Equipment

Product Information

Prinect Package Designer – General Overview

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Summary

Prinect Package Designer is the CAD/ CAM (Computer Aided Design / Computer Aided Manufacturing) software for structural design of folding boxes and displays within the Prinect Packaging Workflow solution. It includes all main features and functions provided with the actual version **2021**.

- Very fast drafting of folding boxes, trays and displays etc. with parametric design.
- 3D simulation of drafts incl. display of graphic design and finishing effects to check and coordinate with customer (export in PDF)
- Creation of samples on any common plotter/cutting table.
- Efficient sheet layout creation to save material.
- Creation of presetting data for folder-gluers to reduce make-ready time and enhance accuracy.
- Options for die cutting tool definition and generation of individual parametric designs are available
- Automatic design creation and information for exact estimation by integration into the JDF-based Prinect Packaging Workflow
- Illustrator Connect – an Adobe Illustrator Plug-in – to use the structural design in Adobe Illustrator for realistic display and control of the graphic design

Advantages for the customer:

- ➢ Saves time and money!
- Exact data for calculation avoid expensive false estimation
- For standard designs the process can be completely automated
- Many intelligent features release the operator from routine work and avoid errors. Several hours of time saving achievable especially through the included libraries
- Creation of graphic design with 3D simulation avoids errors and leads to higher accuracy
- Approval with the customer or the agency with 3D simulation avoids expensive sample creation
- ➢ Higher customer loyality
- Creation of special customer specific parametric designs avoid that orders are produced elsewhere

Content

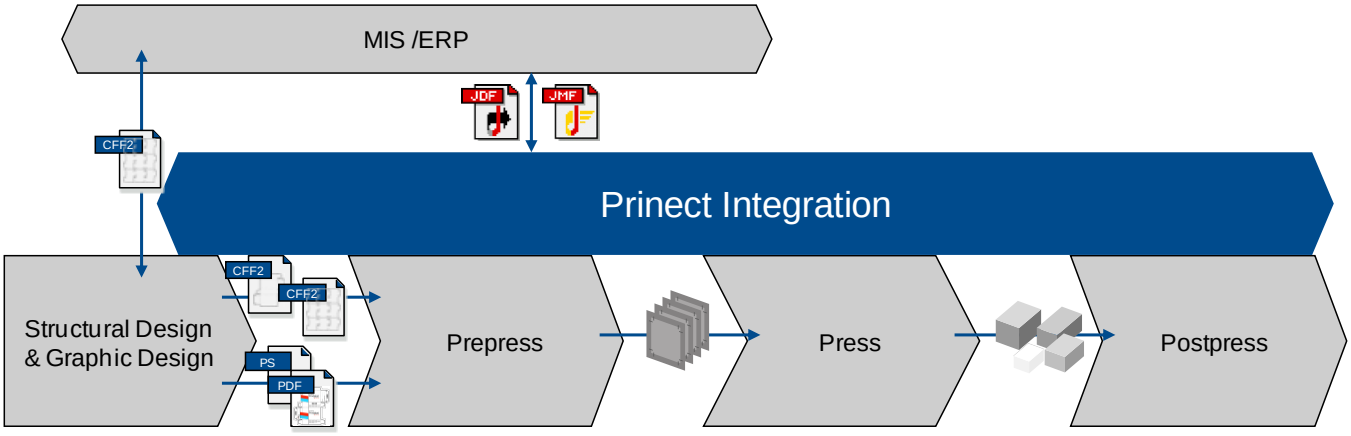
Features and Functions **5**

1. General Packaging Workflow Overview 5
2. Positioning of Prinect Package Designer 6
   - 2.1. All-purpose CAD/ CAM system 6
   - 2.2. Automatic design and information for estimation with Prinect 6
3. Prinect Package Designer functional overview 6
4. Functions in Detail 6
   - 4.1. Structural Design 6
   - 4.2. Import/ export of CAD data 8
   - 4.3. Import of 3D-Packaging good 8
   - 4.4. 3D display 9
   - 4.5. Master Canvas and Assembly instructions 11
   - 4.6. 3D View of Surface Finishing and Embossing 12
   - 4.7. PDF-Import in Prinect Package Designer makes it easier to view surface finishing effects 12
   - 4.8. Pillow Pack Simulation in 3D 13
   - 4.9. Background Image for .html 3D models 13
   - 4.10. Setting up articles 14
   - 4.11. Input of Braille 14
   - 4.12. Print marks 15
   - 4.13. Sample Creation 15
   - 4.14. Design Support in Adobe Illustrator 15
   - 4.15. Sheet Layout Creation 16
   - 4.16. Creation of varnishing blankets 18
   - 4.17. Design Frame Printing 19
   - 4.18. Synergy 20
   - 4.19. Diemaker 20
   - 4.20. Setup another working language for online help 21

Features and Functions

1. General Packaging Workflow Overview

The first step in production of folding boxes and displays is the structural design. The shape of a box is defined according to the requirements of the customer and the production process. This is very often done in the print shop, because it depends on the finishing equipment which is available. Prinect Package Designer is a CAD/CAM (Computer Aided Design/ Computer Aided Manufacturing) system for the structural design of folding boxes, tray, displays etc.



The production process typically starts with job planning and resource planning within a MIS/ERP system. The MIS/ERP system delivers detailed information in JDF format to the production system.
First step in production is the generation and selection of the structural design which requires detailed information coming from the MIS/ERP or manually (e.g. when design is done before a production order is available or when no MIS is available). Detailed info about the box type, dimensions, link to the CAD files etc. are stored and will later be used in the production process. Normally a sheet layout is created. This data is used for exact estimation of production costs and creation of die cutting tools. Usually this is done in the CAD/CAM system or sometimes in the prepress department of the print shop. The big advantage of Prinect Package Designer is to do this automatically by integration with Prinect.
When the final structural design is chosen, the graphic design – the content data / artwork – is generated. This is usually done in an ad agency or at the brand owner. With Illustrator Connect, an Illustrator Plug-in delivered with Prinect Package Designer, this is optimally supported. These two steps can take place long before the print production job is started.
When the production order comes in the sheet layout from CAD is used for creation of die cutting tools and for prepress data preparation. If none is available yet, it must be created. This is usually done in a CAD/CAM system or – in fewer cases – in the prepress department of the printer – e.g. with Prinect Signa Station Packaging Pro. Both – graphic and structural design with one-up and sheet layout – are combined in prepress. Later in finishing the data from CAD – box type and dimensions – can be used for presetting of the folder-gluer. This is a unique feature of Prinect Package Designer!

2. Positioning of Prinect Package Designer

2.1. All-purpose CAD/ CAM system

Prinect Package Designer can be used as a stand-alone tool for product development or together with Diemaker for die tool manufacturing in any environment. The advantages of fast design and layout creation and the convenient 3D functionality convince especially user of AutoCad and Illustrator.

2.2. Automatic design and information for estimation with Prinect

In the entire Prinect scenario it will be integrated with additional features to offer more advantages. It is the Prinect intend to capture all data only once and use it in all following process steps. Capturing is available in MIS or in Prinect Cockpit. Selection of standard designs and setting of dimensions is possible. Structural design is created without operator interaction. If it is a no standard design, job is sent to the operator of Prinect Package Designer. Layout(s) for one or more machine formats can be created automatically, too.
Additionally, to the CAD data the operator receives exact information for the calculation: the minimum sheet format, the number of one-ups per sheet etc. But also, the total knife length for the calculation of the toolset costs avoids expensive false estimation due to wrong or inaccurate assumptions.
This integration means that data needs only be entered once and that data can be shared. This not only saves time when entering the order and cost estimation, but also enables direct assignment of the CAD data to the production job. Package Designer is connected to the MDS (Master Data Storage) to use the existing resources and communicates directly with Prinect and JDF-connected MIS.

3. Prinect Package Designer functional overview

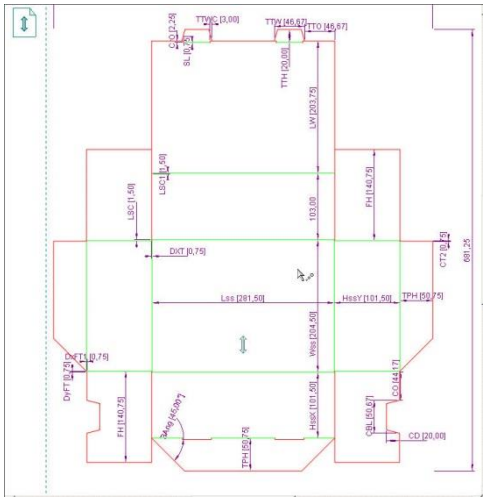
Prinect Package Designer consists of the base software Prinect Package Designer supporting the entire design process – from drafts, to samples, to converting tools – and two options: Synergy for creative, parametrical design and Diemaker for toolset definition. Also an Adobe Illustrator Plug-in „Illustrator Connect“ is available for elegant use of data in the design process. Within Prinect Production Manager these options are included in Prinect Package Designer.
Prinect Package Designer is tailored to the needs of professional structural designers with specific focus on ease of use, flexibility and power.

4. Functions in Detail

4.1. Structural Design

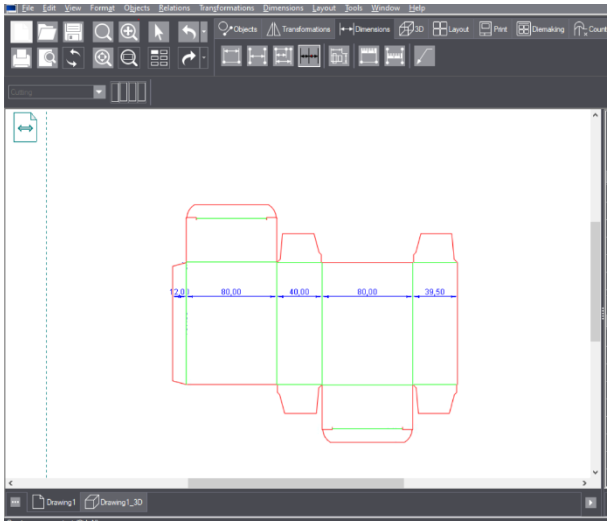
To create new designs for boxes, trays, displays etc. different functionality is available. Especially fast and easy is the use of parametric designs:
Comprehensive libraries with approx. 2000 ready-to-use parametric designs provide quick and easy creation of standard packaging boxes and displays. Parametric components from the libraries can be used by drag & drop to greatly reduce drafting time and ensure quality. The operator has only to type in the exact dimensions and automatically all parameters adopt to them.
Libraries with the complete ECMA (European Carton Manufacturer Association) catalogue, FEFCO (designs for corrugated), many de facto standards for boxes, folders, trays and designs for displays for use in stores and trade shows are included. Additionally, libraries with single and compound components can be used to combine them to individual designs or change standards.

Drag & drop features for the parametric components improve productivity and quality of design significantly. The dimensions of all objects can be changed at any time. Automatically all depending objects are adopted.
A full set of intuitive drafting and transformation tools, specially configured for packaging design, enables designers to solve any task with as few operations as possible. An intelligent drafting assistant detects automatically geometric relations and snaps objects to control points. Measuring tools allow convenient dimensioning of the design. Dimensions for single or all objects can be shown at any time.
It is possible also to use conventional drawing functions like lines, circles and arcs etc.



Parametric drawing with dimensions

With Prinect 2021 Prinect Package Designer offers a new measuring tool to speed up the process and increase the usability. It allows the operator to add the entire dimensions of all panels of the design with just one click of the mouse. This can be done either in vertical or horizontal direction. The example below illustrates the new tool.



New dimension tool in action for all dimensions in horizontal direction

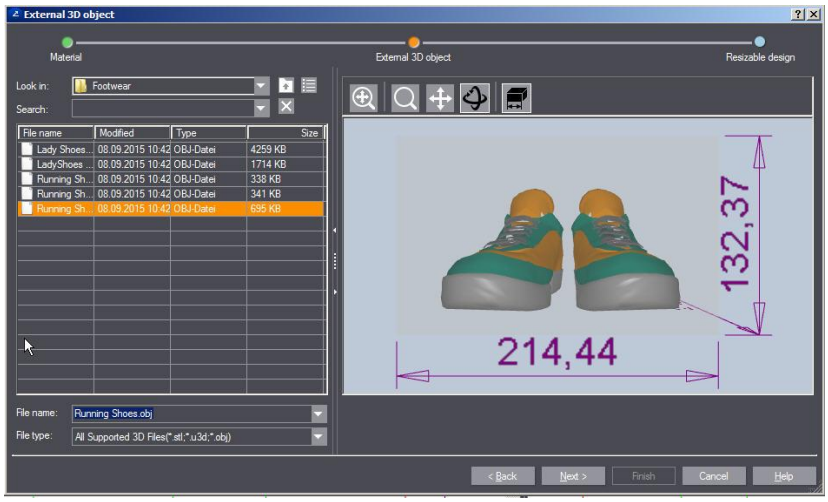
Another feature available with Prinect 2021 is the so-called *show hidden objects mode*. When creating new designs, it's in some cases necessary to hide unused lines or parts. If later changes are to be applied, it was quite a hurdle to figure out all lines and parts. Now sophisticated tools have been implemented that support the operator identifying hidden objects precisely.

4.2. Import/ export of CAD data

Of course, it is as well possible to takeover and correct data from other applications. All common formats are supported for im- and export. Mainly DXF, DDES, DDES3 (.DD3), CFF2, EPS, AI, PDF, HPGL, and DWG, but as well BMP, JPG, PNG, GIF, TIFF, and WMF can be used. Im- and export format must not be identical. It is possible to convert the data format in Prinect Package Designer.
A set of fix tools features the recovery and correction of imported vector files. Closing of small gaps between lines, redefinition of line features etc. can be done very fast with automated or interactive functions.

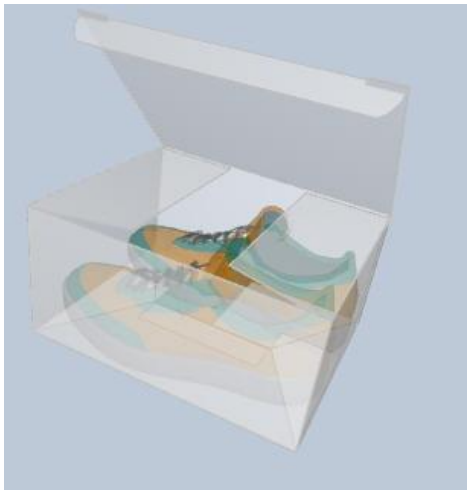
4.3. Import of 3D-Packaging good

Prinect Package Designer can import and dimension external 3D objects – e.g. CAD data of the packaging good – to make it easier to create or adjust a box to hold particular contents. This is particularly useful for CAD-designed products, such as bottles, technical products etc., when inner parts are required. The following 3D data formats may be imported: STL, U3D and OBJ.



Import of a 3D object

After selecting a resizable box, the dimensions can be adjusted so that the contents fit into the box according to the specifications.

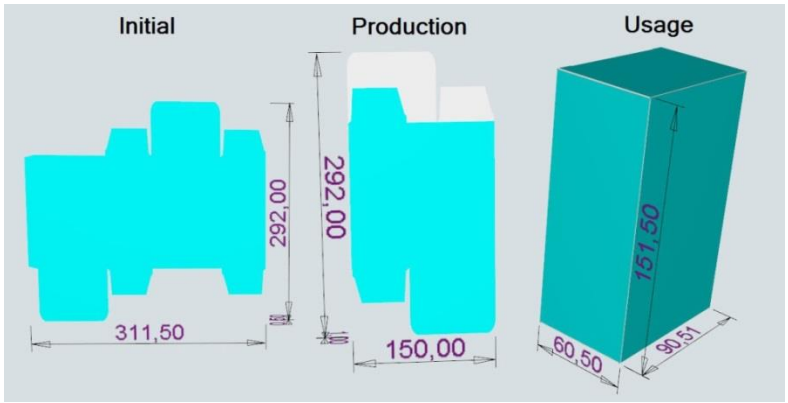


3D display of package with packaging good

The contents can also be added to the 3D folding sequence for the box and exported as 3D PDF.
Of course, it is as well possible to create a secondary package around e.g. several boxes.

4.4. 3D display

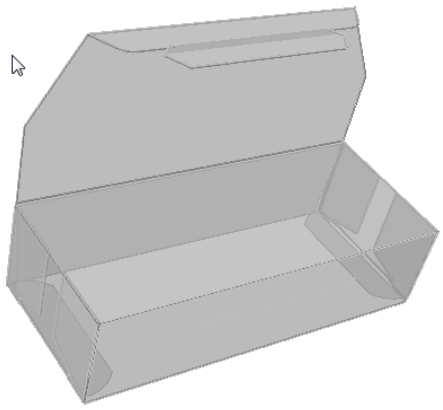
To check drafts they can be displayed in 3D. Interactively the box can be opened, closed, rotated etc. Display can be switched between opaque, semi-transparent and wireframe mode. If the graphic design is already available it can be added. This allows recognizing and correcting errors very fast.
3D data – including the box dimensions – can be send to customers as a soft proof in PDF format- e.g. via email or Remote Access. He only needs Adobe Acrobat Reader to check and release the draft interactively. Also dimensions can be displayed.



Different phases of 3D display including the dimensions of the box

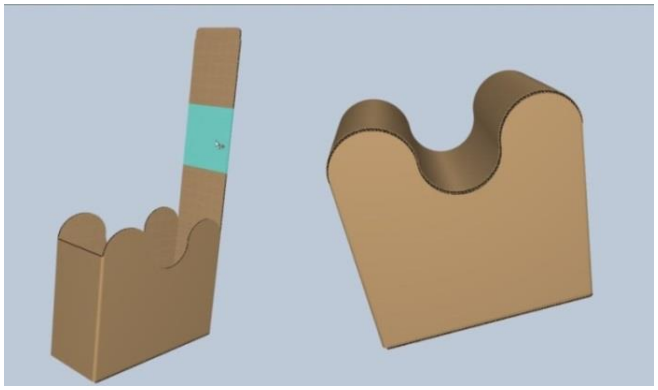
The folding sequence in the folder-gluer can be defined. For standard boxes of the libraries it is predefined, for individual designs it can be set.

Prinect Package Designer includes a materials catalog containing the most important structural and visual information about different material types. These are used for 3D simulation. This is especially helpful for corrugated material.



Semi-transparent display

Also folding boxes with curved elements can be simulated quite simple and fast.

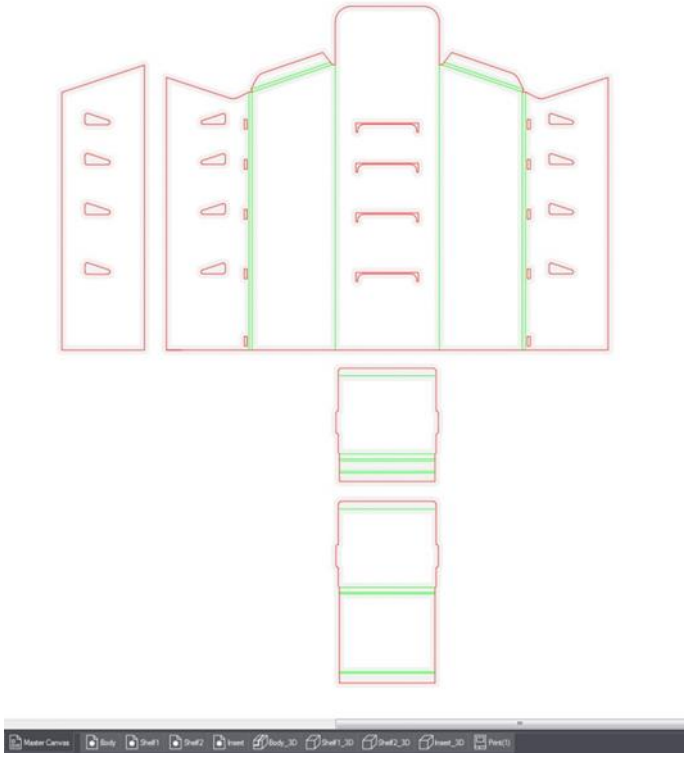


Simulation of curved surface

The material catalogue e. g. offers a “grey board” substrate mainly used for luxury goods, e.g. boxes, mobile phones, cosmetics etc.

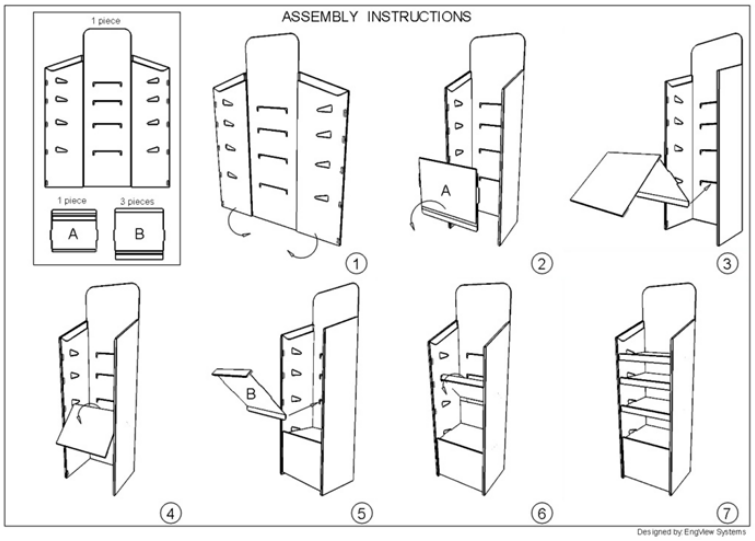
4.5. Master Canvas and Assembly instructions

This feature allows the design of boxes with several parts on one canvas. So it's much easier to take dependencies into account when creating new designs. Of course the assembled box can be simulated in a 3D model that can be provided as 3D PDF to the customers.



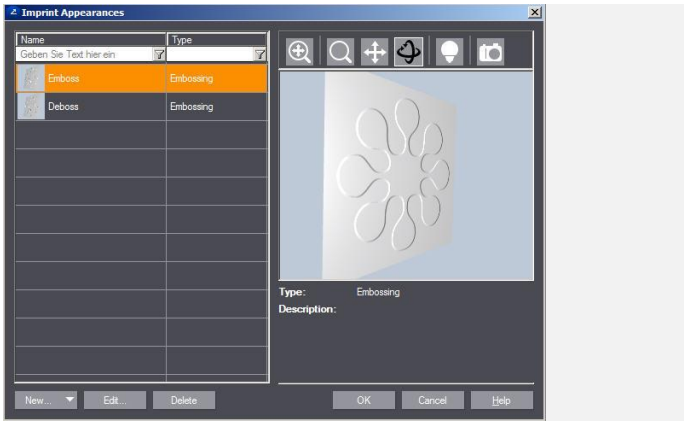
Master canvas and 3D model

Boxes using a set of parts need some instructions to avoid frustration when assembling. Therefore our solution can provide assembly instructions based on the design that can be customized by the operator. So the assembling is as easy as pie.

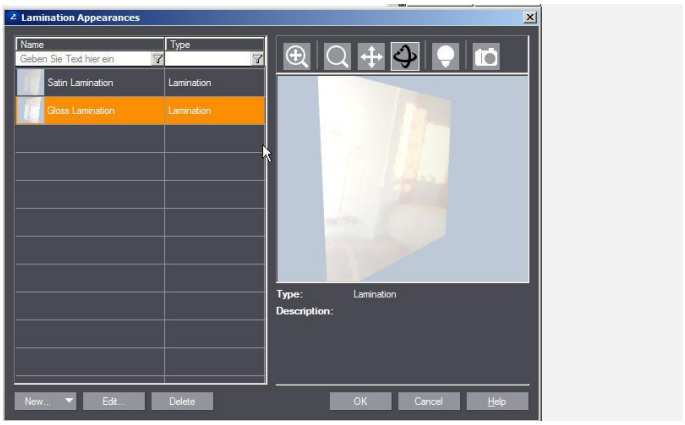


4.6. 3D View of Surface Finishing and Embossing

Embossing and surface finishing (material surfaces, lamination, glossy effects using foil lamination, metallic ink or similar) can be shown in the 3D model to give a realistic impression of the final product.



Embossing



Lamination

4.7. PDF-Import in Prinect Package Designer makes it easier to view surface finishing effects

Graphic design data can also be imported into Package Designer as a. This means a PDF that has been prepared in Prepress Manager or PDF Toolbox can be used to view the separations for special effects finishing, such as embossing, metallic effects or the like, directly in 3D simulation. This not only speeds up the process but also enables an exact check of the separations.

PDF import with finishing effects

The name of the separation needs to be assigned once only to an effect, thereafter this takes place automatically.

4.8. Pillow Pack Simulation in 3D

Pillow packs are becoming more and more popular in packaging. With Prinect Package Designer pillow packs can be displayed and exported. Besides, an export via html is possible so that the customer would not need Acrobat for checking and approval. The html contains as well the simulation of finishing effects such as foils, varnishes, embossing etc.

Pillow pack with finishing (embossing and gold foil)

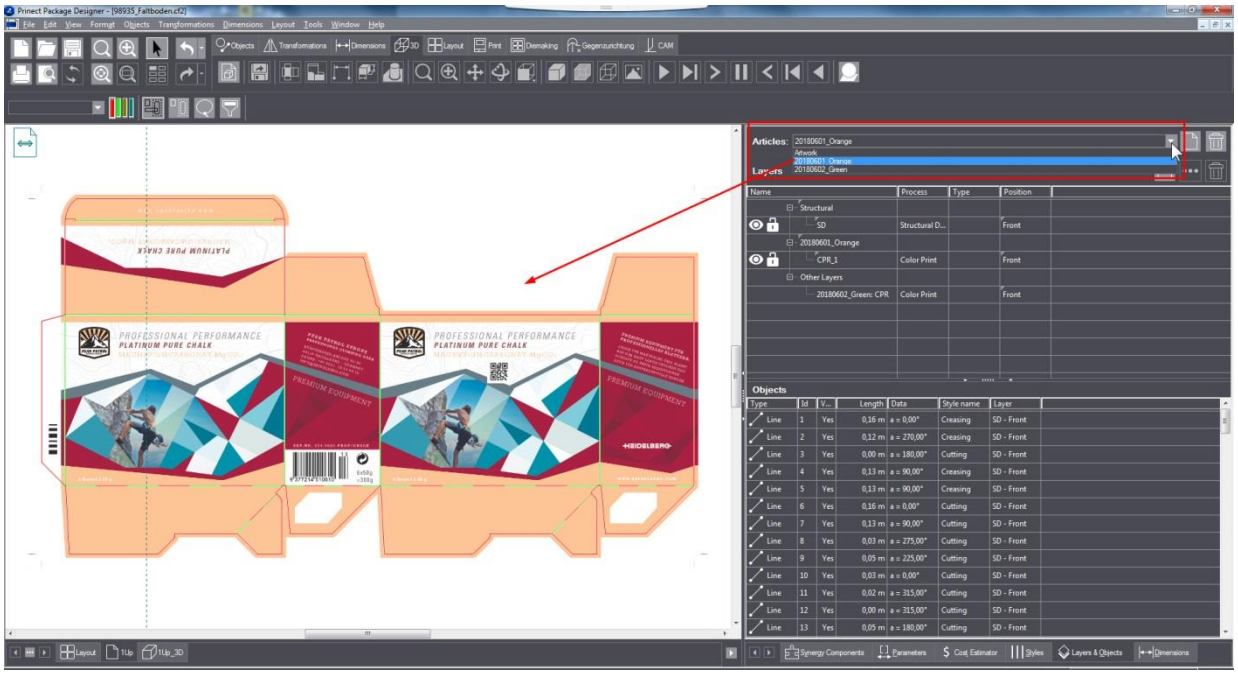
4.9. Background Image for .html 3D models

With Prinect 2021 the export of .html file with the animated 3D model including simulation of finishing effects such as varnishes, metallic foils, embossing etc. can now be customized with a background image. This gives the model a more state of the art impression.

3D model with a background image displayed in a standard browser

4.10. Setting up articles

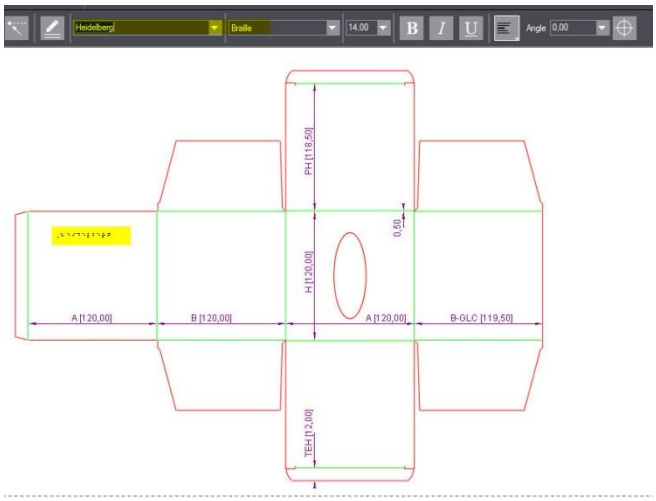
When the user sets up an article, he can load various graphic designs for the folding carton he is developing. The articles he sets up can be used in one-ups, 3D models or in layouts. This makes it much easier to load different graphic designs and create the relevant 3D models.



Article in the one-up view in Prinect Package Designer.

4.11. Input of Braille

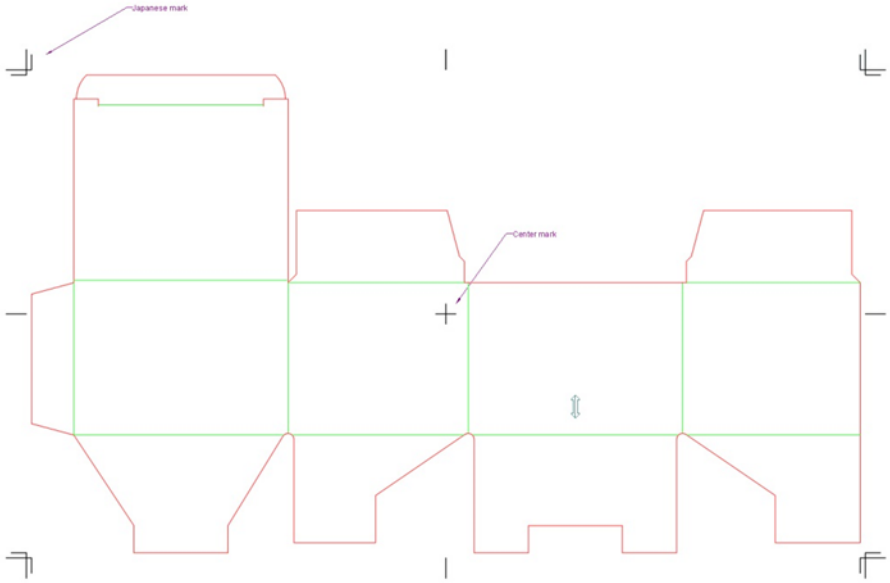
You can enter and display braille text directly in Package Designer. Its size is always correct, and you can view and check the text in clear text at any time in the top bar. This is important especially for tool manufacturers but can also be very helpful in print shops for the exact simulation of the subsequent folding carton.



Input and display of braille text

4.12. Print marks

There are more print marks available right know that can be applied to the box design in a very easy way. The new marks are e.g. crop mark, center mark and Japanese mark.



4.13. Sample Creation

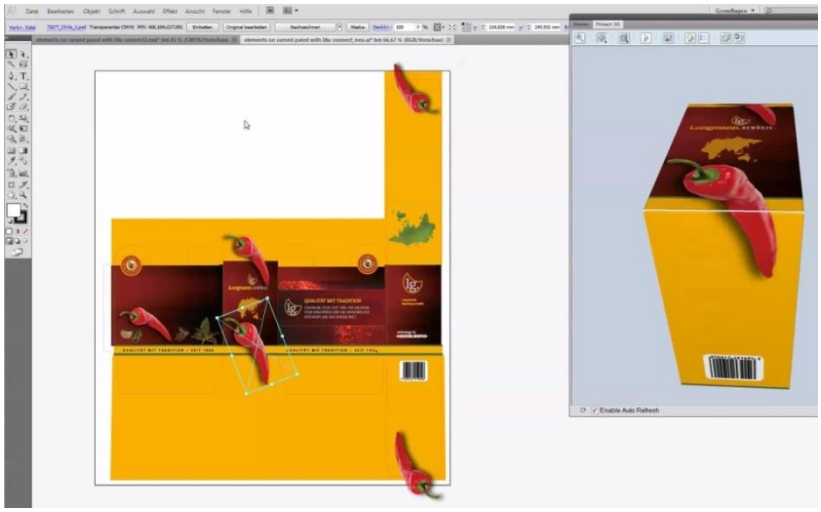
Prinect Package Designer facilitates manufacturing of real samples and short production runs. By using the computer-aided manufacturing (CAM) functionality, you can create samples of a package design on any cutting & creasing plotter. If the driver for the required plotter is not yet implemented, our support team packaging can help with implementation.

Package Designer finds the optimum tool path in order to minimize cutting time. The appropriate line attributes are taken into account. To produce optimum quality – e.g. avoid frazzling of substrate surface – Prinect Package Designer offers the possibility to define the cutting direction for each line.

4.14. Design Support in Adobe Illustrator

The Adobe Illustrator plug-in Illustrator Connect allows to import complete Prinect Package Designer files including dimensions and 3D simulation into Adobe Illustrator. This offers a variety of options for checking data and facilitating graphic design.

It is even possible to position a graphic element which is placed overlapping several panels in 3D. This is much easier and more exact. The graphic data is automatically distributed to the individual panels even if they are not beside each other in the flat design. This can save a lot of time and enhances the accuracy.



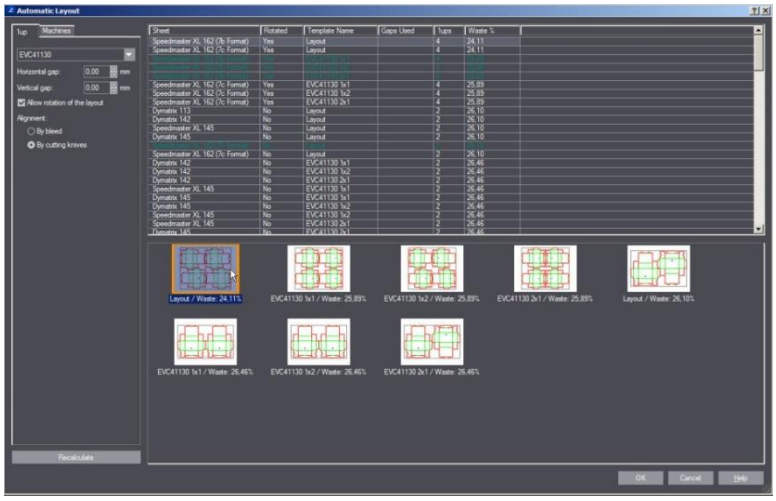
Accurate positioning of a graphic element in 3D

The Illustrator plug-in allows you to open the Prinect Package Designer data in Illustrator and quickly and easily check whether the graphic design fits the box exactly, and whether all sides have the correct orientation. If needed, you can also still make changes.
The data may also be useful to the graphic designer in order to have the exact dimensions and to check designs directly in 3D.

4.15. Sheet Layout Creation

Automatic Layout Creation

A sheet layout can be generated fully automatically without having to use the Layout Assistant (see below). After the operator has entered the required press or substrate format and knife gaps, the software automatically calculates and displays various layout options. The operator can then select the layout that is the most practical for the job. The former layout functions are still available as alternatives.

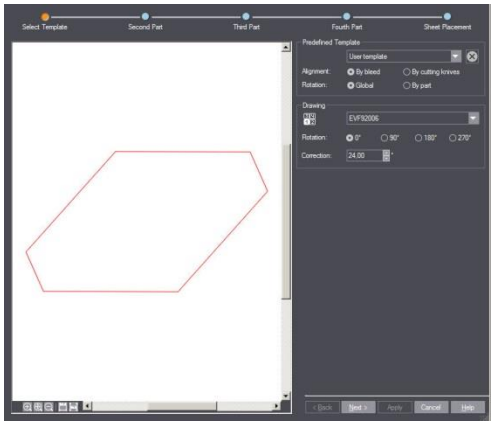


Selection of different layouts

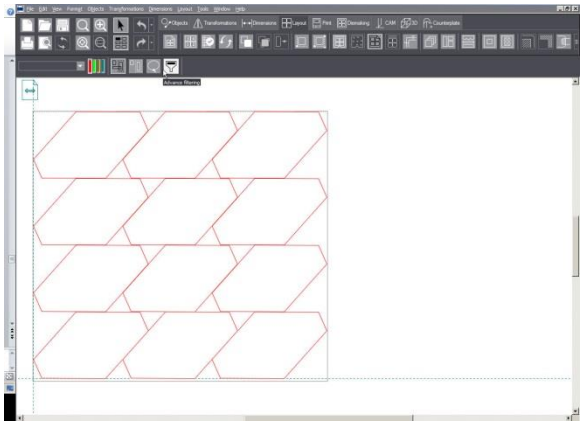
Layout Creation with Layout Wizard

Nesting of shapes to create an optimal sheet layout with minimum waste can also be supported through a step-by-step wizard and tools for manual part alignment. The layout assistant allows creating an optimum sheet layout for one or more shapes with a few clicks. For nesting a gap between the blanks can be defined in horizontal and vertical direction.

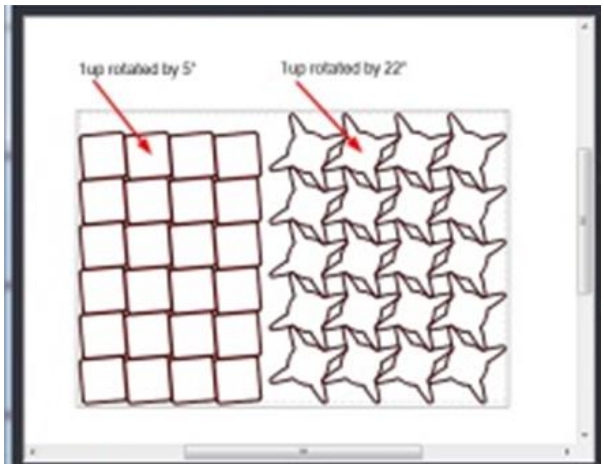
Designed especially for label customers, one-ups can be freely rotated (as long as this does not cause any issues with grain direction) and aligned to each other.



Rotation of one-up

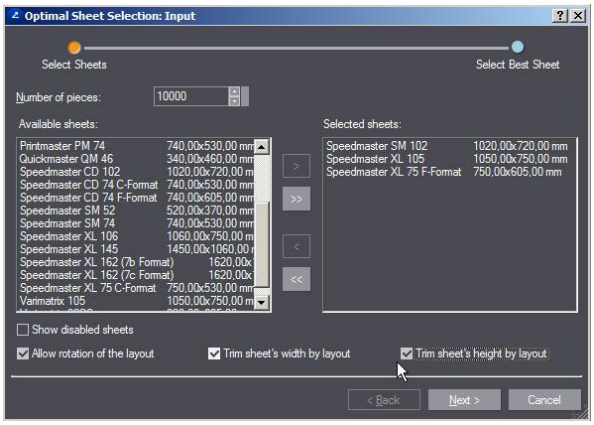


Nesting

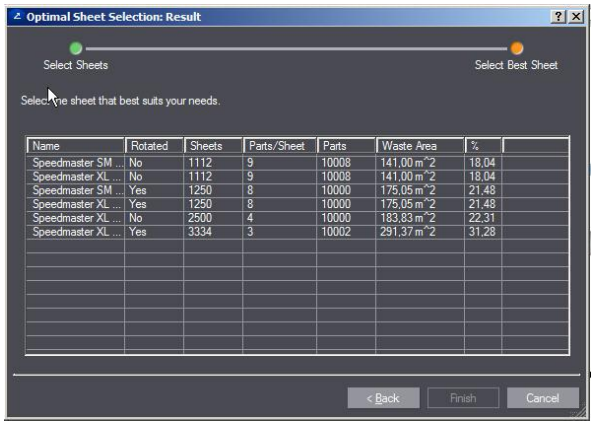


Different rotation angles can be specified for different shapes.

While using the Layout Wizzard, different sheet sizes and orientations can be compared to find the best, most cost-efficient production process. By this, material costs can be kept on lowest level.



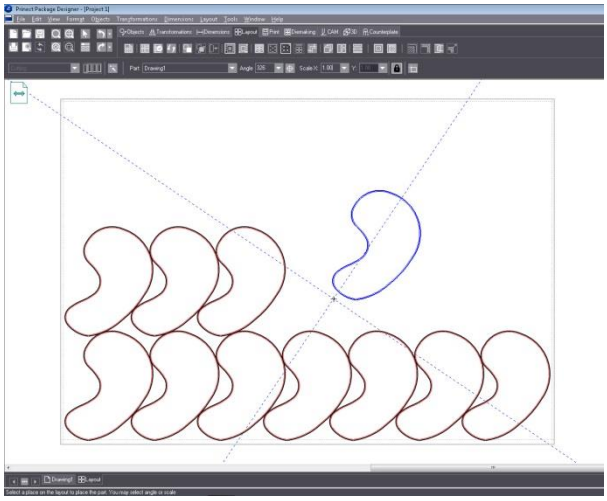
Selection of different machine formats to compare



Comparison results for selected machines by run length, waste etc.

Manual Layout Creation

For special cases the sheet layout can as well be defined manually. This allows selecting any angle and position for each object. Of course the comfortable alignment tools can be used here, too.



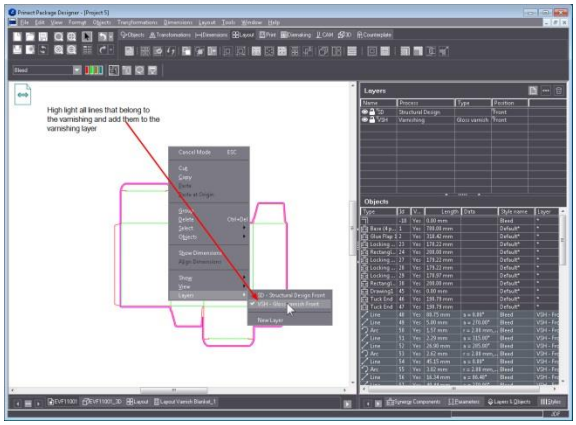
Manual sheet layout with free rotation

4.16. Creation of varnishing blankets

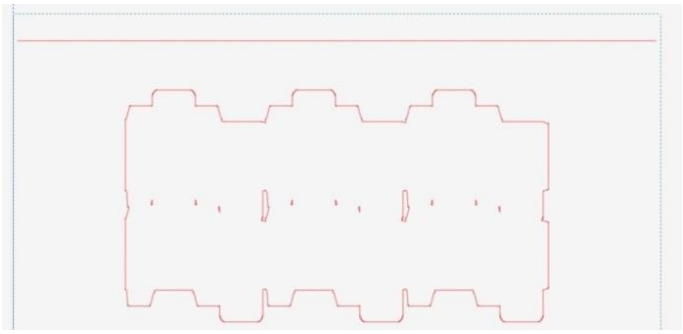
For packaging varnishing is standard. To safe varnish the varnishing should not cover the entire sheet, but be limited to the package plus bleed. As well special areas like glue flaps can be kept varnishing-free to optimize the gluing result.

The varnishing blanket is generated via layers which makes it easier to transfer, for example, changes in the one-up or in the varnishing areas to a new varnishing blanket.

This means that the varnishing areas are bordered by lines and assigned to a varnishing layer. In just a few process steps, Prinect Package Designer then generates the varnishing blanket on the base of this layer.



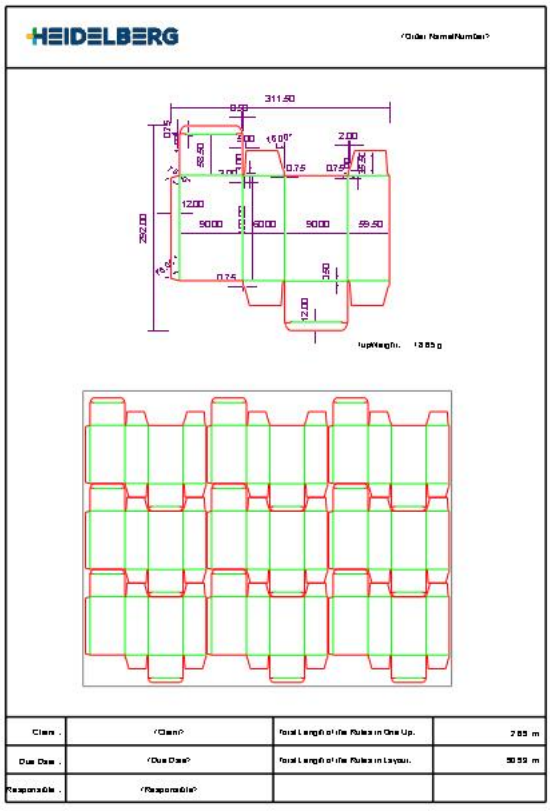
Creation of varnishing blanket with Layer



Varnishing blanket

4.17. Design Frame Printing

For presentation and documentation of the design a print function is available. The document can be designed individually – e.g. letterhead of the printer or the like – and filled with all required drawings (one-up, 3D, layout ...) and its parameters automatically. As well legends with individually selectable information like customer name, job no., or required length of different knives for tool set making can be added. The length of knives helps to estimate the costs for die cutting tools.

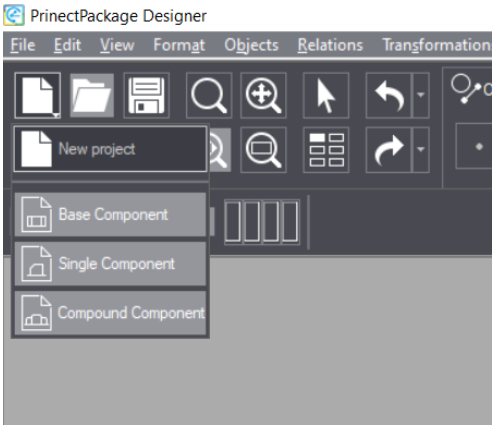


Print sheet with one-up, layout and rule legend

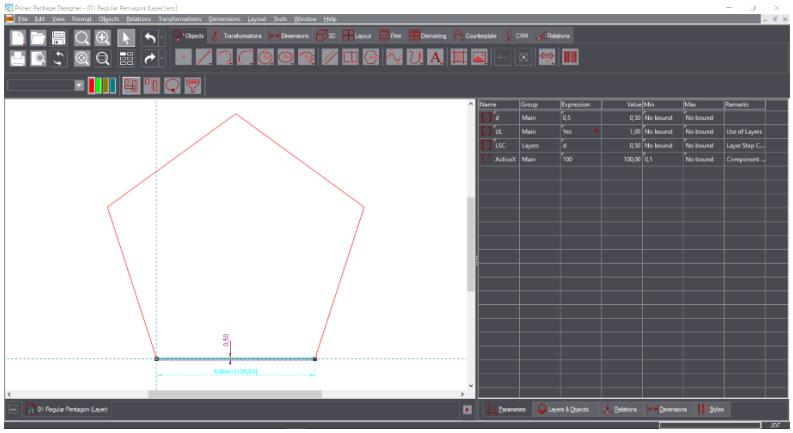
4.18. Synergy

Synergy is an option for Prinect Package Designer for a very long time. It allows users to create their own resizable components and designs which are stored in a customizable library. It is especially useful for very ambitious individual designs like creative, luxury packaging or single- or multi-part packaging for technical products e.g. with inner partitioning or alike.
Synergy allows creation and editing of simple and composite parametric components as well as complete products. This saves many hours of design time by reuse of each component.
It enables advanced designers to unleash their creativity and make their designs reusable for others. So, complete new designs can be done and then easily and fast used in different sizes and for different purposes. The reusability of designs and components leads to highest efficiency and quality. All resizable designs can be used directly in Prinect Package Designer like the integrated components of the included libraries. Everything can be checked directly in the 3D model.

Up to now it was necessary to create the resizable components and designs in the Synergy application separately from Prinect Package Designer. I.e. the operator was jumping from one application to the other.
With Prinect 20121 Synergy is now completely integrated into Prinect Package Designer. All features for drafting and creating resizable parts are blended into one application. It is unique in the CAD market to be able to create drafts and resizable parts in one single application.
When using Synergy in Prinect Package Designer the UI will change to a reddish color so that the operator can easily identify which application is in use.
For those already using the Synergy option not much will change. On the desktop both icons – for Prinect Package Designer and Synergy - are still available. The operator is free to start Synergy via the icon on the desktop or out of Prinect Package Designer.



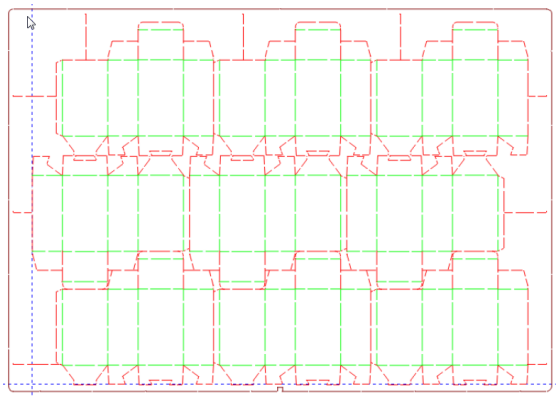
Synergy in Prinect Package Designer



User Interface of integrated Synergy (redish icons)

4.19. Diemaker

The option Diemaker is for design and manufacturing of steel-rule dies and related tooling and only required for printers who produce their own tool sets and for die making professionals.
It enables die board design with rule placement (balancing knives, bridges, nicks...), counter plates and stripping dies. It supports work with cutting lasers, water jet and rule bending machines. It is also useful with jigsaws and manual rule bending. The CAM tool path generation is optimized to significantly save machine time. Diemaker can drive tool making machines directly.

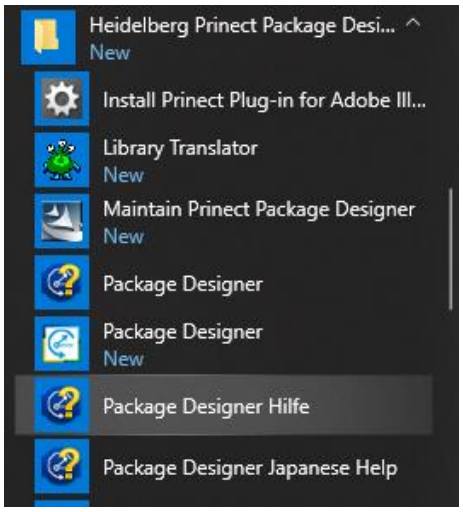


Creation of diecut tools with Diemaker

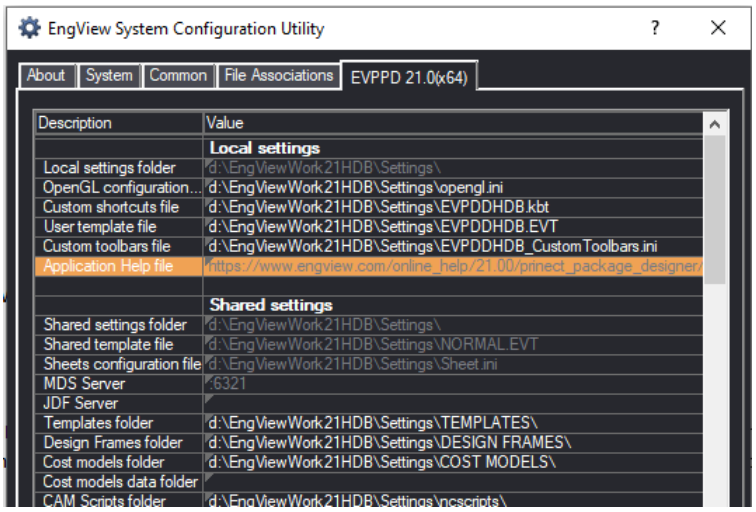
4.20. Setup another working language for online help

Online help for Prinect Package Designer comes with the pre-installed English version. For customers who would like to use the German or Japanese version this can be easily adapted in the COnfig Utility:

1. From Start menu go to Prinect Package Designer folder and start the German / Japanese help
2. Copy the link from the Browser
3. Start System Configuration Utility, in EVPDD 21 tab and paste the (modified) link in Application Help file edit box.



Start German or Japanese help



Paste new link into „Application Help file"