Step 2: Installation

Insert the CoCut installation CD. With the ***Autorun***-function switched on following dialog opens. If the ***Autorun***-function is deactivated open the Windows Explorer and start the file ***install.exe*** in the main directory of the CD. Select product CoCut Standard 4X4 and start installation.

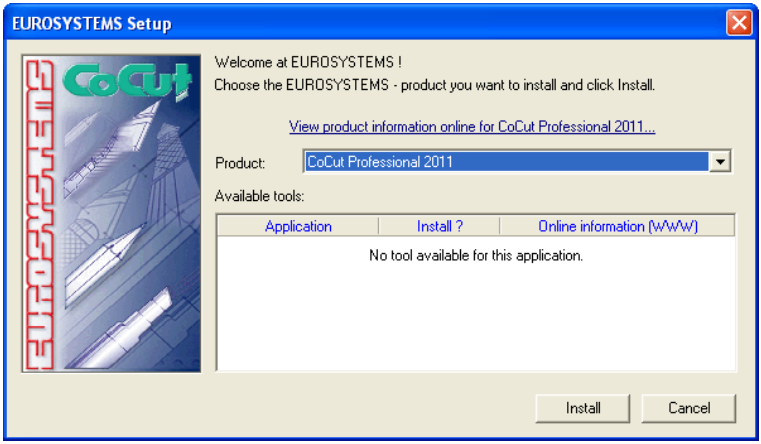

Fig. 2.1-1: Autorun window

Note: Installation process is done again for each selected application.

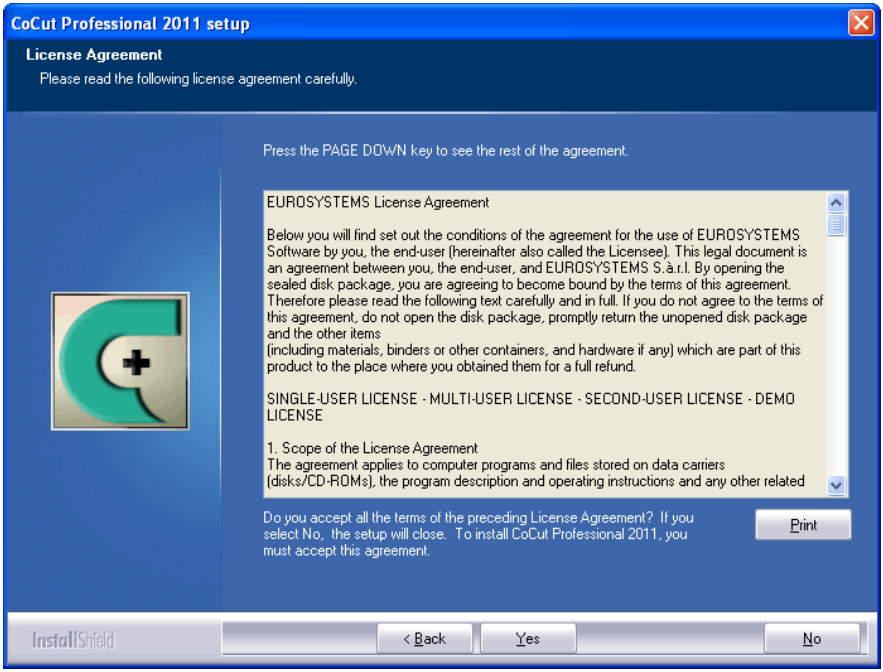

Fig. 2.1-2: EUROSYSTEMS Software License Agreement

In this dialog the installation folder for CoCut Standard 4X4 is chosen. By default the folder C:Program FilesEUROSYSTEMSCoCut Standard 4X4 is suggested.

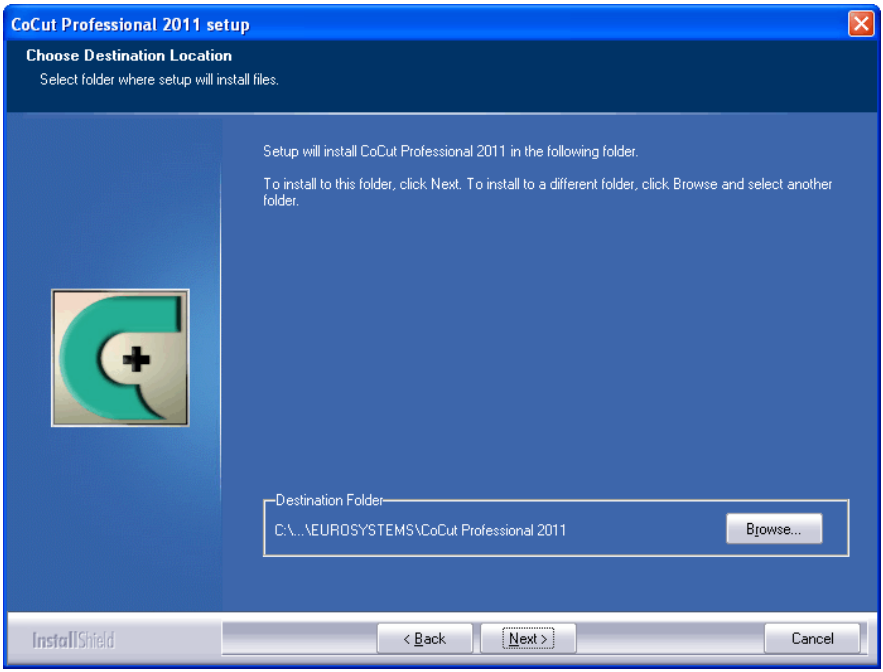

Fig. 2.1-3: Selection of destination folder

Hint: To install additional drivers select custom setup.

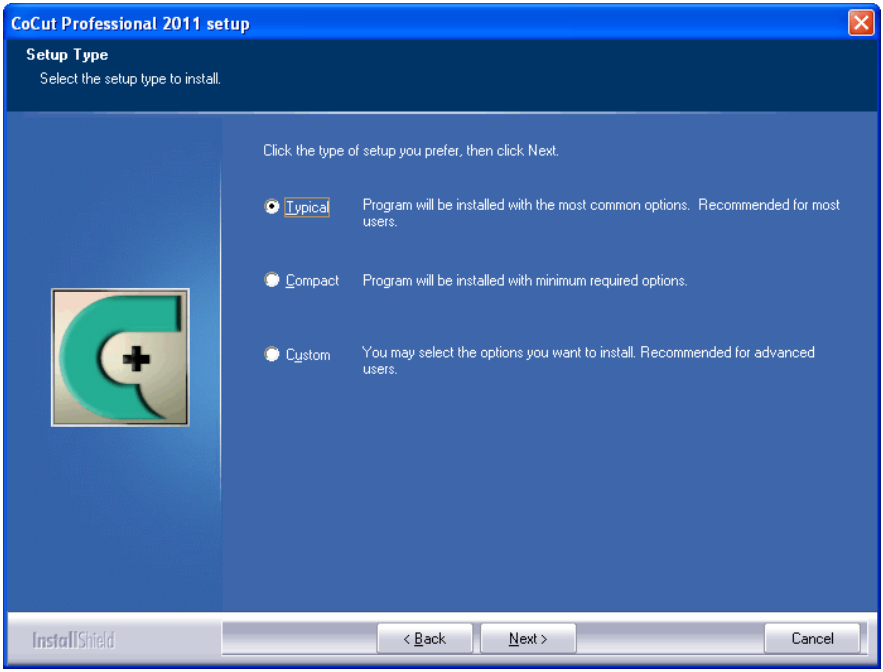

Fig. 2.1-4: Selection of setup type

Default program folder in start menu is EUROSYSTEMSCoCut Standard 4X4.

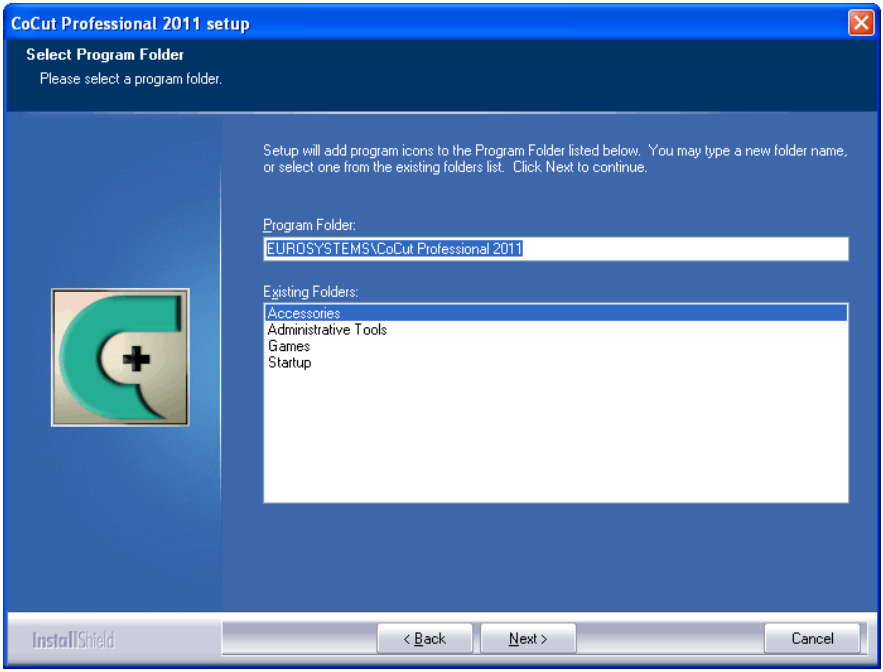

Fig. 2.1-5: Position in start menu

2.1.2 Enter license data (without dongle)

2.1.2.1 Use .ecf file: Recommended, if license data was sent via email.

In the eMail with license data you´ll find an attached file with the extension .ecf.

A double click on this file will license your software automatically!

2.1.2.2 Manually, if license data is printed on a sticker, which is located in the package (inner left hand side).

On this sticker you´ll find information about program version, serial number, user data and the code itself.

Important! All license data must be entered exactly how printed!

Fig. 2.1-6: Start window with invalid code

By clicking "*License...*" button following dialog is opened.

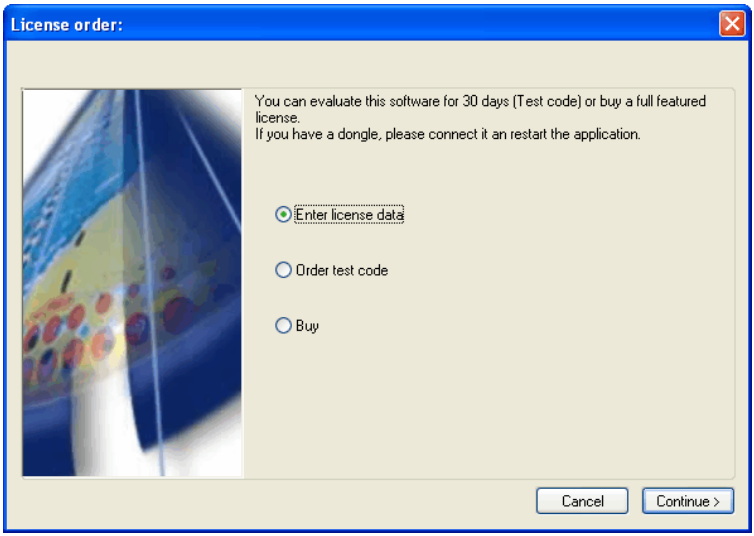

Fig. 2.1-7: Option for first installation of CoCut Standard 4X4

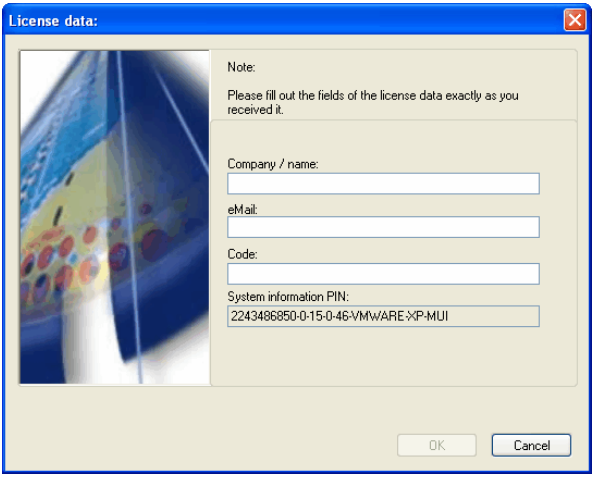

Fig. 2.1-8: These fields have to be filled with license data

2.1.3 Enter license data (with Dongle)


If copy protection is realized using a dongle (frequently in case of upgrades), don´t forget to connect the dongle with a port on your PC.

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On this sticker you´ll find information about program version, serial number and the code itself.

Important! All license data must be entered exactly how printed!

2.2 CoCut Scripts

2.2.1 Insert CoCut icon in CorelDRAW toolbar

CorelDRAW 6

- Select the menu ***Extras***
- Select the menu item ***Adjust***
- Select the file card entry ***Toolbar***
- Double click on ***Script general***
- Select the ***CoCut 6.csc*** from the script list

- Select any symbol and drag it - while keeping pressed the left mouse button - to the CorelDRAW-toolbar.
- Press the OK-button

CorelDRAW 7

- Select the menu ***Extras***
- Select the menu item ***Adjust***
- Select the file card entry ***Toolbar***
- Double click on ***Script applications***
- Select the ***CoCut 7.csc*** from the script list
- Select any symbol and drag it - while keeping pressed the left mouse button - to the CorelDRAW-toolbar.
- Press the OK-button

CorelDRAW 8

- Select the menu ***Extras***
- Select the menu item ***Options***
- Select the file card entry ***Work area/Adjust/Toolbar***
- Double click on ***Script applications***
- Select the ***CoCut 8.csc*** from the script list
- Select any symbol and drag it - while keeping pressed the left mouse button - to the CorelDRAW-toolbar.
- Press the OK-button

CorelDRAW 9

- Select the menu ***Extras***
- Select the menu item ***Options***
- Select the file card entry ***Work area/Adjust/Toolbar***
- Double click on ***Script applications***
- Select the ***CoCut 9.csc*** from the script list
- Select any symbol and drag it - while keeping pressed the left mouse button - to the CorelDRAW-toolbar.
- Press the OK-button

CorelDRAW 10, 11, 12, X3, X4, X5

Indication: CorelDRAW must be installed with the option "Visual Basic for Application".

This option can be installed as follows:

Insert CorelDRAW 10/11/12/X3/X4/X5 medium into the drive/ start setup / select type of installation „***Custom setup***". If already a CorelDRAW-version is installed on your computer first select „***user defined setup***" and then „***Custom setup***".

In the dialog that now opens, double click on main applications or one click on the ***Plus***-field. Here, double click on ***productivity support*** and activate the option „***Visual Basic for Application***". After the installation of CoCut you have to link the CoRUN-Script

with the toolbar.

- Select the menu ***Tools/Customization***
- Select the option ***Workspace/Customization/Commands*** in the left option bar
- Right next to the option bar, click once on ***File*** and select ***Macros*** and drag ***CoCutStd.CoCut*** to the toolbar of CorelDRAW 10/11/12/X3/X4/X5.
- Activate the tab ***Appearance***. Here, press the ***Import***-button and select any symbol.
  Indication: the symbol disappears at each new start of CorelDRAW 10 and changes to the book-icon (CorelDRAW Bug in the User Interface).
- Select the option ***Workspace/Customization/Command Bars*** in the left option bar .
- Change the name of the toolbar „***New ToolBar 1"*** to CoCut.
- Click on OK.

If you now mark one or several objects and click on the thus created icon, the objects are passed on to CoCut and can be plotted.

2.2.2 CoCut Script in Macromedia Freehand

Freehand 8, 9, 10, MX

CoCut is in the ***Xtras-***menu underneath the menu item ***Animate*** and in the ***window-***menu / menu item ***Xtras*** under functions.

How does the passing on of data from Freehand 8, 9, 10, MX to CoCut take place?

Selected /marked objects

Start the CoCut via the ***Xtras***-menu. If the objects are marked, only the marked objects are passed on to CoCut.

All objects

Start the CoCut via the ***Xtras***-menu. If no objects are marked, all objects on the desktop are passed on to CoCut.

Indication: Process-fillings and lens-effects are not passed on.
Indication: Freehand 8 possesses a color -correction -mechanism (as for example CorelDRAW), that influences the display of the colors in Freehand.
Solution: Switch off the function in the file menu / menu item settings / tab color

2.2.3 CoCut Script in Adobe Illustrator 8, 9, 10, CS, CS2, CS3, CS4

CoCut is in the ***file*** menu underneath the menu item ***export***.

How does the passing on of data from Illustrator 8, 9, 10, CS, CS2, CS3, CS4 to CoCut take place?

Start CoCut from the ***file*** menu. If the objects are marked, only the marked objects are passed on to CoCut. If also texts are passed on they will automatically be converted to curves.

Indication: If no objects are marked, CoCut is not active!
Indication: Special process-fillings are not passed on.

2.3 MultiSkin

2.3.1 MultiSkin and export scripts for CorelDRAW, Illustrator, Freehand and AutoCAD

2.3.1.1 What is MultiSkin?

It is a free floating graphic element that can have different faces - so called skins. It improves the handling if different CorelDRAW versions are used.

Fig. 2.3-1: Different skins of MultiSkin

2.3.1.2 How to install MultiSkin?

The MultiSkin is used for the transfer of objects from CorelDRAW (9-X5) to CoCut. If you install CoCut from CD the installation of the MultiSkin is done automatically. With the test version respectively the download version the MultiSkin must be downloaded and installed separately. After having installed MultiSkin on your system it will automatically be started with CorelDRAW.

2.3.1.3 How to use MultiSkin wisely?

MultiSkin facilitates the data transfer from CorelDRAW (9-X5) to CoCut by automatically starting CoCut and also passing on the data that are on the desktop to CoCut. Depending on the skin it is sufficient to double click or click once on the knife-icon in order to carry out the previously described function.

2.3.1.4 Which function or which purpose does the CoCut Export-Scripts have? With which host programs do they function?

Similar to the previously described MultiSkin the Export-Scripts facilitates the data export to CoCut. The scripts function with the following host programs: CorelDRAW, Illustrator, Freehand and AutoCAD (MultiSkin only works with CorelDRAW). The Export-Scripts enable a smooth data export to CoCut without having to convert texts to curves. Contour-pens and fillings are also exported and can be converted automatically to

vector-objects before cutting.

Depending on the host program the scripts are either started via a menu entry in the host program or via an additional function-icon in the toolbars.

2.3.1.5 How to install or activate them?

please refer to 2.2: CoCut Scripts

2.3.1.6 What cannot be exported (limits)?

CorelDRAW

- mass text
- complex fill bitmaps
- types of lines must be converted to objects before the transfer (menu arrange -> convert contour to object)

AutoCAD

- DXF transfer: dimension, types of lines, regions
- AutoCAD Fonts are converted in standard font
- PLT transfer: max. transfer size A0

Illustrator & Freehand

- complex clip paths
- complex fill bitmaps

2.4 Selection of the device driver

Please, select first your output device from the list ***driver***. In the field ***name of device*** the identical name for the selected device that is shown in the cutting dialog appears. This name can be changed individually in this field. After the selection of the driver please select in the area ***type of connection*** the ***local interface*** with which the device is connected to the computer.

Tip: If the driver you search for is not in the list you can try an alternative driver from the same manufacturer.

2.4 Selection of the device driver

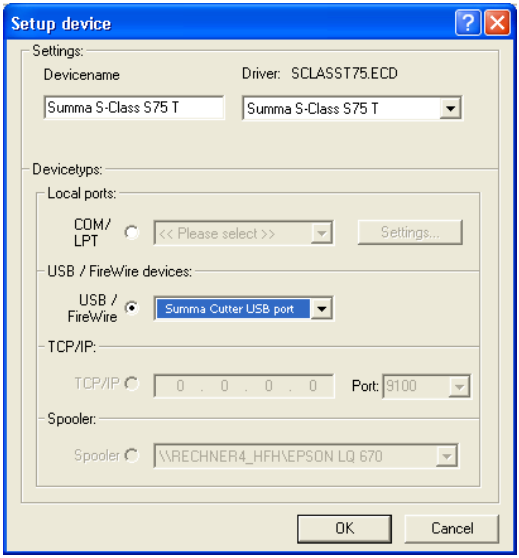


Fig. 2.4-1: Dialog for the selection of the device driver

Detailed information for the setting of the ***local interface*** is here: **please refer to 3.1: Cutting - Milling - Creasing - Drawing …**

3 How to work with CoCut

3.1 Cutting - Milling - Creasing - Drawing …

3.1.1 Device setting - Interface setup (local device)

The CoCut-output

With this command you activate the module for *cutting, milling, creasing* and *drawing* of your data.

You activate this function via the -button in the ***tools***-toolbar or via the ***file***-menu, menu entry ***output…***

S

Fig. 3.1-1: **The output -button**

When *first* opening this dialog another dialog will be opened before in which the *driver of the device* as well as the *connection* has to be defined.

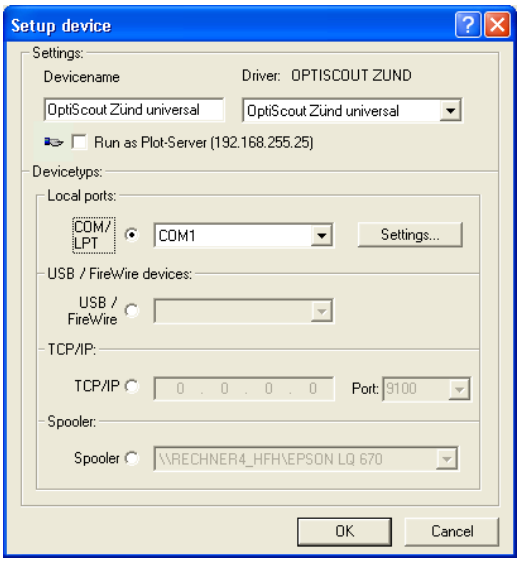


Fig. 3.1-2: Driver and selection of the connection

General

Under the part of the dialog named ***General*** you select the ***driver of the device***.

In the right list all device ***drivers*** are listed that are available in CoCut. In the left list an individual name for the driver can be distributed. This name will be used in the output dialogs of CoCut.

Enable as server

Requirements are at least 2 licenses of CoCut.

If the option ***enable as server*** is activated the output device will be marked as ***plot server*** and can be used by another ***Plot-Manager*** for the output.

The characteristic features of an output device are that a driver for the processing of the data has to be distributed to this output device. On the computer on which the Plot-Manager is running the job data for the output are transformed into device-data by means of a driver. The output of the device data can be done in several ways:

Types of connection

Local interfaces

Local interfaces are the interfaces (COM1, COM2, ..., LPT1, LPT2, ...) that are directly on your computer.

The activation of the ***settings***-button opens a dialog for the configuration of the interface. These settings that are done here apply for the whole system.

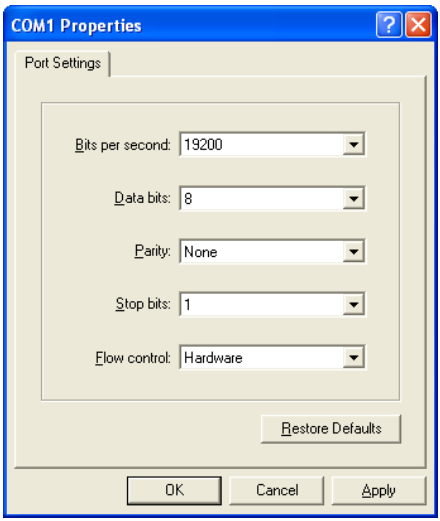


Fig. 3.1-3: Dialog for the setting of the interface parameters

Indication: When steering serially you have to pay attention that all settings on the side of the computer as well as on the side of the output device correspond. Otherwise there is no or faulty communication between them.

USB devices

Here, all momentarily connected ***USB-devices*** are listed.

TCP/IP

Here, you have to enter the TCP/IP-address and port-number to which shall be output.

Spooler

Here, you can select a Windows printer driver.

When opening the ***output*** dialog again it will be opened *directly* with the previously set device driver.

3.1.2 Device setting (network device)

When selecting the menu item ***create network device …*** following dialog will be opened:

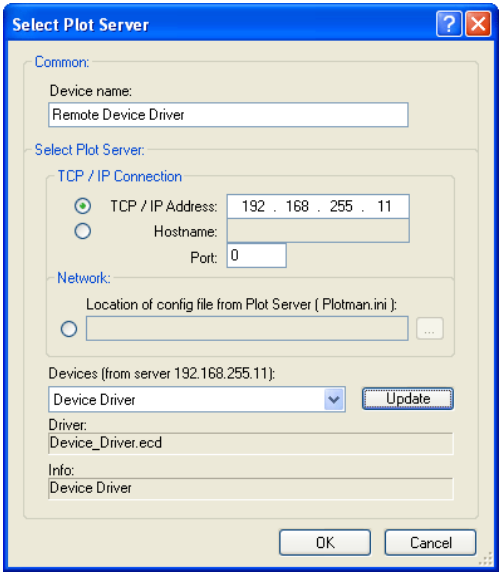


Fig. 3.1-4: Dialog for the configuration of a plot server

A ***network device*** enables the output of CoCut-jobs on a Plot-Manager that runs on *another* computer. Contrary to a "normal device" the data are not locally transformed into device-data but transferred unchanged to the plot server for the further processing.

Device name

In the entry line enter the name of the device.

Server selection

In the area named ***server selection*** enter the ***TCP/IP address*** if you use a TCP/IP-connection or the ***name of the computer*** that is used.

Network

If a connection shall be done via a ***network*** the configuration file of the plot server, the ***plotman.ini***, must be selected.

Devices (of server)

If the ***actualization***-button is pressed the ***devices*** of the server are read.

Indication: The device of the server can only be read if the server was selected as only then, the devices of the server are available.

Driver

In the field ***driver*** the device driver is entered that the server uses for *this* device.

Indication: This driver must also be created locally, which means as local device.

3.1.3 Start of the output of the CoCut-working surface

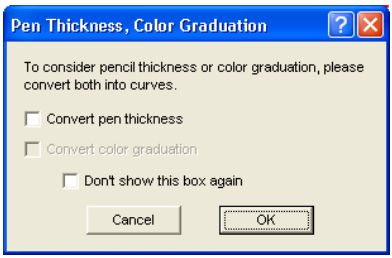


Fig. 3.1-5: Pre-processing line weight and color gradient

If a CoCut-job contains objects with the attributes *contour/line weight* or *color gradient* the previous dialog appears. Here, the object attributes can be transformed into vectors so that they are taken into consideration at the output. After clicking on the ***OK***-button the object attributes are transformed into curves.

3.1.4 Output to device

There are 2 displays of the output to the device dialog: The ***min.***(imized) and the ***max.***(imized) display that can be activated with the so named button.

< Min. display (Standard)

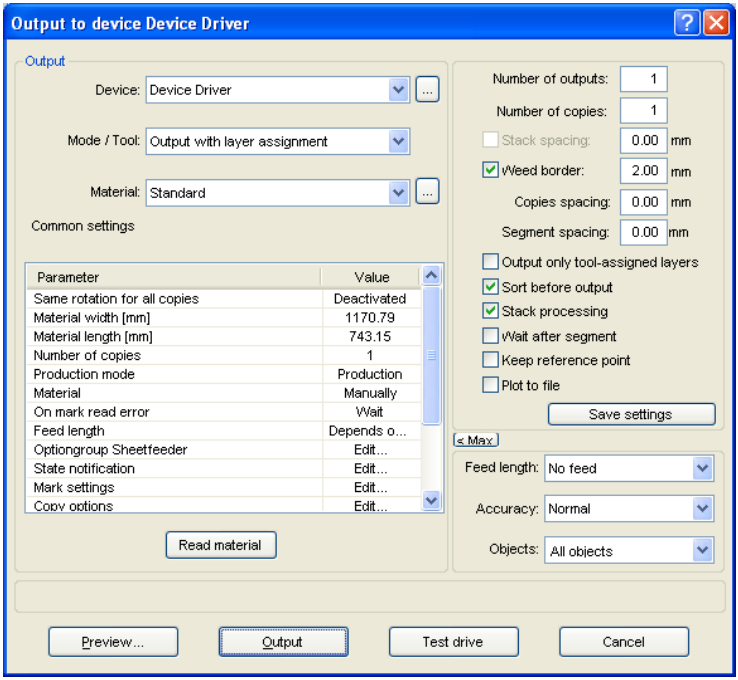


Fig. 3.1-6: Output dialog in < Min-display

< Max. display

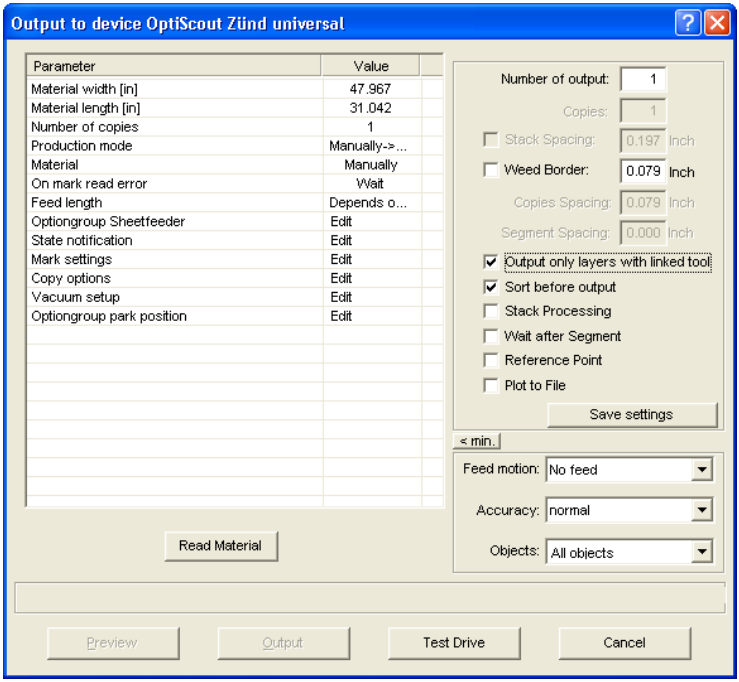


Fig. 3.1-7: Output dialog in < Max-display

Output

In the area named output of the ***output*** dialog are all selection fields or parameters that are directly in contact with the output device.

Device

In the field ***device*** the previously defined output device is shown.

If the ...-button is pressed further menu entries are available:

Fig. 3.1-8: Device-pop up-menu

Create local device

With this option further ***local devices*** for the output can be defined.

Create network device

With this option devices for the output and that are in the network can be defined.

Modify

With this option modifications as for example another interface can be defined.

Delete

With this option a device connection can be cancelled or deleted.

Mode /tool

In the field ***mode-/tool*** you select if you want to cut, mill, crease, draw with your device. The functions that are available here depend on the active driver.

Material

In the field ***material*** you select the material that shall be cut. This field is linked to a database that has to be filled which means that the different data for different foils are entered. For example the settings of print, speed and width on normal foil can be different to flock- or metal foil. These values can be defined individually as they depend on the material and the device that are used.

Pressing the  -button opens the following pop up-menu:

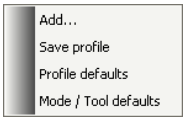


Fig. 3.1-9: Pop up-menu of the material …-button

Add

Activating the ***add***-menu item writes a new data record to the material database.

Save material data

If the menu item ***save material data*** is selected the previously entered or changed values are written in the database.

Mode/tool default

If the menu item ***mode/tool-default*** is selected the values from the database for this tool are taken over.

Material default

If the menu item ***material-default*** is selected the values from the database for this material are taken over.

Read out

The ***read out***-button delivers back to all connected devices the height of the area to be plotted if an accordant command is intended in the firmware for the device. Devices that do not offer this option no value respective zero is delivered back.

3.1.5 General settings

The area ***General settings*** allows the access to the parameters of the device and driver. The area is divided in ***parameter*** and ***value***. The width of the display can be changed by moving the vertical line between the areas with the mouse. Whenever value is written under **„edit"** a double-click opens the corresponding window for the setup of the group parameter.

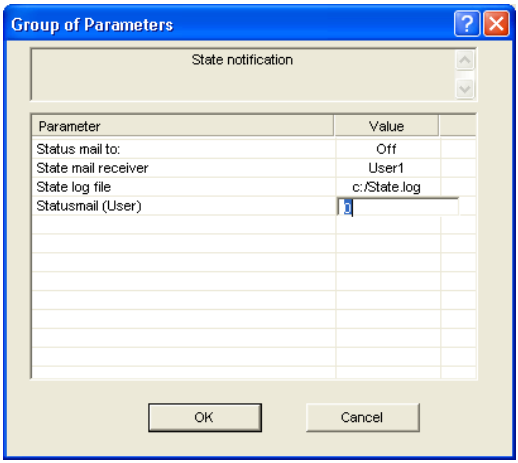


Fig. 3.1-10: Example for an opened parameter group

Number output

The value in the field ***number*** indicates how often the repetition of the job-output with all set device-parameters shall be carried out.

Number copies

In the field ***number copies*** you define how often the *selected* objects shall be cut. After the cutting this value is automatically set back to 1.

Stacking space

The value in the field ***stacking space*** defines if the copies shall be stacked vertically and which space has to be kept between the copies. Pre-condition for the activation of this option is that the selected object can be cut more than one time on top of each other!

Indication: In the stacking preview the first object is shown „normally". Each further object of the stack is shown dashed in blue.

Weeding frame

With the option ***weeding frame*** it is defined if and with which space a rectangle is cut around the plot that facilitates the weeding of the foil. In the ***output preview*** the frame - if activated - is shown *dashed in blue*.

Space copies

The value in the field ***space copies*** defines the space between the copies that were entered in the field ***number copies***.

Segment space

The ***segment space*** defines the horizontal space between the single segments. Segments always occur if the job has to be sectioned which means divided.

Sort before output

If the option ***sort before output*** is activated all objects in the working surface are sorted 1. in head-direction and 2. in transport direction. If the command ***sort with simulation…***-is used, its last sort-setting is used.

Stacking-processing

If the option ***stacking-processing*** is activated all jobs in the queue are processed one after the other without interruption.

Wait after segment

Sectioning/segmentation: If a job is too big for the output CoCut segments the job automatically in so many parts **(segments)** that are necessary for the complete output of the job.

If the option ***wait after segment*** is active the output is interrupted after each segment and the material can be newly adjusted if necessary.

Keep paper origin

Via the option ***keep paper origin*** the zero point (0/0) of the cutter can be moved. If this option is not active CoCut selects automatically the physical zero point as starting point for the cutting.

If the option ***keep paper origin*** is active the physical zero point is moved about the offset coordinate of the reference point. The coordinates of the reference point correspond to the position of the down left corner of the object to be cut on the CoCut-working surface.

Output to file

If the option ***output to file*** is active all output data are directed to a file you have to define and written on the hard drive.

Save settings

By activating the ***save settings***-button all values that have previously been entered in the ***output*** dialog are taken over and assigned to the currently active output device.

Feed/origin

Depending on the selected driver the name of the field is either ***feed*** or ***origin.***

Friction feed cutter

With ***origin*** the options are ***new origin*** or ***do not set.*** If the option ***new origin*** is selected the device goes into X-direction at a fix set value behind the last cut object and this position is then the new origin. If ***do not set*** is activated the physical zero point is the new origin after the output.

Flatbed cutter

With ***feed*** the options are ***feed*** or ***no feed.*** If the option ***feed*** is activated the material feed is carried out with the sectioning and with the output from the roll if the flatbed cutter has an automatic material feed.

Accuracy

The field ***accuracy*** offers the following parameters: ***very low, low, normal***, ***high*** and ***very high***. As default, the value ***normal*** is pre-defined.

The accuracy defines of how many vector parts an object should consist. This is only relevant with objects whose size range in the 10th millimeter. Other object sizes are calculated *automatically* by CoCut and the optimum of nodal points for the later output defined.

Objects

The field ***objects*** allows the selection of the objects to be output. Besides the modi ***all objects*** and ***selected objects*** CoCut also allows the cutting of ***color sequences*** or of ***single color layers***. The two last named are explained more in detail in the chapter „***color separation when cutting***".

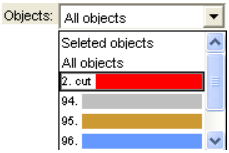


Fig. 3.1-11: List field objects with selection-modi.

Preview

The ***preview***-button opens the ***output***-preview.

Output

The ***output***-button transfers the data directly to the ***Plot-Manager*** and to the connected device.

Test run

If the ***test run*** -button is activated the connected devices drives along the Weeding frame with the tool head lifted. This also happens if the option "weeding frame" was not activated.

3.1.6 Color separation when cutting

Each layer color used in the draft appears again in the ***objects*** -list with the number that clearly defines each layer color. In addition, in this list field *two horizontal color bars* appear. After having transferred the data of a color layer, in the info-area of the Windows status bar the ***Plot-Manager-***icon ( ) appears.

Double clicking on this icon activates the Plot-Manager ***job-control***. If the mouse cursor is positioned on the icon and the right mouse button is pressed, a pop up-menu appears in which the Plot-Manager can be closed or the program-***version*** can be shown. In the ***layer selection*** the color layers that have not been processed yet occur in the order in which they had been selected. The order in the stack can be changed at any time.

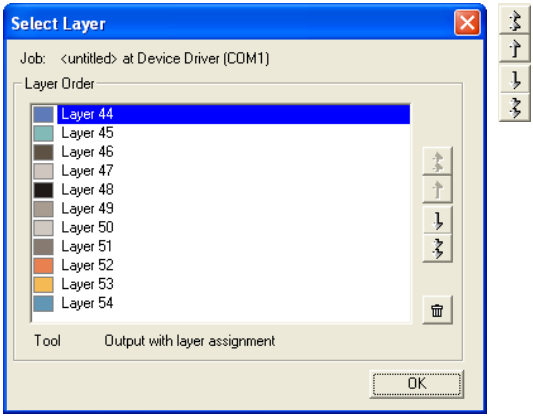


Fig. 3.1-12: Definition of the order in which the single layers shall be processed by up/down-buttons

The order is defined via the ***up/down***-buttons. Layer colors that are not necessary are deleted from the list with the -button.

Tip: For the *color separated cutting* use the ***passer-marker*** from the draw-tool. *Passer-markers are cut at the same place on the foil independent from the color used.*

3.2 The output-preview

The ***output-preview*** is automatically started if you press the ***preview***-button in the ***output*** dialog.

Closing the ***output***-preview and returning to the working surface of CoCut **ESC**

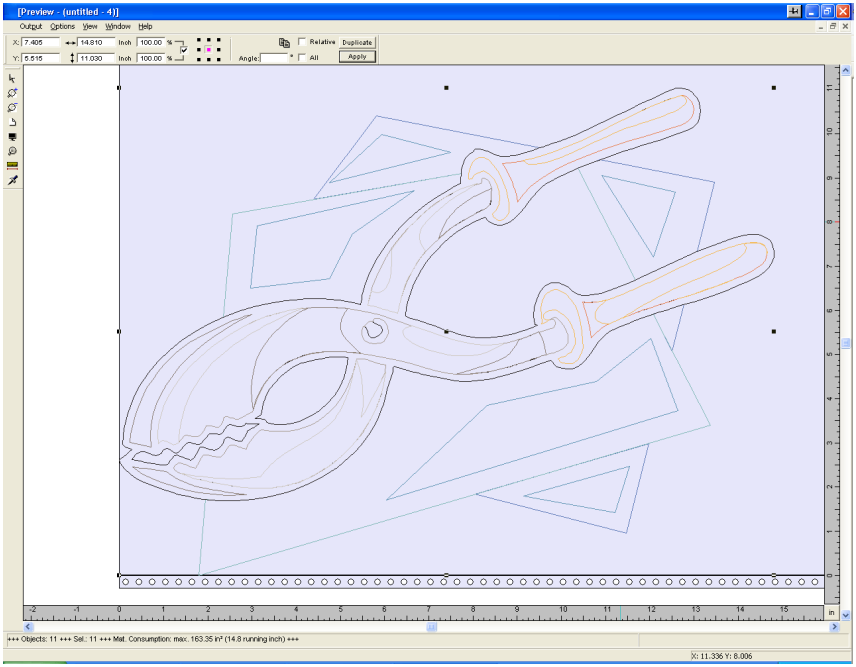


Fig. 3.2-1: Output-preview with toolbars, status line and output-objects

In the status line of the cutting-preview the following information is shown: ***contour***, ***filling***, ***width*** and ***height***, ***group*** or ***combination***, the ***max. foil consumption*** in square meters and running meter (rnm) as well as selected ***object features***. If the ***output***-menu is activated the data are transferred to the output device.

Indication: If the job to be cut is left, underneath or above the material- or table preview and the ***output*** *-menu is activated you will automatically be reminded that the objects to be cut are out of range of the output.*

A detailed description of the ***preview-tools***-toolbar is here: **please refer to 6.2: The *preview tools*-toolbar**. A detailed description of the ***preview-object-parameter***-toolbar is here: **please refer to 6.3: The *preview object parameter*-toolbar**

Foil optimization

The material consumption can be reduced by using the module ***foil optimization***.

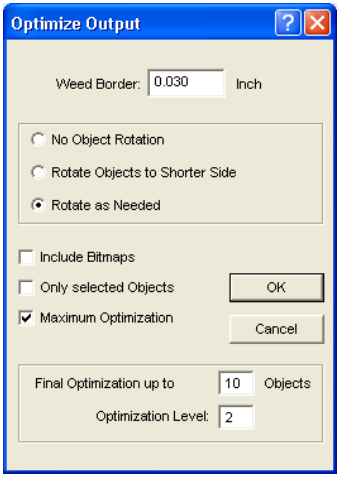


Fig. 3.2-2: Parameter dialog for the material optimization

The ***foil optimization*** takes care that all objects are arranged in a way that they take the least space on the material.

Indication: Groups and combinations are each regarded as an optimization object. If this is not desired the grouping must be interrupted and the combination cancelled.

Following options are available:

Weed border distance

In this field the desired distance between the optimization objects, the so called ***weed border distance*** can be set.

Rotate all objects to the shorter side

All objects are rotated so that the shorter side is downwards.

Rotate if required

During the optimization all objects are rotated so that they can be arranged saving the most space.

Also consider bitmaps

If this option is activated, bitmaps and groups that contain bitmaps are also optimized.

Only selected objects

Only the selected objects are considered. With this option you can for example optimize according to layers (colors).

Maximum optimization

If this option is activated two more fields are shown in the foil-optimization dialog. The option ***maximum optimization*** calculates all possible combinations the can arise from the fields ***end-optimization up to maximum ... objects*** and ***permutation-depth***. The calculation can take much time depending on the size of the here set values as all possible combinations that arise from the two values are calculated and compared. Therefore, you should usually not set more than 20-30 objects with a permutation-depth of max. 5.

Indication: An optimization always leads to the rotation of one or several objects.

3.2.1 Weeding lines

Weeding lines serve for the better procession of large jobs. Material length or width of several meters are difficult to handle, therefore, you can insert weeding lines during the foil cutting that divide the job into smaller parts that are more easy to handle.

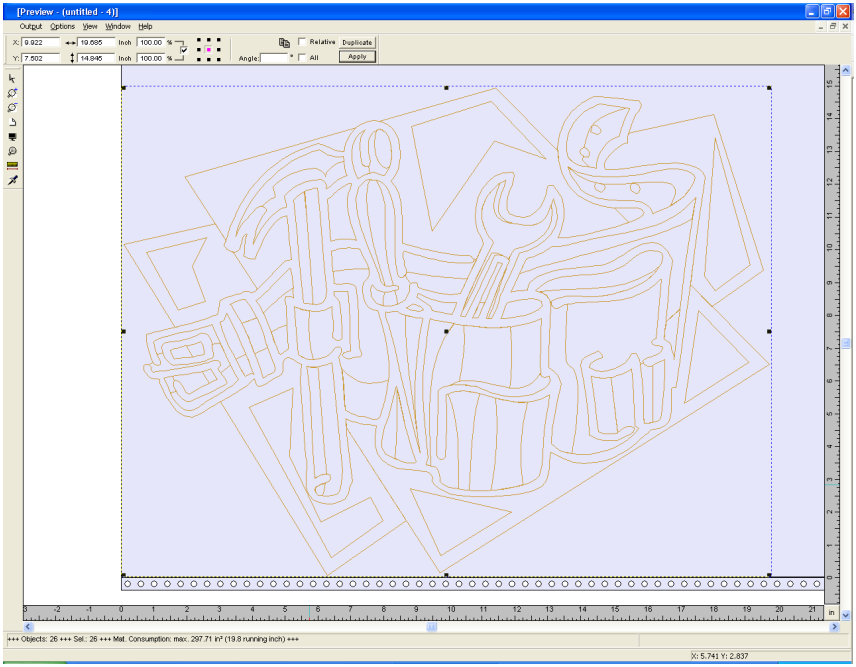


Fig. 3.2-3: Output-job with weeding frame (dashed in blue) without weeding lines

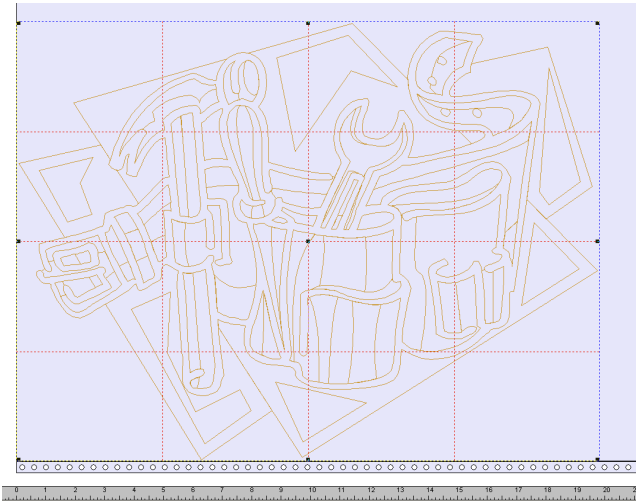


Fig. 3.2-4: Example with 3 horizontal and 3 vertical weeding lines (dashed in red)

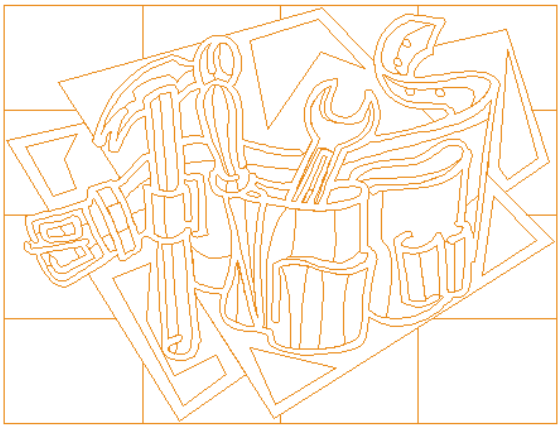


Fig. 3.2-5: Result of the output with weeding lines - objects not! cut

In the ***output***-preview there are 3 possibilities to insert horizontal and vertical weeding lines.

Indication: Weeding lines can only be inserted if the option ***weeding frame*** *has been activated in the* ***output*** *dialog.*

1. Manually

Position the mouse cursor on the weeding frame *dashed in blue* around the objects. The mouse cursor changes into a double-headed arrow. Now draw a horizontal or vertical

weeding line to the position where it should be segmented. Repeat the process until all necessary weeding lines are inserted.

2. Via the menu *options*

Open the menu ***options*** and activate the menu item ***horizontal weeding line*** or ***vertical weeding line***.

The first weeding line is inserted in the middle of the objects to be cut. The second call up of the function bisects the two halves in two more halves and so on.

3. Via the shortcuts h or v

An „**h**" or „**v**" directly entered via the keyboard generates the respective weeding lines - as described in 2.

Tip: Single objects can be provided additionally with a separate weeding frame via the right mouse menu.

3.2.2 Job-sectioning

Sectioning is the division of a job in so many parts (sections) that are necessary for the complete output of the job.

If the job to be output is bigger than the set or the available output-width (***output*** dialog, field ***width of material***) of the output device in the information area of the ***output*** dialog the indication „***job will be sectioned***" is shown.

Indication: The terms ***sectioning*** and ***segmentation*** are used as synonyms.

The activation of the ***output***-menu then opens the following dialog **before** the transfer to the device:

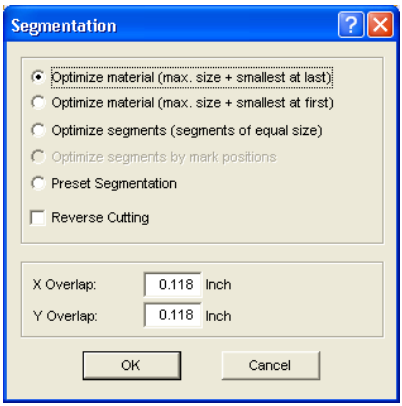


Fig. 3.2-6: Sectioning dialog with overlapping of 3 mm

Foil-optimization (max. size + remainder as last)

Foil-optimization … causes CoCut to create segments in the maximum permitted size. The size of the last segment usually differs from the others

Plate-optimization (max. size + remainder as first)

Only active with flatbed cutters. If the last segment was also cut as last the plate could not be processed until the end. Therefore, the remainder is cut as first so that the plate lies on the table until the end.

Segment-optimization (segments of same size)

If the option **segment-optimization** is activated always segments *of the same size* are created.

Marker-optimization (dynamic segment size)

This option is activated as default with CoCut if ***video markers*** exist in the Job. The above dialog is skipped and the preview of the dynamic segments is shown. The reason of this optimization is that always at least 3 video markers are necessary. Depending on the location of the video markers CoCut "searches" up to 30% next to the segment line if there is a video marker. If yes, the respective segment is adjusted ***dynamically***.

Saved sectioning

The last used setting is automatically saved. When loading the job again this sectioning can be accessed.

Reverse cutting

The option ***reverse cutting*** indicates that the objects are cut as „negative“ for example for the use as template for the screen printing.

X-overlapping and Y-overlapping

In the fields ***X- and Y-overlapping*** you can define how much the segments shall overlap. The vectors are enlarged accordingly at the cutting points.

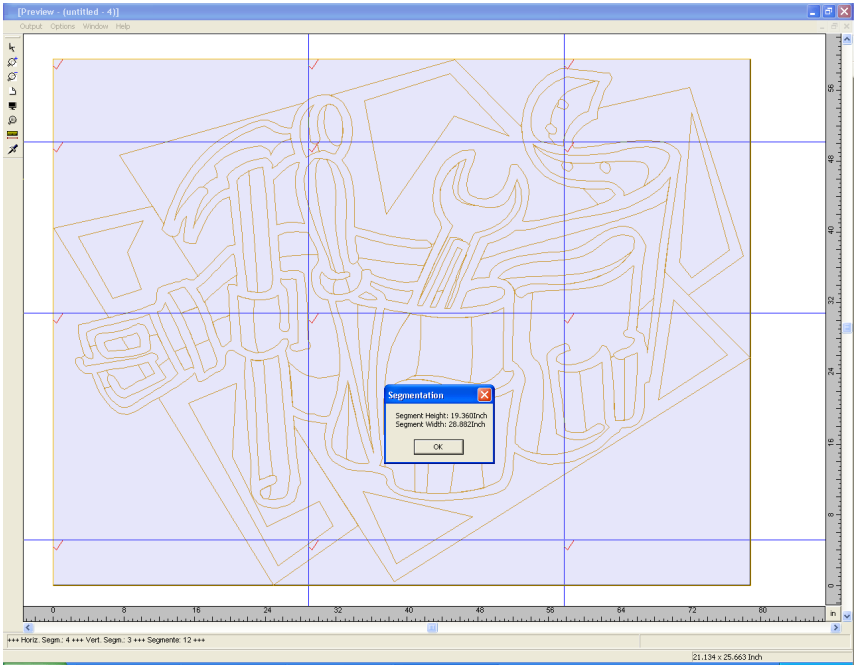


Fig. 3.2-7: Foil-optimization in the sectioning-preview with 8 segments and information on segment sizes

Selection and deselection of the segments

Selection and deselection of the segments is done by clicking into the segment. The red checkmark ✓ indicates which segment is active and being output.

Changing the suggested sectioning

You can change the sectioning by clicking on the blue section lines and move them to the desired position with the mouse. If necessary CoCut inserts automatically new sections.

In the status line of the segmentation-preview the size of the job to be cut in X- and Y-direction and the number of segments are shown.

4 Reference part

The menu items in chronological order:

4.1 The *help*-menu

4.1.1 The *about…*-instruction

The selection of this menu entry opens an info-window in which various information is shown. On the left part of the dialog among others the *serial number*, *version number, free disk space, co-processor,* or *type of processor* are shown. On the right down part of the dialog is a scroll-window in which all the application-files of the respective application-version are listed. This file list can be printed via the ***print***-button.

Indication: If there should be problems with your CoCut-version you can fix them the fastest if this list is made available to our support staff.

4.1.2 The *help*-instruction

This option starts the CoCut-help.  **F1**

4.1.3 The *object-info…*-instruction

The activation of this instruction opens an info-window that contains information about the objects on the desktop. These are among others the number of objects, number of selections, vector objects, text blocks, all groups and combinations or all bitmaps.  **F10**

The ***selection***-button opens the ***objects-manager***.

4.1.4 The *online support*-instruction

The activation of this menu item establishes a direct internet connection to the support-page of the EUROSYSTEMS S.à.r.l. - www.eurosystems.lu.

4.1.5 The *remote support…*-instruction

Via remote control the content of the screen of a computer can be transferred in realtime to another computer. Thus it is possible that two users who are at different places look at the same desktop. While you are on the telephone with our consultant (support) you can show each other documents or applications even if you are far apart from each other in reality. The direction of transmission respective line of vision can be changed with a mouse click. Thus you can choose if you want to look together at your screen or at the screen of your consultant.
In order to be able to use the remote support you need an active internet

connection.

4.1.6 The *live-update*-instruction

This instruction activates the update of the software via the internet.

Indication: Requirement is an active internet connection on the computer where the software is installed.

5 Reference part output preview

5.1 The *output*-menu

5.1.1 The *output*-command

Starts the ***output*** on the connected device with the settings of the ***output to device*** dialog.

5.2 The *options*-menu

5.2.1 The *rotate axis*-command

This command rotates the marked objects at 90° counter-clockwise.

compare ***rotate axis***-command in the reference part  **A**

5.2.2 The *horizontal mirror-command*

The selected object is mirrored at the horizontal through its center-point.

compare reference part ***The horiz. mirror***-command -  **X**

5.2.3 The *vertical mirror-command*

The selected object is mirrored at the vertical through its center-point.

compare reference part ***the vert. mirror*** -command -  **Y**

5.2.4 The *optimization…*-command

The foil optimization takes care that all objects are arranged in a way that they take the least space on the foil. By rotation or no rotation of objects it is taken care of that the material waste can be decreased.

compare reference part ***tool***-menu, sub-menu the ***foil optimization***-function and ***cutting - milling - grooving - drawing etc.*** **please refer to 3.1: Cutting - Milling - Creasing - Drawing …**

5.2.5 The *sort with simulation…*-command

This command opens the sort-objects-function with which the output-order and the direction of rotation can be defined. The sortation can de done dependent or independent on layer. Also, the preferred direction of the sortation can be defined.  **CTRL+F10**

In a preview window the output of the objects is simulated graphically; here, the traverse paths of the tool head can also be drafted. The simulation can be done unlimited without changing the original objects.

compare ***object***-menu, ***sort with simulation***-command

In detail refer to: **the sortation with s*imulation*-tool**

5.2.6 The *recalculate*-command

 **N**

The ***recalculate***-command enables the modification of the output-parameters or of the driver settings without leaving the output routine.

This command switches back from the ***output*** preview to the ***output*** dialog.

5.2.7 The *initial display*-command

 **SHIFT+N**

Puts back the output preview to the status before having pressed the ***preview*** -button in the output- dialog. All changes are made undone.

5.2.8 The *horizontal weeding lines*-command

 **H**

Weeding lines serve for the better processing of big jobs. Material lengths of several meters in length or width are difficult to handle, therefore you can insert weeding lines during the foil cutting that divide the job into smaller parts that are easier to handle.

The ***horizontal weeding lines*** are set with the hot key "h" or drawn with the arrow from the weeding frame dashed in blue.

Detailed description: please refer to 3.1: Cutting - Milling - Creasing - Drawing …

5.2.9 The *vertical weeding lines*-command

 **V**

Weeding lines serve for the better processing of big jobs. Material lengths of several meters in length or width are difficult to handle, therefore you can insert weeding lines during the foil cutting that divide the job into smaller parts that are easier to handle.

The ***vertical weeding lines*** are set with the hot key "v" or drawn with the arrow from the weeding frame dashed in blue.

Detailed description : please refer to 3.1: Cutting - Milling - Creasing - Drawing …

5.2.10 The *test drive*-command

If the ***test drive***-command is activated the connected device goes with lifted tool head along the weeding frame. This also happens if the option "weeding frame" was not activated.

Compare ***test drive*** -button in the ***output*** dialog **please refer to 3.1: Cutting - Milling - Creasing - Drawing ...**

5.3 The *view*-menu

5.3.1 The *material width*-command

When activating this command the section is adjusted to the values for the ***material width*** defined in the driver or set in the ***output***-dialog.

 **B**

5.3.2 The *all objects*-command

This function changes the display in that way that all objects can be seen on the screen. The section is selected so that it is the biggest possible display showing all objects.

 **F4 and Shilft+F4**

If while activating this command the SHIFT-button is pressed only the marked objects are zoomed to maximum.

5.3.3 The *selected objects*-command

If this command is activated only the ***selected objects*** from the ***output***-preview are displayed as big as possible.

 **SHIFT+F4**

5.3.4 The *total area*-command

If this menu item is activated the preview of the whole material surface is shown.
The size of the shown surface depends on the so called frame size (foil height * foil width) of the output device to be accessed.
If in the ***output*** dialog a driver for a friction feed cutter was selected in the preview always a material length of 30m is shown.
If in the cutting dialog a driver for a flatbed cutter was selected the maximum width of the flatbed cutter is shown as material length.

 **SHIFT+B**

5.4 Context menu of the right mouse button

5.4.1 Context menu output preview

Context menu of the output preview with weeding frame function

Weed border

This function creates a weeding frame around the *selected* objects in the output preview unlike the weed border option.

All other menu entries can be activated via the main menu.

6 Toolbars

6.1 The *object-parameter*-toolbar

The ***object-parameter***-toolbar consists of two parts, a *not variable* and a *variable* part. The vertical hyphen next to the *duplicate*- and *apply*-button separates the two parts.

Not variable part

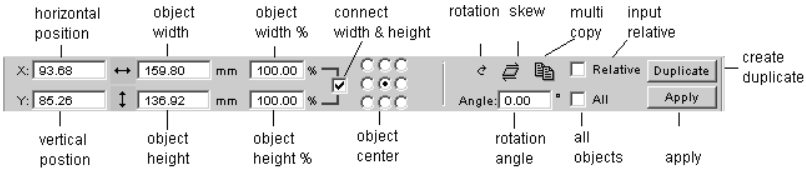


Fig. 6.1-1: Object-parameter toolbar with explanations

Variable part

Important functions that shall be fast accessed can be inserted as icon in the variable part right next to the vertical hyphen in the ***object-parameter***-toolbar.

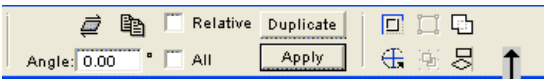


Fig. 6.1-2: The arrow marks the area for the integration of additional tool-icons

Please proceed as follows:

Position the mouse cursor in this area and click once with the *right* mouse button. Following dialog opens:

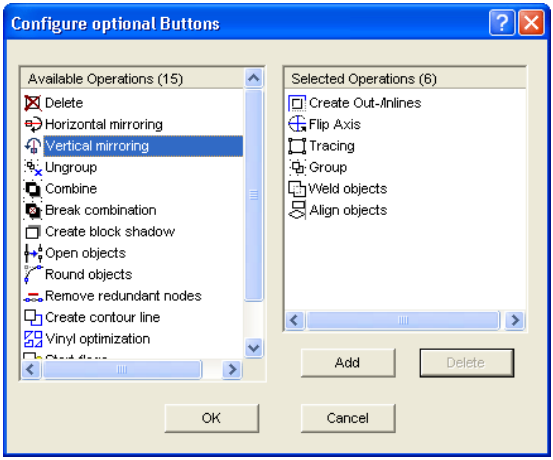


Fig. 6.1-3: Dialog for the integration of further tools in the variable part

On the left side are the available tools. On the right side of the dialog the selected tools are shown. If you are in the left part of the dialog and a tool is activated (highlighted in blue), it can be added. If you are in the right part of the dialog and a tool is marked (highlighted in blue), it can be removed again.

6.2 The *preview tools*-toolbar

The *arrow*-tool

This mode allows you to *mark, move, group temporarily* (marking function) and *modify the size* of objects in the output-preview.

The magnifying glass+

The button with the (+) plus sign increases parts of the output preview. Draw with the marking function a frame around the area that shall be increased.
This function can be carried out successively several times until a beep reminds acoustically of the last possible step.

Indication: The function key F2 and the (plus)-key of the numeric keyboard also carry out the increasing function.

The magnifying glass−

The button with the (-) minus sign decreases *gradually* parts of the desktop or of the working area.

Indication: The function key F3 and the (minus)-key of the numeric keyboard also carry out the decreasing function.

The sheet

The button with the symbolic sheet of paper shows the material area increased to the maximum.

The *screen*

The button that symbolizes a screen displays all objects on the material area as big as possible. The section is thus selected that is it the biggest possible display with all objects visible.

The *magnifying glass for selected objects*

The „dotted loupe"-button displays all selected objects as big as possible.

Indication: Keep pressed the SHIFT-button while doing the instruction. Then only the marked objects are increased to the optimum.

The *measure*-tool

This tool serves for the determination and the percental modification of object dimensions.

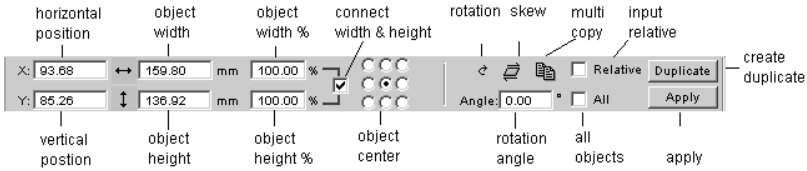
The *output*-instruction

The activation of this button gives the data to the Plot-Manager for the output to the connected device.

6.3 The *preview object parameter*-toolbar

is identical with the *not variable* part of the ***object-parameter***-toolbar.

Fig. 6.3-1: Object-parameter toolbar with position, size, angle, multi-copy, …



The display of the object-parameter-toolbar varies depending on how the object-properties are set!

Examples for different object-properties:

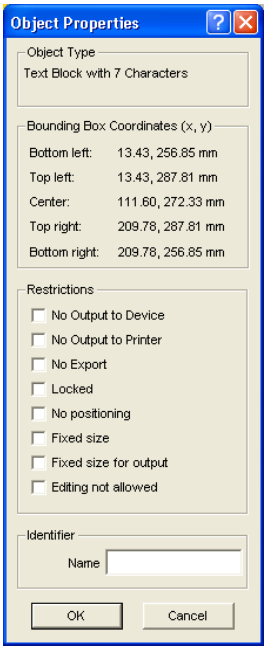


Fig. 6.3-2: Object-properties dialog for object-type text block

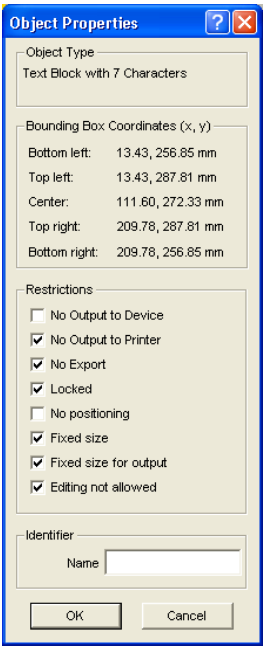


Fig. 6.3-3: Object-properties dialog for object-type text block active

7 Tips & tricks - Troubleshooting

Often, it is just a bagatelle that makes the "implementation" of new software difficult. Similar to a new machine, there are questions and problems with new software that often can be explained and solved easily. Therefore, we have explained a selection of questions that occur daily at our hotline- and support routine more closely.

7.1 Buffer overflow serial

The cutter cuts the first characters neatly and then starts to draw indefinable curves. **Tip 1**

With serial activation of the cutter, this is a typical buffer overflow problem and occurs if the protocol for the serial transfer is not set correctly. Most cutters are activated with the following parameters with a serial data transfer: *bits per second: 9600, data bits: 8, parity: none, stop bits: 1, protocol resp. flow control: hardware*

7.2 Output size Mimaki

The output size on a Mimaki cutter does not correspond with the configured size but is more than twice as big. **Tip 2**

The Mimaki cutter of the CG series is delivered ex works with a plot resolution of 0.025 mm even if they can work with a resolution of 0.01 mm and do so internally. The drivers of CoCut are set to these „device"-resolution because the cutters can be activated faster and more accurate.
For the adjustment of this plot resolution you switch on the cutter, press the <-button at the control panel and after the cutter has measured the roll you press the function key until "interface" appears in the display. Then, you press the ENTER-button until you reach the menu item "Stepsize" and then the ^-button. The display now shows „0.01". Confirm the selection with ENTER and END.

7.3 Cutter does not respond!

a. First check if you have selected the correct cutter driver and the correct port: for example GCC Ultra GRC-61 at COM2 in the CoCut-cutting dialog **Tip 3**

b. COM-connection: check if the parameters of the port are set correctly. To do so, call up the system control of Windows. In the device manager, select the corresponding connection, for example: COM.

Popular standard parameter are: *Baud: 9600, data bits: 8, parity: none, stop bit: 1, protocol/flow control: hardware*

The settings in the system control and at the cutter must be identical otherwise no or only faulty data transfer will take place.

c. USB-connection: check if the correct USB-driver is installed for the device. The settings are in the Windows device manager under USB-controller. The USB-driver for the cutting cutter must be entered in this list otherwise no activation is possible.
If the USB-driver does not appear there, install it from the delivered data carrier of your device.

d. Original cable: check if you use the original cable recommended by the manufacturer. If this is not the case, there might be bigger problems during the data transfer. CoCut „communicates" during the data transfer with the cutter so that missing or faulty connected data cable with the cutter lead to input or output errors.

7.4 Buffer overflow

The cutter reports „buffer overflow" or does not cut the whole job **Tip 4**

This is often because of an incorrect setting of the used protocol of the serial (COM) port. In most cases it is sufficient to set the protocol respective the flow control of the port to *hardware*.

7.5 Typical sources of errors when cutting

a) The foil is clamped too loose **Tip 5**

Consequence: the graver moves the foil during the cutting and the contour is not closed completely.

Remedy: when inserting the foil pay attention that the foil is clamped evenly and does not undulate.

b) The speed is too high

Consequence: small foil parts especially serifs and counters are unscrewed.

Remedy: reduce speed and lower the pressure.

c) The infeed pressure is too high

Consequence: the release paper is also carved, character parts are unscrewed and parts of the release material get stuck at the characters. The weeding border of the foil gets more difficult.

Remedy: reduce pressure and correct the depth of the cutting graver if necessary.

d) The infeed pressure is too low

Consequence: foil and gluten were only partly cut through. The weeding border is possible only with difficulty or not at all.

Remedy: increase the pressure and correct the depth of the cutting graver if necessary.

e) The graver is set too deep

Consequence: foil, gluten and release material were cut. Foil cannot be used any more.

Remedy: correct the setting of the depth of your **cutting graver**.

f) The graver is used up

Consequence: only the foil and not the gluten is cut through.

Indication: when using standard foil the using up of the graver is little. When using reflection or sandblast foil the using up is much higher.

Remedy: use new original graver.

g) The characters were unscrewed

Consequence: The weeding border is possible only with difficulty. The unscrewed parts stick to the foil and cannot be detached any more.

Generally is presumed: the smaller the font size the thinner the foil must be; the adhesive force of the gluten is higher.

Remedy: reduce the speed and if necessary the infeed pressure until this effect does not occur any more.

h) The release paper is also cut

Consequence: the release material sticks to the foil. The weeding border is possible only with difficulty or not at all.

Remedy: correct the setting of the depths of the cutting graver and also reduce if necessary the infeed pressure.

7.5 Typical sources of errors when cutting

Annex

A Glossary

Additive color system The ~ is based on mixing the additive, luminous spectral colors red, green and blue (RGB), for example in color TVs or color monitors

Adjustment Modification of the distance between two adjacent characters so that a harmonic type face is being created. This is reached by correcting the character - or word distance. With distances below 100% you speak of kerning and with values above 100% of spacing out.

Adjustment handles ~ are the 9 black quadrates that are drawn around the object and in the middle when marking objects.

Antialiasing Edge smoothing with bitmaps

Application tape Foil that is used to apply the cut foil after the weeding on the lettering area. The adhesive force must be strong enough so that the text - even the tiniest letters - can be released from the substrate without problems. After application, the ~ must also be released without problems.

Ascender Term for the part of a character that extends above the middle length.

Backup Data backup

Bit-depth also shade ~ is the mathematically possible number of colors with a specific number of bits, for example:
1 bit color depth = 2^1 = 2 possible colors (black/white)
8 bit color depth = 2^8 = 256 possible colors/shades of gray
24 bit color depth = 2^{24} = 16.8 Mio. possible colors

Bitmap Pixel-graphic

Bold Font that a bit thicker than the standard typeface.

Byte Smallest addressable unit in the computer memory, consisting of 8 bits.

Calibration Adaptation of printer, monitor, cutter or adaptation to desired values.

Cap height This is the height of the capital letters, the majuscules. As measurement usually the height of the letter „H” from the font line to the top edge of the character is used.

Center justification A break justification where the text block is justified at the same time on the left and on the right side. To do this, the word space within a text line is varied (usually extended) so that on the left and right side a clean text edge is created. This is not only applied for the the last line of a break.
compare also: forced block

Clipart(s) ~ are jobs or job parts that were added to the Clipart-toolbar. They are saved in a separate directory. (C:Program FilesEUROSYSTEMSCoCut Standard 4X4CLIP)

Clipboard ~ is used for temporary storage in Windows.
The ~ is used to exchange data fast between applications.

CMYK Cyan, magenta, yellow, contrast (key, black) Standard colors for the four-color printing.

CMYK-color area ~ is the total number of colors that can be displayed by the colors used when printing (CMYK).

Color depth ~ is the number of possible color tones that can be recognized by a scanner or reproduced on a color monitor.

Context menu Context menus are called so because the structure adapts and changes depending on the number and type of the selected objects (context). Context menus are always activated with the right mouse button. They serve for the faster access to important functions and tools and also to those functions that cannot be activated via the main menu.

Contrast Contrast; range of brightness between bright and dark parts of a picture.

Cursor ~ is the blinking, vertical line in an editable field.

Decoration Accentuation of text parts by modification of the text attributes, for example **bold**, *italic*.

Descender This is the part of a character that protrudes below the font line.

Desktop The area besides the working surface that can be used for the draft. It is comparable to a desk on which are the tools.

Digitalization Conversion of a picture template into a digital form. The capture is done pointwise or linewise by means of a digitalization-tableau or by reading the template with a scanner.

Dongle Means the copyright that is part of the scope of delivery of CoCut. It is inserted in the USB-interface of your computer. Without ~ the software cannot be started.

Download Downloading applications or files from the internet to your computer.

DPI Acronym for **D**ots **P**er **I**nch; resolution fineness (1 inch = 2.54 cm)

EPS Acronym for „**E**ncapsulated **P**ostscript **F**ormat". In this file format the text and picture information is saved in the page description language postscript. This format also contains besides text and raster data also a preview bitmap which allows displaying a copy of the data on the screen.

Foil Two production processes are common: calendaring and casting. Cast foil is created without drawing frame and thus has a lesser shrinking tendency. The costs are usually higher than with calendared foil. Calendared is cheaper, has a shorter period of usage und shrinks more.
Cutting foils are built in three layers:
1. Substrate; the lowest layer
2. Gluten layer; is between the foil and the substrate
3. the foil itself.

Font Type cut within a type face in digital form. Most type faces have the fonts normal, bold, italic and bold-italic. Often, the font is used for the same type face. Correct would be that each cut is a separate font.

Font line ~ is a thought line on which the characters of a row are standing. Even if different font types and font sizes are used in a row, all characters must stand on a common font line.

Font size ~ is the size of a font. It corresponds to the block height, which means it also comprises the ascender and descender as well as a certain space above and below the characters.

Forced justification Justification where all text lines - also the last- are adapted to the width of the column or the working area. In CoCut this justification is called „force justification".

Gamma correction The ~ is a method for the correction of color graduation considering the perception of the human eye if there are two adjoining areas of different color.

Group Combination of arbitrarily many objects to a group. The position of the objects itself does not change any more within the group.

Halftone image(s) ~ are pictures which contain shades of gray or hues. The tonal value between pure white and pure black is called halftone.

Hotfolder

	A Hotfolder is a directory monitored by the Plot-Manager. If a file is copied into this directory, the Plot-Manager carries out automatically specific configurable functions.
Inch	Measurement unit for the length 1 Inch = 2.54 cm
Job	File-ending of CoCut; name for a CoCut-file
Justification	Alignment of a text block on the working area. CoCut offers justification left-aligned, right-aligned, centered, center justification, forced center justification and adjust cap height.
Kerning	If two characters stand closer together than it would correspond to their standard thickness, you speak of ~. With character combinations as for example „Te” you have a balanced type face.
Laminating	Covering with transparent plastic films.
Live-Update	Updating of software via the internet.
Marking function	~ means marking objects by keeping pressed the left mouse button, then drawing a frame around the objects to be marked and letting go the mouse button only if all objects to be marked are completely within the frame.
Process colors	Printing scale of colors for four-color-printing with cyan, yellow, magenta and black (key). By mixing these colors, it is possible to print all colors.
Raster Image Processor	short: RIP - Software that rasterizes vector data and controls the printing on a large format printer.
Resolution	Number of pixels per track unit. It is indicated in dpi (dots per inch). Laser printers have a resolution from 600 to 1200 dpi.
Scan resolution	Fineness of the resolution when scanning analogue images **Formula:** Resolution (in DPI) = printing length (L/cm) x 2 (quality factor) x enlargement factor x 2.54 (when converting from cm into inch)
Subsidiary line	These are lines for the virtual alignment of objects on the working area or the desktop. Subsidiary lines are only visible on the monitor are neither plotted nor output on the printer.
Superscript	The characters are set higher than the characters standing on the baseline. They usually have a bit smaller font size than the basic font.
Toolbar	

	can be freely moved and positioned on the working area of an application. Often, also the composition of the tools can be defined.
Trapping	A small overlapping zone at the limit of superposed colored elements. This ~ guaranteed that no white gaps occur at the color borders. The overlapping can happen through overfilling or underfilling.
Upload	Upload is the sending of files or applications to a networked server
Weeding	means the removal of unnecessary foil parts after the cutting with a cutting plotter.
White gaps	~ are the gaps on the edges of overlapping or abutting color or foil areas. Disadvantageous especially with silk-screens or when printing.
x-height	Height of the lower case/character „x" respective the lower case without the ascender of a font.

B Imprint

Comment to the production:

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