PACK Assistant

optimized · fast · intuitive

Brief Instructions

Fraunhofer SCAI Institut Algorithmen und Wissenschaftliches Rechnen

SOLVE-IT Member of MVI GROUP

Step by step guide to optimized packing!

1. Installing the software

In order to install the Software PackAssistant on your computer, you have to open the downloaded file (e.g. PackAssistant -4.14.16.exe). An installation program will be started and automatically install PackAssistant on your computer.

2. License file

Please copy the license file that was sent to you into the same directory as the program file PackAssistant.exe. If you have not changed the default settings, this file should be located in C:\Programs\PackAssistant.

3. Starting the program

The Software PackAssistant can be started by selecting Start/Programs/PackAssistant. It is also possible to start the program by double-clicking on the program file PackAssistant.exe (located in C:\Programme\PackAssistant).

4. Packing your own

To create an optimization of your own components with PackAssistant, the components have to be present in VRML format (*.wrl file). Files in VRML format can be generated with almost every CAD program. How to import this file into the PackAssistant software and how to optimize the packing of a container is explained in detail in the succeeding illustrations.

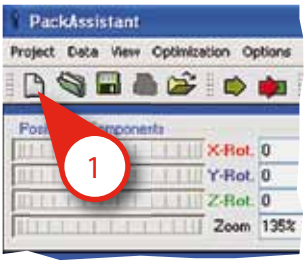
5. Sample projects

We have included six sample projects to the packing optimization so you may gain a quick overview of the functionalities of the program. By choosing Project/open, you can select these examples from the directory C:\Programs\PackAssistant\examples and test the software. The results can either be shown directly (see page 11 to 13, point 13 to 17), or you can alter the parameters (see page 3 to 9, point 9 to 12).

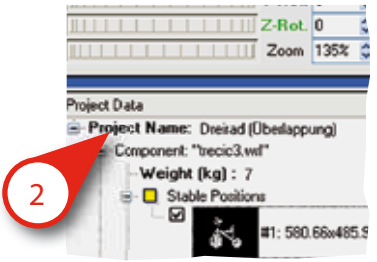
For a detailed description of PackAssistant and its various functions, please refer to the User's Manual!

Step by step guide to optimized packing!

1. Create a new project

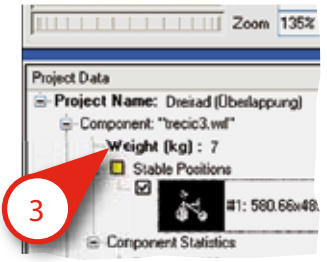


2. Load a component (*.wrl)

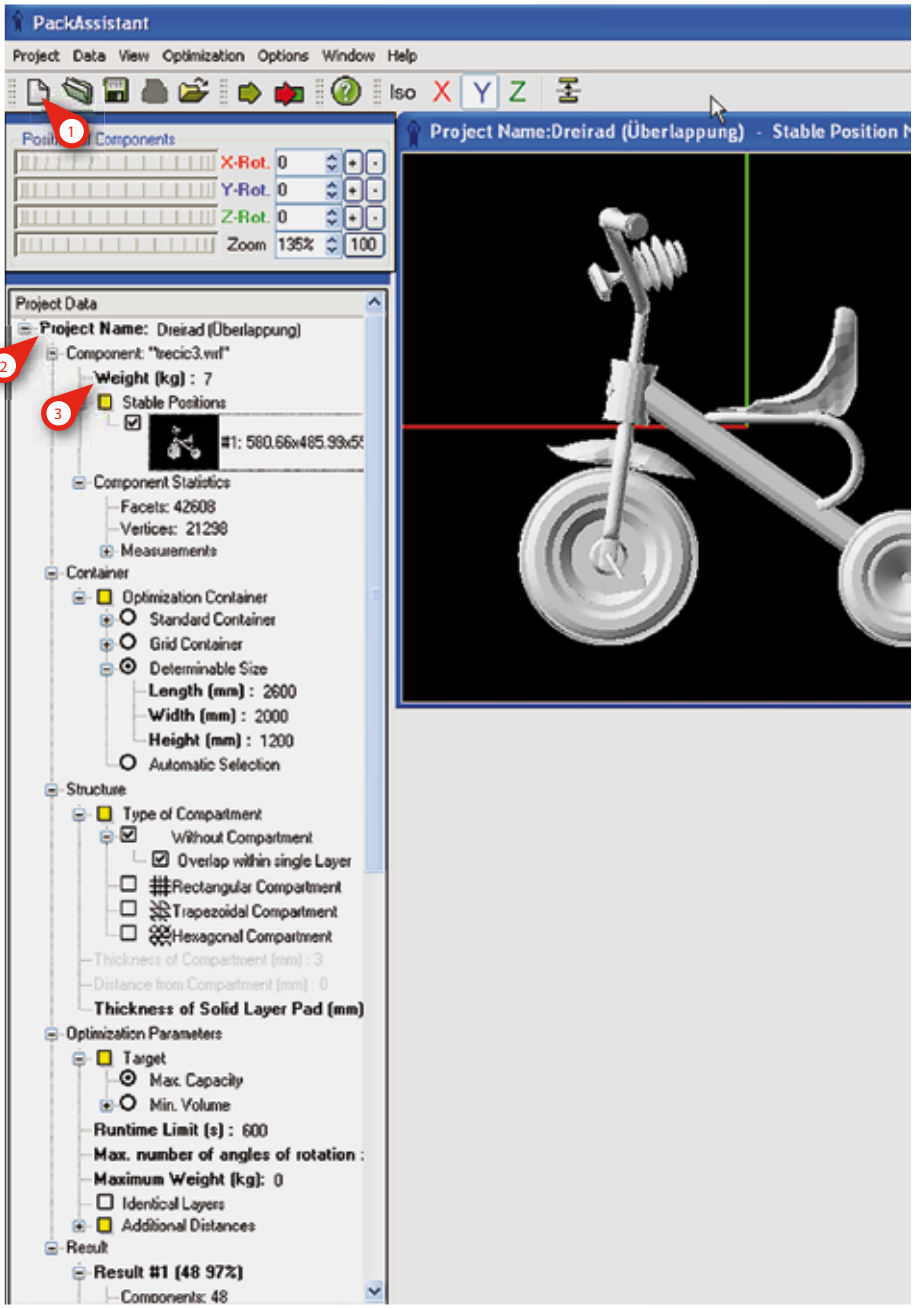


If you are asked whether you would like to transform the coordinates from meters to millimeters, please answer yes.

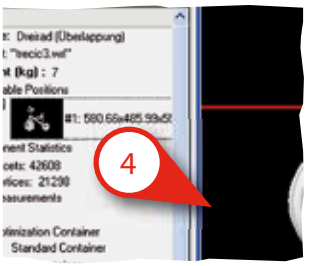
3. Enter the weight of the component



If you want to work without weight constraints, please enter e.g. 0.1.

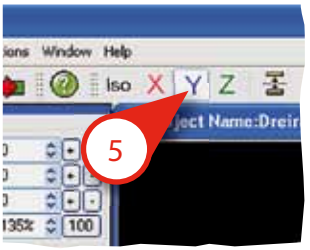

PackAssistant
Project Data View Optimization Options Window Help
Iso X Y Z
Components
X-Rot. 0
Y-Rot. 0
Z-Rot. 0
Zoom 135% 100
Project Name:Dreirad (Überlappung) - Stable Position
Project Data
Project Name: Dreirad (Überlappung)
Component: "trecic3.wrl"
Weight (kg) : 7
Stable Positions
#1: 580.66x485.93x5
Component Statistics
Facets: 42608
Vertices: 21298
Measurements
Container
Optimization Container
Standard Container
Grid Container
Determinable Size
Length (mm) : 2600
Width (mm) : 2000
Height (mm) : 1200
Automatic Selection
Structure
Type of Compartment
Without Compartment
Overlap within single Layer
Rectangular Compartment
Trapezoidal Compartment
Hexagonal Compartment
Thickness of Compartment (mm) : 3
Distance from Compartment (mm) : 0
Thickness of Solid Layer Pad (mm)
Optimization Parameters
Target
Max. Capacity
Min. Volume
Runtime Limit (s) : 600
Max. number of angles of rotation :
Maximum Weight (kg): 0
Identical Layers
Additional Distances
Result
Result #1 (48 97%)
Components: 48
1
2
3

4. Drag the component



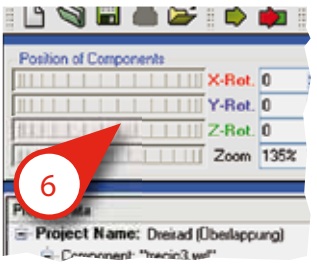
Drag the component with the mouse into the 3D graphics area.

5. Choose a side view

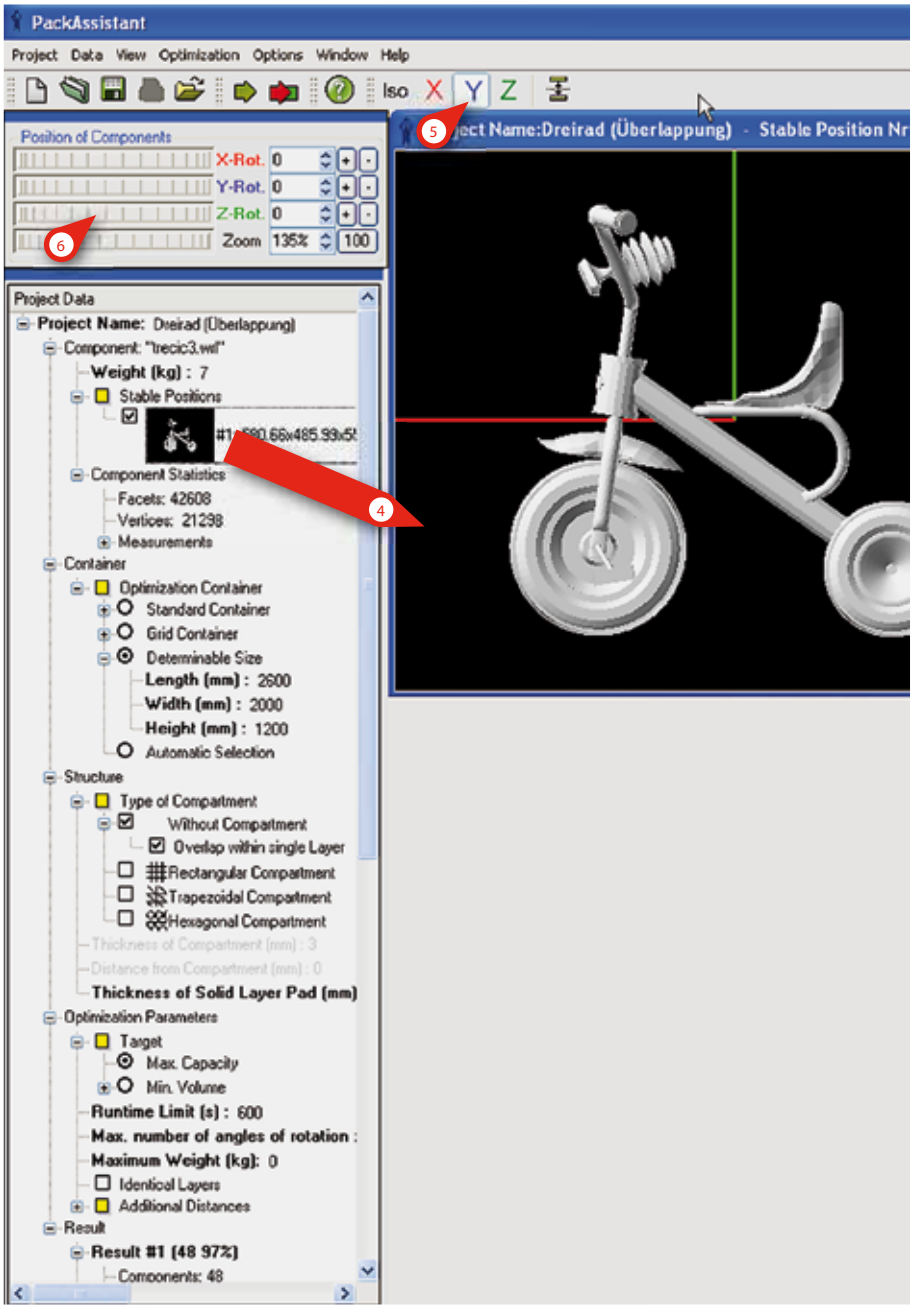


Choose a side view of the container (X or Y).

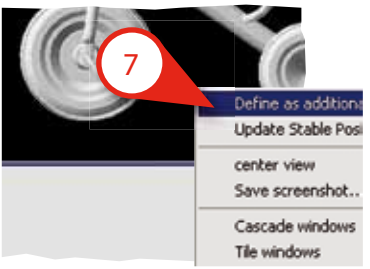
6. Turn the component



Turn the component into a stable position (also possible in the view by using the mouse).

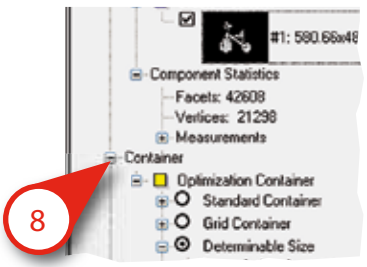

PackAssistant
Project Data Data View Optimization Options Window Help
Iso X Y Z
Position of Components
X-Rot. 0
Y-Rot. 0
Z-Rot. 0
Zoom 135% 100
6
5
ect Name:Dreirad (Überlappung) - Stable Position Nr
Project Data
Project Name: Dreirad (Überlappung)
Component: "trecic3.wrl"
Weight (kg) : 7
Stable Positions
Component Statistics
Facets: 42608
Vertices: 21298
Measurements
4
Container
Optimization Container
Standard Container
Grid Container
Determinable Size
Length (mm) : 2600
Width (mm) : 2000
Height (mm) : 1200
Automatic Selection
Structure
Type of Compartment
Without Compartment
Overlap within single Layer
Rectangular Compartment
Trapezoidal Compartment
Hexagonal Compartment
Thickness of Compartment (mm) : 3
Distance from Compartment (mm) : 0
Thickness of Solid Layer Pad (mm)
Optimization Parameters
Target
Max. Capacity
Min. Volume
Runtime Limit (s) : 600
Max. number of angles of rotation :
Maximum Weight (kg): 0
Identical Layers
Additional Distances
Result
Result #1 (48.97%)
Components: 48

7. Determine at least one stable position



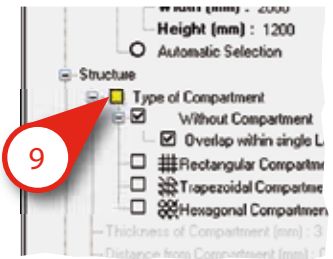
Determine at least one stable position via the context menu (right mouse-click).

8. Choose a container from the list

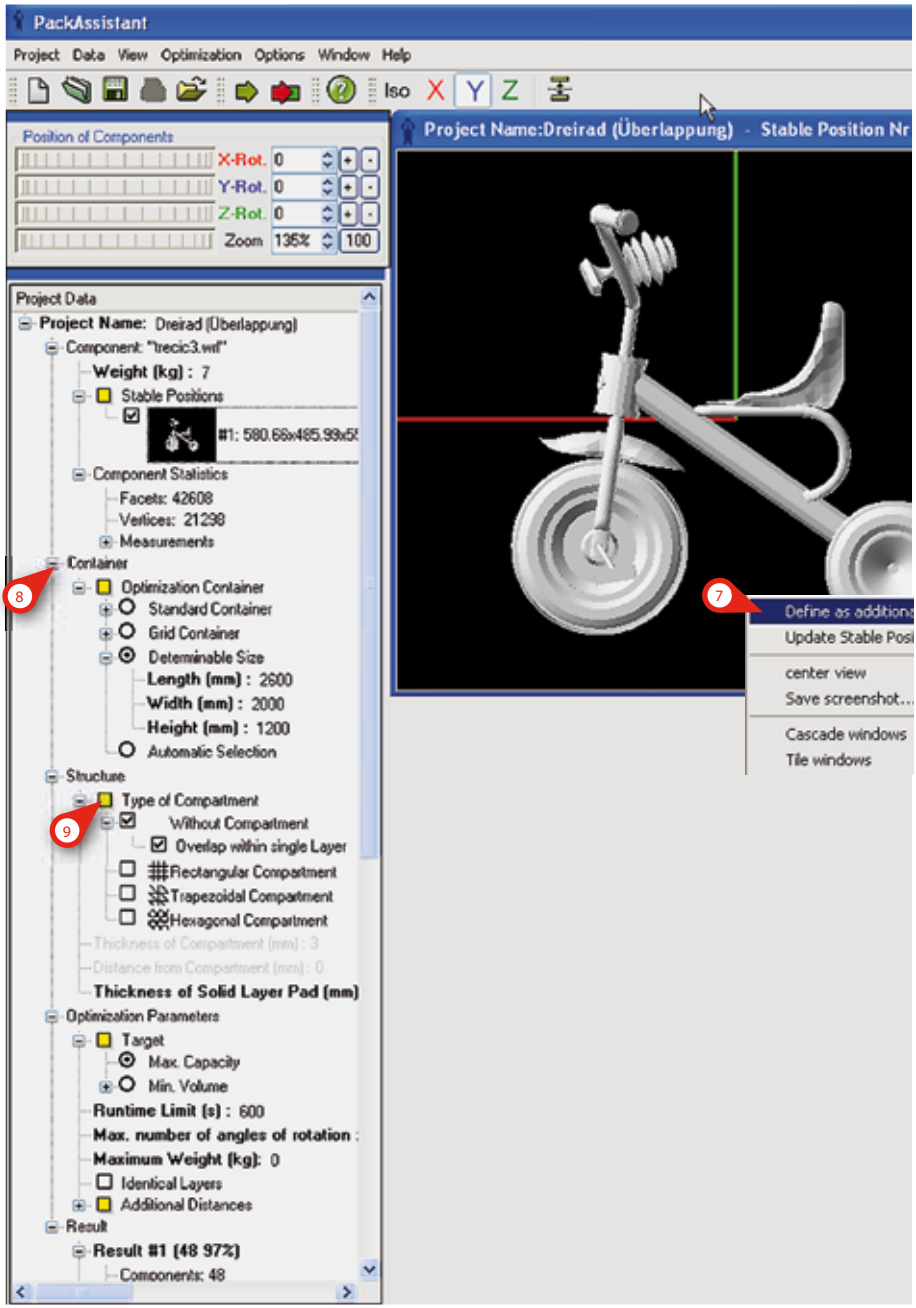


Choose a container from the list or edit the container size under Determinable Size.

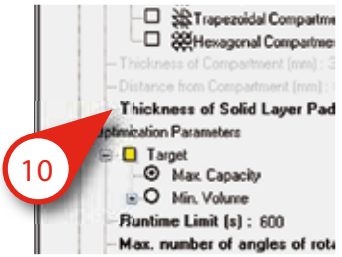
9. Type of compartment



9. You can choose a type of compartment if you wish.

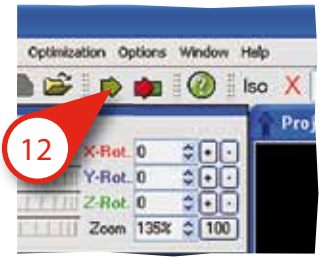

PackAssistant
Project Data Data View Optimization Options Window Help
Iso X Y Z
Position of Components
X-Rot. 0
Y-Rot. 0
Z-Rot. 0
Zoom 135% 100
Project Name:Dreirad (Überlappung) - Stable Position Nr
Project Data
Project Name: Dreirad (Überlappung)
Component: "trecic3.wrl"
Weight (kg) : 7
Stable Positions
#1: 580.68x485.99x5
Component Statistics
Facets: 42608
Vertices: 21298
Measurements
Container
Optimization Container
Standard Container
Grid Container
Determinable Size
Length (mm) : 2600
Width (mm) : 2000
Height (mm) : 1200
Automatic Selection
Structure
Type of Compartment
Without Compartment
Overlap within single Layer
Rectangular Compartment
Trapezoidal Compartment
Hexagonal Compartment
Thickness of Compartment (mm) : 3
Distance from Compartment (mm) : 0
Thickness of Solid Layer Pad (mm)
Optimization Parameters
Target
Max. Capacity
Min. Volume
Runtime Limit (s) : 600
Max. number of angles of rotation :
Maximum Weight (kg): 0
Identical Layers
Additional Distances
Result
Result #1 (48.97%)
Components: 48
Define as additions
Update Stable Posi
center view
Save screenshot...
Cascade windows
Tile windows
7
8
9

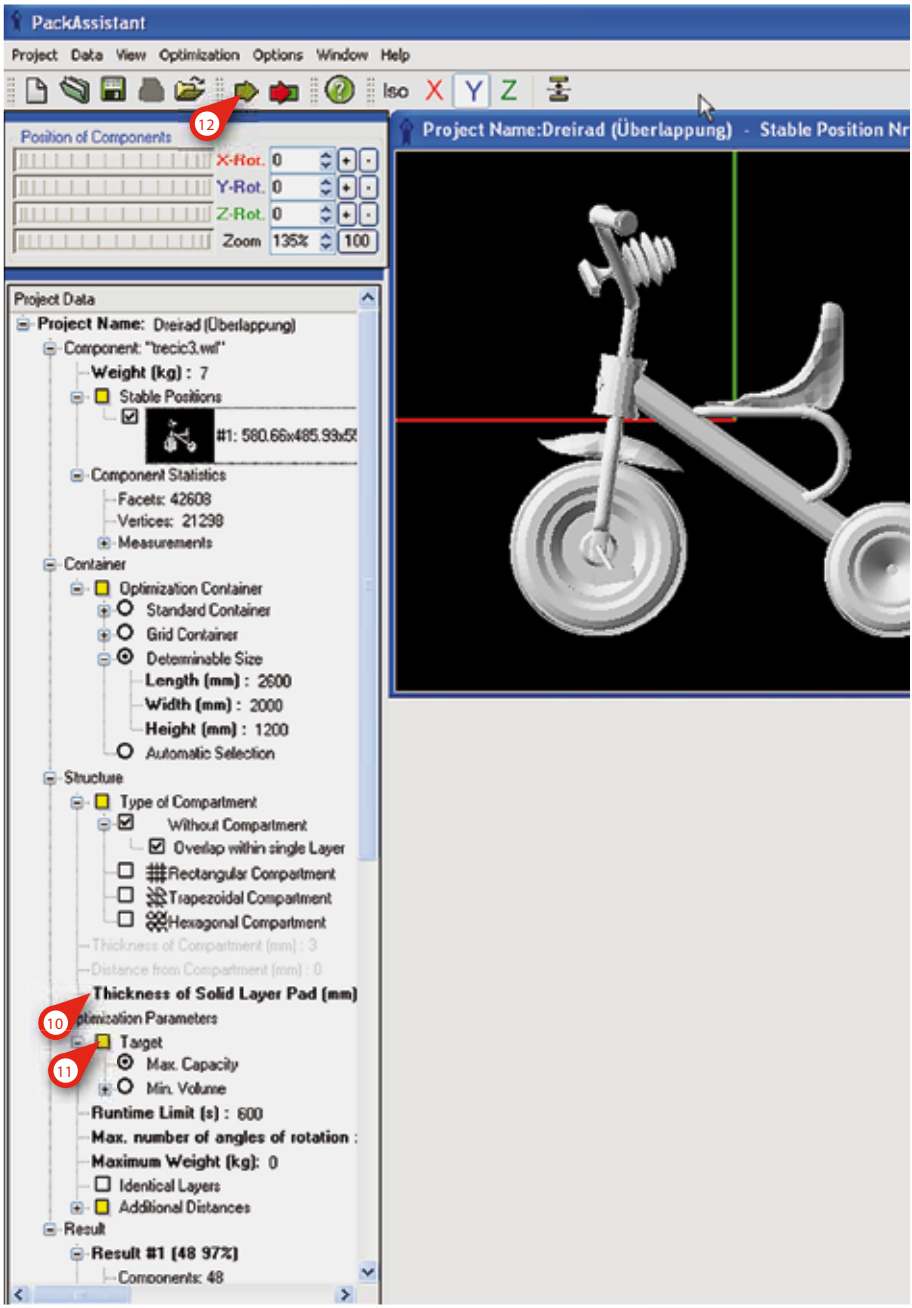
10. Determine the thickness of the solid layer pad



11. Specify further optional parameters

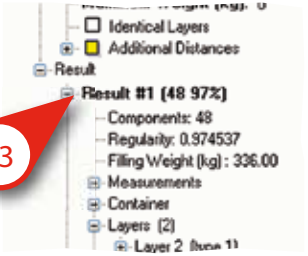
12. Start the optimization




PackAssistant
Project Data Data View Optimization Options Window Help
Iso X Y Z
12
Position of Components
X-Rot. 0
Y-Rot. 0
Z-Rot. 0
Zoom 135% 100
Project Name:Dreirad (Überlappung) - Stable Position Nr
Project Data
Project Name: Dreirad (Überlappung)
Component: "trecic3.wrl"
Weight (kg) : 7
Stable Positions
#1: 580.66x485.99x5
Component Statistics
Facets: 42608
Vertices: 21298
Measurements
Container
Optimization Container
Standard Container
Grid Container
Determinable Size
Length (mm) : 2600
Width (mm) : 2000
Height (mm) : 1200
Automatic Selection
Structure
Type of Compartment
Without Compartment
Overlap within single Layer
Rectangular Compartment
Trapezoidal Compartment
Hexagonal Compartment
Thickness of Compartment (mm) : 3
Distance from Compartment (mm) : 0
Thickness of Solid Layer Pad (mm)
10
Optimization Parameters
Target
11
Max. Capacity
Min. Volume
Runtime Limit (s) : 600
Max. number of angles of rotation :
Maximum Weight (kg): 0
Identical Layers
Additional Distances
Result
Result #1 (48.97%)
Components: 48

Step by step guide to optimized packing II

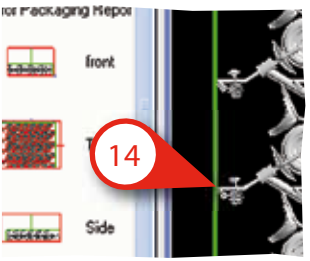
13. Results



For packing problems without compartments, two solutions are offered. They are ordered according to two criteria:

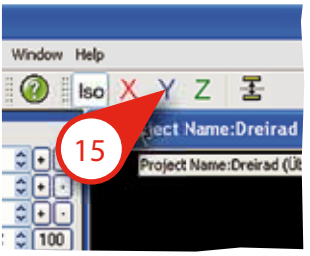
Number of parts and regularity
Example: Result #1 (48 97%)
In the succeeding results, the regularity of the packing decreases while the number of parts per container increases.

14. Drag the result view

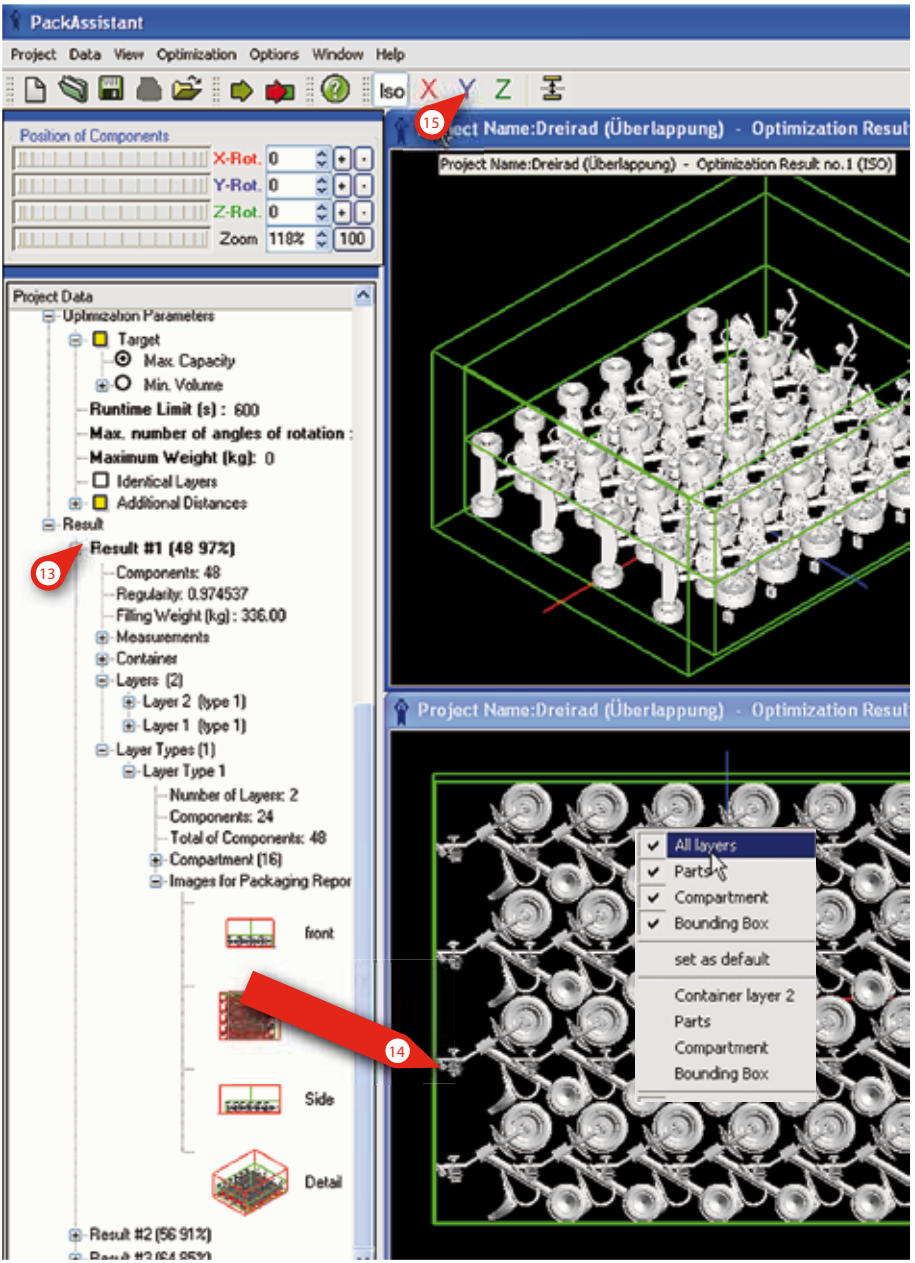


Drag the result view with the mouse into the 3D graphics area.

15. Change the view



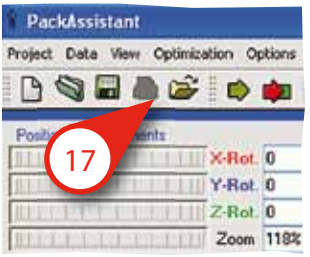
Change the view of the results (X, Y, Z) or rotate the view with the mouse.

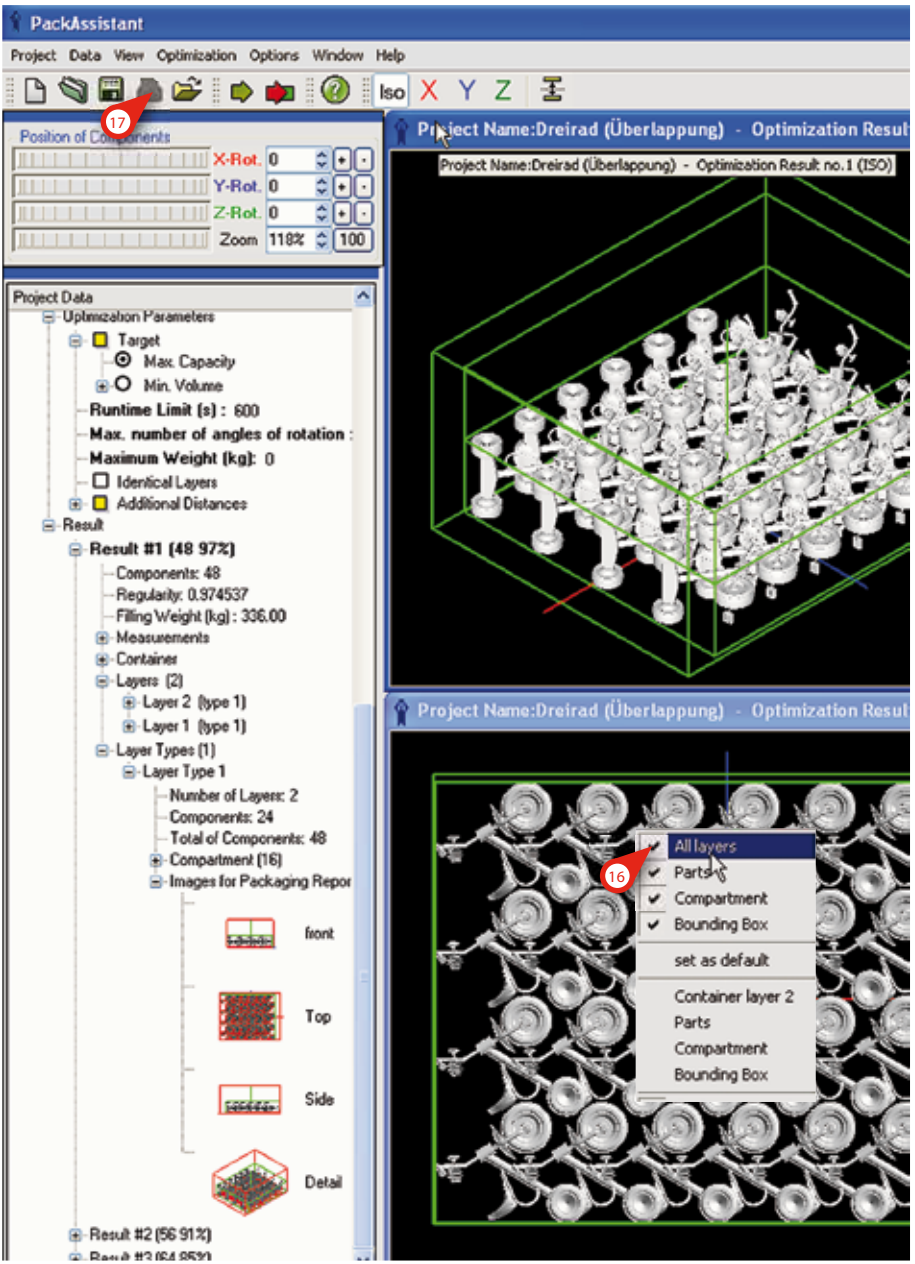

PackAssistant
Project Data View Optimization Options Window Help
Iso X Y Z
15
Position of Components
X-Rot. 0
Y-Rot. 0
Z-Rot. 0
Zoom 118% 100
Project Name:Dreirad (Überlappung) - Optimization Result
Project Name:Dreirad (Überlappung) - Optimization Result no.1 (ISO)
Project Data
Optimization Parameters
Target
Max. Capacity
Min. Volume
Runtime Limit (s) : 600
Max. number of angles of rotation :
Maximum Weight (kg): 0
Identical Layers
Additional Distances
Result
Result #1 (48 97%)
13
Components: 48
Regularity: 0.974537
Filling Weight (kg) : 336.00
Measurements
Containes
Layers (2)
Layer 2 (type 1)
Layer 1 (type 1)
Layer Types (1)
Layer Type 1
Number of Layers: 2
Components: 24
Total of Components: 48
Compartment (16)
Images for Packaging Repor
front
Side
Detail
Result #2 (56 91%)
Project Name:Dreirad (Überlappung) - Optimization Result
All layers
Parts
Compartment
Bounding Box
set as default
Container layer 2
Parts
Compartment
Bounding Box
14

16. Show or remove single layers

Via the context menu (right mouse-click) you can show or remove single layers within the container.

17. Create the packing instructions




PackAssistant
Project Data Views Optimization Options Window Help
Iso X Y Z
17
Position of Components
X-Rot. 0
Y-Rot. 0
Z-Rot. 0
Zoom 118% 100
Project Data
Optimization Parameters
Target
Max. Capacity
Min. Volume
Runtime Limit (s) : 600
Max. number of angles of rotation :
Maximum Weight (kg): 0
Identical Layers
Additional Distances
Result
Result #1 (48 97%)
Components: 48
Regularity: 0.974537
Filling Weight (kg) : 336.00
Measurements
Container
Layers (2)
Layer 2 (type 1)
Layer 1 (type 1)
Layer Types (1)
Layer Type 1
Number of Layers: 2
Components: 24
Total of Components: 48
Compartment (16)
Images for Packaging Repor
front
Top
Side
Detail
Result #2 (56 91%)
Project Name:Dreirad (Überlappung) - Optimization Result
Project Name:Dreirad (Überlappung) - Optimization Result no.1 (ISO)
Project Name:Dreirad (Überlappung) - Optimization Result
16
All layers
Parts
Compartment
Bounding Box
set as default
Container layer 2
Parts
Compartment
Bounding Box

Contact

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