

# HiCAD

Version 2023 Performance Optimisation Date: 22/05/2023



isdgroup.com

# **Contents**

Preface	5
What are "large" assemblies?	6
What is a "Part"?	. 7
Using clear assembly structures	. 8
Using referenced parts	. 9
Reduced opening of drawings	10
Exact and simplified display of standard parts	12
Working with imported parts	13
Using list views	14
Working with Quick Hidden Line representation	.15
Hide hidden (i.e. covered) parts	18
Snapshots in long feature logs	19
Using Sketches instead of Features	20
Correct usage of Features	21
Freeze views	22
Working with sectional views	23
Working with surface approximations	24
Threshold values for simplified OpenGL	25
Changing of text fonts	27
Track catalogue changes	28
HCM Settings	.29
Undo without Redo	30
Shaded without highlighted edges	31
Transfer product structure attributes to part attributes	32
Paste from clipboard	33
Preview for HELiOS and Viewer	34
Lock via article master	35

Save ICN attributes in model drawing	36
Product structure transfer	.37
Switch drawing	38
Representation of sheet views	39
Representation type of insertion view	.40
Still too slow?	.41
Random Access Memory (RAM)	41
Graphics card	.41
Anti-virus software	42

# Preface

HiCAD enables a fast, flexible and convenient processing even of very large CAD models consisting of several thousands of parts.

The following tips will help you keep your orientation in complex models, and process large assemblies rapidly and effortlessly.



CAD drawing of a cutting plant, consisting of 14.843 parts and 130.353 surfaces (Tummers Machinebouw, NL)

# What are "large" assemblies?

Whether an assembly can be called a "large" assembly does not just depend on the number of parts of which it consists, but on a combination of different factors, namely:

- The number of parts,
- The complexity of the individual parts,
- The number of solid parts / surface parts

In practice, assemblies are not infrequently imported via various interfaces. Such imported models often have more surfaces than necessary.

# What is a "Part"?

A "Part" can be a simple 3-D object such as a cuboid, but also a more complex part with a larger number of surfaces. And the more surfaces a part has, the larger will be assembly to which it belongs.

### Examples

- (1) 6 surfaces (1 part)
- (2) 560 surfaces (1 part), 560/6 ≈ 93 parts
- (3) 24.711 surfaces in an imported assembly



# Using clear assembly structures

A clear and logical structuring of the elements in your CAD drawing is essential, particularly in large and com-plex drawings. In HiCAD, this structuring is enabled by the subdivision of your CAD drawing into assemblies, main parts and sub-parts. This part-oriented data structure allows the creation of models the structures of which correspond exactly to those of "real" products.

For a convenient processing of large assemblies while maintaining a clear overview you should always make sure that you are working with clear and logical assembly structures.

- Clear structures enable an easy hiding and showing of sub-assemblies.
- Assemblies can be selected very easily.
- Parts can be easily moved within the structure.
- Please avoid "dummy parts" within assemblies.



# Using referenced parts

Referenced parts can be used across several projects and throughout all departments of a company, and can be modified and managed much more efficiently and conveniently from an engineer's point of view. You should therefore preferably save your sub-assemblies as referenced parts. If you work on a sub-assembly, just open the referenced assembly in a separate drawing and edit it there. Your main assembly will be updated automati-cally.



Cartoner, Wächter Packautomatik GmbH&Co. KG

	HiCAD function
88°	Reference part, Save, Detail drawing
R i	Available via <b>Drawing &gt; Save/Reference</b> or via context menu for 3-D parts/assemblies (right-click)

# **Reduced opening of drawings**

HiCAD offers the **Open drawing, reduced** option to enable a faster assembling. If you activate this option, referenced 3-D parts/assemblies will be displayed as "reduced" elements, i.e. only the corresponding polygon model will be loaded, which reduces the amount of data. As a result, less memory will be required for large models, which in turn increases the overall performance.

- All referenced 3-D parts will be displayed in exact representation; solid and feature data, however, will not be loaded
- Ideally suited for layout plans or large amounts of copies
- The reduced representation of parts or assemblies can be removed at any time, whenever their processing is required.
- The reduced representation can be applied immediately, i.e. when opening the drawing file, but also subsequently for individual parts or assemblies.



Benchmark:



CAD drawing by the AZI Anlagenbau AG, Switzerland

Measured time	Normal (min:sec)	Reduced (min:sec)
Loading of assembly	0:23	0:02
Add part + Save assembly	0:11	0:04
Copy complete assembly 5 times	6:57	1:24

Specifications of system used for testing				
Notebook	Dell Precision M6400 (Nov 2009)			
Processor	Intel Core2 Duo T9600 @ 2.80 Ghz			
RAM	8,00 GB			
Graphics card	NVIDIA Quadro FX2700M			
Hard disk	250GB Serial ATA (7200RPM)			
Operating system	Windows 7 professional 64 bit			

 HiCAD functions
<b>Open drawing,</b> Open drawing, reduced Drawing > New/Open > Open
Part reduction, Change representation (changes the representation of parts/assemblies) 3-D Standard > Tools > Attr.
<b>Remove part reduction</b> (removes the reduced representation) 3-D Standard > Tools > Attr.

# **Exact and simplified display of standard parts**

Beams, profiles, standard parts, standard processings and boltings can be displayed either exact or simplified. In large drawings containing very many beams, profiles etc. you can select the simplified display to achieve a performance increase.



Left: Exact display = 252 surfaces; Right: Simplified display = 48 surfaces

You can switch between exact and simplified display at any time.



The display type can be changed subsequently via the Change representation function in the context menu (right-click).

# Working with imported parts

When working with parts that have been imported via STEP, Iges etc., please note the following:

- Always optimize imported parts, i.e. when opening the files, always activate the **AutoOptimize** checkbox.
- Always check whether the imported parts are intact. If required, correct faulty surfaces and/or parts.
- If larger numbers of a faulty part can be found in an assembly, you should re-model the part in HiCAD.

# Using list views

HiCAD offers the option to define part lists, and then only display the parts contained in these lists in the drawing. Such views are called **List views** in HiCAD.

The use of list views offers the following advantages:

- The enable a particularly clear visualisation of assemblies
- The smaller quality of parts allows a faster (re)calculation of views.



List views allow an isolated viewing of selected parts (CAD drawing by Tummers Machinebouw, The Netherlands)

 HiCAD functions
Views > New > Standard List view

# Working with Quick Hidden Line representation

Hidden Line calculations can be very time-consuming in large drawings. To accelerate the process, you can select the representation types **Quick Hidden Line** and **Quick Hidden Grey**, which are very similar to the "real" Hidden Line representation.



(1) Shaded 3-D model, (2) Hidden Line 24 sec., (3) Quick Hidden Line <1 sec.

(Cartoner, Wächter Packautomatik GmbH&Co. KG)

	HiCAD functions
Q	Views > Representation Quick Hidden Line Displays the edges in the surface colour and hides covered edges
Q	Quick Hidden Grey Displays the edges in the surface colour and covered edges in grey

Alternatively, you can also use the **AutoQuickView** option for views. In order to reduce waiting times, HiCAD 2020 SP1 offers the possibility to temporarily use the corresponding Quick HiddenLine representation - the so-called QuickView - instead of the exact HiddenLine calculation for views with long calculation times. This considerably increases performance when editing and updating views. Situations in which this mode is very useful include

- the opening of model drawings with updating of referenced parts or
- switching from the model view to a sheet area with many views.

The table below shows which QuickView belongs to which exact representation:

Left: Exact representation - HiddenLine dashed; Right: QuickView - Quick HiddenGrey

(Image: Metallbau Wilhelmer Projekt GmbH, Kolbnitz, Austria)

An exact representation shown in its corresponding QuickView is still considered an exact representation. This means that no information is lost in **Automatic QuickView** mode. This mode is only used to improve performance if updating a view would lead to considerable wait times.

#### Advantages and disadvantages

The advantages and disadvantages of the AutoQuickView depend on the specific situation. The advantages only outweigh the disadvantages if the waiting times for the exact display are high/considerable.

The following disadvantages should be noted:

- In practice, it is often necessary to switch to the Glass model in order to edit rear edges. This is not possible in the QuickView. This means that you must first reactivate the exact representation and then switch to the Glass model.
- Lines, hatching, and axes are not always displayed correctly in the QuickView.
- Also, it may not be possible to snap points as in the exact representation.

The QuickView can be activated model drawing-dependent, i.e. you can switch the mode on or off depending on the requirements or size of the model drawing. This can be done either automatically or manually. In addi-tion, you can define how the system should proceed when saving if the model drawing contains QuickViews.

The parameters are available in the Configuration Editor at **System settings > Visualization > Views**.

Compatibility		Description	Value	Comment
▲ I System settings		Horizontal distance between views during view arrangement	20	
III Assembly HCM		Vertical distance between views during view arrangement	20	
Sketch HCM     Itemisation		Cross out old cut-outs, sectional views and detail views in graphic		
Processing plane		Scale for new detail views	Increment scale Y	
Sketches Start configuration		Include new parts in list views	No ×	Hide created new parts in views with hidden parts? in the active view, new parts will always be shown.
III Directories	1	Include new parts in list views of mounting drawings	Yes v	Hide created new parts in views with hidden parts? in the active view, new parts will always be shown.
III Data save		Thread representation in shaded views	With thread texture $$	
Image: Internation     Image: Internation     Image: Internation     Image: Internation     Image: Internation		Threshold value for simplified OpenGL representation (Bounding box)	10	Parts appearing smaller than the specified number of pixels will be displayed in simplified mode. Concerns the representation types Shaded and Quick
Graphic     E     Visualisation		Threshold value for simplified OpenGL representation (Omit)	1	Parts that would appear smaller than the specified number of pixels will not be displayed. Concerns the representation types Shaded and Quick
		Automatic locking of new, orthogonal views in sheet areas	Do not lock	
3-D		Automatic locking of new sectional/detail views in sheet areas	Same as original view 🗸	
Workstation background		Automatic locking of created new development views	Do not lock ~	
Stereoscopy		Automatic locking of new views of derived drawing	Do not lock ~	
▷ III Views III View group		Automatic QuickView in new model drawings	Deactivate ~	Applies to created new model drawings and to model drawings that were saved with HiCAD 2019 or older versions.
III Feature III 2-D Lines		QuickView when saving	Save views only in exact representation ~	

System settings > Visualisation > Views

Detailed information on the AutoQuickView can be found in the Online-Help.

# Configuration Editor

System settings > Visualisation > Views > AutoQuickview in new model drawings

Enable AutoQuickView

# Hide hidden (i.e. covered) parts

When working with the "real" Hidden Line representation, you can hide parts that are covered by other parts in the drawing and would therefore not be visible in the active view anyway. These parts will not be considered for further processings and recalculations of the view. This can speed up processing times significantly, especially in large, complex drawings.

	HiCAD function
88	Views > Parts > Hide  Hide hidden parts

# **Snapshots in long feature logs**

You can speed up the recalculation process in very long feature logs by the insertion of so-called "snapshots". Recalculations will then only be performed starting from the last snapshot above the changed feature step. In this way, a time-consuming recalculation of the entire feature log can be avoided.



Feature log with "Snapshots"



# **Using Sketches instead of Features**

When working with extruded or revolved parts you should always try to place all design details such as bores, radii, chamfers etc. within one Sketch if possible. In this way you reduce the number of feature steps and in-crease the performance.

For example, it is much more convenient to create a sketch of a rectangle with filleted corners first and then derive an extruded solid from it than to draw the rectangle without filleted corners first, then derive the extruded solid, and fillet the corners afterwards.



HiCAD functions	
<ul> <li>Various function on the Sketch tab</li> </ul>	
<ul> <li>Context menu functions of a Feature (right-click feature)</li> </ul>	

# **Correct usage of Features**

### Mirror parts

A convenient way of creating parts with symmetrical shapes is to initially draw only one quarter of the part, and then mirror the part twice.

- Avoid unnecessary features, and adjust the original feature instead.
  - Example 1:

Deleting a "Bore" feature is generally better than closing the bore with another feature.

• Example 2:

Changing the length of a sketch is generally better than moving surfaces with further features.

# Freeze views

Besides the hiding of views you have the option to "freeze" views. In contrast to hidden views, frozen views will remain visible on the screen, but cannot be edited. Please note that 3-D parts, 3-D texts or 3-D dimensioning cannot be identified (i.e. selected via mouse click) in frozen views!

A frozen view cannot be updated until it is "unfrozen" again.

The Freeze views option is useful if you have several views on one sheet, but to work in only one view.

 HiCAD functions
Views > View Functions > Freeze (individual views)
Views > View Functions > FreezeAll (except active view)
Views > View Functions > FreezeHL (all Hidden Line views)

# Working with sectional views

When working with sectional views in large drawings, most notably in facade engineering, you should deactivate the **Only cut surface** option. The other options are less time-consuming.

 HiCAD functions
Views > New > New detail view Displays details of the drawing, enlarged in a new view.
Views > New > Process > Change sectional view Enables a subsequent modification of sectional views.

New sectional view	<u> </u>	do not use in large drawings	
Depth	1.0000		
Unfolded			
Limited			

# Working with surface approximations

The surface approximation determines the quality of the screen representation of filleted surfaces. The higher the value for the surface approximation, the "cleaner" and more precise will the shading look. Please note however that the file size will also increase. If the chosen value is too high, this may result in a loss of performance, especially for large drawings.

We recommend the setting Via distance tolerance, with maximum/minimum number to obtain a good representation combined with a high performance.



Top: Low surface approximation value; Bottom: Higher value

	HiCAD function
	Drawing > Properties > Attr Surface approximation
<b>V</b>	or
	in the context menu of the drawing (right-click drawing surface)



The pre-setting for polyhedron approximation can be changed in the Configuration Editor at **Modelling > Part creation > Polyhedron approximation**.

For large drawings the following settings are recommended:

Description	Value	Comment
/ Polyhedron approximation mode	Via distance tolerance with minimum number $\bullet$	
🥒 Number of division points per quadrant	4	min = 2; max = 100
Polyhedron approximation accuracy	2	min = 10*tol

# **Threshold values for simplified OpenGL**

A higher Threshold value for simplified OpenGL representation, too, can help increase the performance. The setting for threshold values enables the automatic simplification of parts starting from a particular size:

- Parts that are smaller than 1 pixel are automatically hidden on the screen.
- Parts that are smaller than 10 pixels are represented as cuboids on the screen.

This setting can be adjusted to the individual requirements of the user.

The pixel size for this dynamic changing of the representation can be modified in the **Configuration Editor**, at **System settings > Visualisation > Views**. You use the parameters

- Threshold value for simplified OpenGL representation (Bounding box) and
- Threshold value for simplified OpenGL representation (Omit)

SD Configuration Editor - HICAD 21.2.0.256 [D:\hicad_svn\210X\dev\Install\Configuration\HiCAD.cfgdb]							
File Edit View Extras ISD							
🖊 🕥 🛱 🕴 💱 👔 🔛 🕹 👫 🛛 🞯							
Þ 📰 PDM		Description	Value	Comment			
Compatibility		Horizontal distance between views in alignment	20				
System settings		Vertical distance between views in alignment	20				
HCM sketch		Scale for new detail views	Increment scale				
Processing plane     Sketches     Start configuration		Include new parts in list views	No	Hide (no) or show (yes) newly created parts containing hidden parts? In the active view, new parts are always shown.			
Directories     Load/Save     Data save		Threshold value for simplified OpenGL representation (Bounding box)	10	Parts appearing smaller than the specified number of pixels will be displayed in simplified mode. Concerns the representation types Shaded and Quick			
Identification     Referencing     Annotations		Threshold value for simplified OpenGL representation (Omit)	1	Parts that would appear smaller than the specified number of pixels will not be displayed. Concerns the representation types Shaded and Quick			
Calculations		Automatic locking of new, orthogonal views in sheet areas	Do not lock 🔹				
III Graphic		Automatic locking of new sectional/detail views in sheet areas	Same as original view 🔹				
Visualisation		Automatic locking of new views of derived drawing	Never lock 🔹				
<ul> <li>▶ Workstation background</li> <li>▶ Workstation illumination</li> <li>         Stereoscopy         ✓ Workstation     </li> </ul>							

In a test the following two model drawings were inspected:



Model drawing consisting of approx. 350.000 parts (Image: Certhon Build B.V., Poeldijk, The Netherlands)



Model drawing consisting of approx. 60.000 parts (Image: CAD Planung Arnold Matei, Mannheim, Germany)

The test was carried out with the following equipment:

- Version: HiCAD 2019 SP2 Patch 0
- CPU: Intel® Core™ i7-8750H CPU @ 2.20GHz, Intel64 Family 6 Model 158 Stepping 10
- Graphic card: NVIDIA Quadro P3200 (Quadro P3200, 4 GB VRAM)

The entire model drawings were rotated with the middle mouse button in the **Shaded with edges** mode. The table shown below shows the measured frame rates for different threshold values set in the Configuration Editor:

Threshold value for simplified OpenGL rep- resentation (Omit)	Threshold value for simplified OpenGL representation (Bounding box).	Framerate Matei drawing	Framerate Certhon drawing
0	0	13	3
1	10	28	8
10	10	30	12
1	50	44	12.5
10	50	55	17

# **Changing of text fonts**

Normally, model drawings contain many texts. These can be "normal" texts, dimensions, annotations and BOMs. Here, too, changing the text font can lead to a significantly increased performance. For instance, changing TrueType Fonts to a HiCAD font during zooming or moving in Sheet areas can increase the performance by a factor of up to 10. The font for texts, annotations and dimensions can be pre-set in the Configuration Editor at **Drawing > Annotations**.

Configuration Editor				
Drawing > Annotations > > Font > HiCAD	Font			
🔺 🄚 HiCAD		Description	Value	Comment
<ul> <li>Active configuration (Base configuration)</li> <li>Drawing</li> <li>Apportations</li> </ul>	=	Font	HICAD 01: ANSI_KON	Font (Name of operating system font or HiCAD font number with designation)
Text		Colour	5: Dunkelblau 🔻	Font colour
🔢 Dimensioning, 2-D		🖉 Size	2.5	Font size
🔺 🥅 Dimensioning, 3-D		Angle	0	Text rotation angle
<ul> <li>Interactive dimensions</li> <li>Font: Dimension figure</li> <li>Font: Symbols</li> </ul>		Font	2	Font selection (aspect ratio and inclination angle) Only for HiCAD fonts
Font: Auxiliary text	+	Width	4	Font weight (4: normal, 7: bold) Only for operating system fonts

In HiCAD the font for texts, annotations and dimensions can also be changed subsequently – either via the corresponding functions of the **3-D Dimensioning + Text** Ribbon (the same applies to 2-D), or via the context menu, e.g.



For BOMs the font is defined in the BOM template.



HiCAD 2019 SP2 offers a significantly increased performance for the drawing of texts, which will probably make the workaround solution described here superfluous for higher versions.

# Track catalogue changes

The up-to-dateness check of catalogues in HiCAD can significantly impair performance in some situations. The function **Track catalogue changes (Settings > Catalogue)** can be used to define how catalogue changes are to be handled in HiCAD.

If the switch is active, the catalogues are regularly checked for up-to-dateness during a HiCAD session. However, this up-to-dateness check can significantly impair performance in some situations.

By default, the switch is deactivated, i.e. the catalogues are loaded in HiCAD only once, when HiCAD is started. After that, the system no longer automatically checks whether more up-to-date data is available. In order to update the catalogues after changes, the function **Reload** is available.



	HiCAD functions
<b>2</b> -	Settings > Catalogue > Track catalogue changes Settings > Catalogue > Reload

# **HCM Settings**

Automatic updating of Part HCM models after applying changes to the 3-D drawing may take a prolonged time for larger models.

In such cases you can increase the performance by deactivating the AutoUpdate HCM model checkbox.





3-D Standard > HCM > Tools > Settings > AutoUpdate HCM model: NO

# **Undo without Redo**

When the Undo function is called, a Redo backup is created, which can lead to longer waiting times for large drawings. For such cases, HiCAD offers the option (from HiCAD 2019 SP2, Patch 1) of an Undo without Redo. However, you will not find this functionality in the standard user interface. To be able to use the function, you have to customise the transparent toolbar as follows:

1. Select Customize QuickAccess Toolbar.

1151	🗋 🗁 - Ja	🔍 -   🗠   🛱	19 C)	<u>-</u>
	Drawing	3-D Standard	Sheet Meta	Customize Quick Access Toolbar
	<b>R</b>	) 💦 🗋	î 📑 (	Show Quick Access Toolbar Below the Ribbon
New	Docu Artic	le Assign Ope	en Docu A	Minimize the Ribbon
l		New/Open		Save/Print

2. In the Customize UI dialogue window, select the Transparent toolbar entry both on the left and the right pane



3. Then select the function **Undo without Redo** on the left, transfer it to the right-hand pane with the button, and move it to the desired position using the *A* and *b* buttons, e.g.:

Customize UI			– 🗆 🗙
Select area:			
Transparent toolbar ~		Transparent toolbar	v
	_		Prime (* 1997) (* 1977) (* 197
Group: Default			^
Vindo without Redo		🏷 Undo	
🏷 Undo		🧲 Redo	
C Redo		🍢 Undo without Redo	
Show all parts		<separator></separator>	
Show only active part		Menu: Show all parts	
b 🕞 Radraw		Menu: Show only active part	

4. Exit the Customize UI dialogue window with OK.

The function is now available in the transparent toolbar.



When using this function, please note that no Redo is possible afterwards!

# Shaded without highlighted edges

With the function **Shaded without highlighted edges** (as of HiCAD 2022) the parts of the active view are shaded and all visible edges are displayed with the exception of highlighted edges. Highlighted edges are theoretical edges that occur where there is no clear edge due to a fillet.

This type of representation can be useful to improve performance when working in the model view of large drawings. In particular, zooming with the mouse wheel can be accelerated in this way.



Left: Shaded with edges Right: Shaded without highlighted edges

 HiCAD function
Views > Representation > Shaded, without highlighted edges

You will also find the function

- in the context menu for views and
- on the transparent toolbar.

# Transfer product structure attributes to part attributes

The transfer of product structure attributes to part attributes leads to greatly increased waiting times in case of large assemblies when opening the associated drawings. If you work with large drawings, you should not activate the option **Transfer product structure attributes to part attributes when updating HELiOS** attributes in the Configuration Editor.

💾 ISD Configuration Editor - HiCAD 27.1.0.196 [0	C:\Pro	gramData\ISD Software und Systeme\HiCAD 2022\HiCAD.cfgdb]				×		
File Edit View Extras ISD								
/ 🕥 🕄 🕴 🛿 🖓		A 🛛 🞯 🔓		User	~ 🦉			
Assembling simulation	*	Description	Value	Comment				
P i Analysis		AutoSave corrected parts	2	0=No 1=Yes 2=Ask user		_		
<ul> <li>Interfaces</li> <li>PDM</li> </ul>		Transfer product structure attributes to part attributes when updating HELiOS attributes		Transfer product structure attributes to part attributes when updating HELiOS attributes				
<ul> <li>Drawing Management</li> <li>HiCAD-HELiOS interface</li> </ul>		Semi-finished product article as sub-item		When transferring the product structure, add ser article (if any) for individual parts	mi-finished	_		
Product structure     Compatibility	Ξ	Synchronize product structure when saving the model drawing		Should changes to the product structure of the r be transferred to HELiOS when saving the drawing	main assembly 1g?	y		
B System settings	•							
PDM > HiCAD-HELiOS interface > Product structur	e							



# Paste from clipboard

To speed up pasting large assemblies from the clipboard, it is recommended to deactivate the **Repeated paste from clipboard** setting.

📙 ISD Configuration Editor - HiCAD 27.1.0	).196 [C:\ProgramData\ISD Software und Systeme\HiCAD 2	022\HiCAD.cfgdb]	– 🗆 X
File Edit View Extras ISD			
/ 🕥 😂 🕴 🎚 🗠 🕄	A 🛛 🕢	User	- 🧟
Calculations	Description     Show dynamic coordinates	Value Status bar (relative)	Comment
Graphic     Image: Graphic     Image: Graphic     Image: Graphic     Image: Graphic	Drag parts during transformation		Attach parts to cursor during transformation
2-D Lines	Repeated paste from clipboard		
III Miscellaneous	Decimal places, Coordinates	3	Number of decimal places for coordinates
Standard Parts     HELiOS	E Decimal places, Angles	2	Number of decimal places for angles (-1=Apply from coordinate value)
Configurations	<ul> <li>Units of measurement, Scale, Tolerance</li> </ul>		
< <u> </u>			•
System settings > Miscellaneous			



# **Preview for HELiOS and Viewer**

With the function **Save with preview, All sheets** when saving the model drawing, all sheets are also saved for display in HELiOS and in the HiCAD Viewer. This means that the views of all sheets are displayed both in HELiOS and in the HiCAD Viewer. This can significantly increase the waiting time when saving, especially if there are several sheet areas.



# Lock via article master

The setting Lock parts against processing if HELiOS article master is locked should only be used with Steel Engineering Drawing Management or if it is essential for your design process. Activating the setting causes waiting times at various points because the query of the processing right takes significantly longer.

📙 ISD Configuration Editor - HiCAD 27.1.0.196	[C:\Progr	ramData\ISD Software und Systeme\HiCAD 2022\HiCAD.cfgd	lb]	- 0	
File Edit View Extras ISD					
/ 🕥 🖉   📲 🗠 🕄 📲		A 🛛 🞯 🖕	User		8
Directories	*	Description	Value	Comment	
I Load/Save		Entered document master not in DB: -> Referenced part locked?		Lock ref. part against editing if entered document master is not in database?	*
<ul> <li>Data save</li> <li>Identification</li> </ul>		DB document attribute to be written to part attribute "Designation"	NONE		
Referencing		Lock parts against processing if HELiOS article master is locked			
Calculations		🖉 Lock parts for other users via HELiOS article master	Yes ~		1
III Graphic	_	Update article master index	All parts with dialogue		Ξ
Visualisation		Allow part exchange in drawings	Not for released or read-only $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		*
System settings > Referencing					



# Save ICN attributes in model drawing

You should only activate the setting Save ICN attributes in model drawing if you actually use the HiCAD Viewer in your workflow. Activating the setting causes additional waiting times when saving model drawings.

📙 ISD Configuration Editor - HiCAD 27.1	1.0.196 [C:\Pro	gramData\ISD Software und Systeme\HiCAD 2022\HiCAD.cfgd	b]	- 0	
File Edit View Extras ISD					
/ 🕥 🛱 🕴 📭 📴 🖉		A 🛛 💿 🖕		User	8
Scales	*	Description	Value	Comment	
<ul> <li>Sketches</li> <li>Units</li> </ul>		Save ICN attributes in model drawing	✓	Save ICN attributes in the model drawing for later display in HiCAD Viewer	<b>)</b> ^
Start configuration		Save user-defined catalogue entries in model drawing	✓		
Directories	_	Always show all views when loading	No, with warning	<ul> <li>Behaviour if only active view was displayed when saving</li> </ul>	
III Load/Save		Visibility of dimensions when loading		Set visibility as saved when loading drawing	
Identification Referencing	-	Visibility of hatching when loading		Set visibility as saved when loading drawing	
<u>د ااا</u>	•	Visibility of splines when loading		Set visibility as saved when loading	-
System settings > Load/Save					



System settings > Load/Save > Save ICN attributes in model drawing

# **Product structure transfer**

Activating the option **Synchronize product structure** when saving the model drawing ensures that the product structures of all assemblies of a model drawing are automatically transferred to HELiOS. This can lead to considerable additional waiting times when saving. Therefore, it is recommended to deactivate this option.

ISD Configuration Editor - HiCAD 27.1.0.1	96 [C:\P	rogramData\ISD Software und Systeme\HiCAD 2022\HiCAD.cfgdb]			o x
File Edit View Extras ISD					
/ 🕥 🕄 🕴 🔢 🛿		A 🛛 🞯 🖕		User	- 😤
Assembling simulation	*	Description	Value	Comment	
Analysis		AutoSave corrected parts	2	0=No 1=Yes 2=Ask user	
<ul> <li>Interfaces</li> <li>PDM</li> </ul>		Transfer product structure attributes to part attributes when updating HELiOS attributes		Transfer product structure attributes to part attri updating HELiOS attributes	butes when
<ul> <li>Image: Drawing Management</li> <li>Image: Image: Image:</li></ul>		Semi-finished product article as sub-item		When transferring the product structure, add se article (if any) for individual parts	mi-finished
Product structure	E	Synchronize product structure when saving the model drawing		Should changes to the product structure of the be transferred to HELiOS when saving the drawi	main assembly ng?
<ul> <li>System settings</li> </ul>					
Configurations	P				
PDM > HiCAD-HELiOS interface > Product stru	cture				

Use the option **Transfer product structure to HELIOS** instead. This will only transfer the product structures of actually modified and saved assemblies.

💾 ISD Configuration Editor - HiCAD 27.1.0.19	06 [C:\Pi	rogramData\ISD Software und Systeme\HiCAD 2022\Hi	CAD.cfgdb]			—		×
File Edit View Extras ISD								
/ 🕥 😂   🚏 12 13 💱		A   0 ,		l	Jser			- 🥂 🚬
Calculations	*	Description	Value	Comme	nt			
□ Graphic ▷ □ Visualisation		Taking over of semi-finished product attributes	Collection	Which se taken ov finished	emi-finished product att er to manual article mas product attribute;Article	ributes ar ters ? (Fo attribute	e to be rmat : Se )	:mi-
2-D Lines		Attributes for BOM via product structure	Only selected attributes ~	Selection transfer	n of attributes to be trans via product structure	ferred fo	r BOM	
Miscellaneous Standard Parts		Transfer part attributes to HELiOS		Transfer master v	part attributes of change /hen saving	ed parts to	o article	
HELIOS	E .	Transfer product structure to HELiOS	✓	Transfer saving, 1	product structure of cha level	nged par	ts when	Ē
< <u> </u>	F.							*
System settings > HELiOS								

### Configuration Editor

- PDM > HiCAD-HELiOS interface > Product structure > Synchronize product structure when saving the model drawing
- System settings > HELiOS > Transfer product structure to HELiOS

# Switch drawing

Make sure that the option **Keep drawing-related data in cache when switching drawings** is activated in the Configuration Editor. This keeps a lot of data in the working memory when switching drawings, so that the switching process is noticeably speeded up.

📙 ISD Configuration Editor - HiCAD 27.1.0.196 [	C:\Prog	ramData\ISD Software und Systeme\HiCAD 2022\HiCAD.cfgdb]				×
File Edit View Extras ISD						
/ 🕥 🛢 🛛 👫 🛛 🕸 🖓		A 🛛 💿 🖕		User	- 8	8
▷ □ Calculations	*	Description	Value		Comment	
III Graphic		Bitmaps internal/external	Internal	~		
<ul> <li>Visualisation</li> <li>Feature</li> </ul>		Letters for YES/NO queries in macros	JjNn		(Key for "YES-large", "YES-small", "NO- large", "NO-small")	- =
2-D Lines     Miscellaneous		Keep drawing-related data in cache when switching drawings	✓		Keep drawing-related data in cache when switching drawings	
Standard Parts		Synchronization of referenced 2-D details	Only synchronize geom	etry ~		÷.
HELIOS	=	Externally referenced parts	Switched off	~		
Configurations	*	Lock for reference detail drawing	Lock + reduced intensity	, ~		
✓		Davt related status shock				- *
System settings > Miscellaneous						



System settings > Miscellaneous > Keep drawing-related data in cache when switching drawings

# **Representation of sheet views**

The setting **Representation of sheet views** can be changed to **Shaded without edges**, for example, so that no HiddenLine calculation causes waiting times when switching to the sheet area of a new drawing for the first time.

📕 ISD Configuration Editor - HiCAD 27.1.0.196 [C:\F	ProgramData\ISD Software und Systeme\HiCAD 2022\HiCAD.cfgdb]	1	– 🗆 🗙
File Edit View Extras ISD			
/ 🕤 🛢 🕴 📲 🛛 🖓	A 🛛 💿 🚊	User	- 🥂 🚬
🔺 🊰 HiCAD 📃	Description	Value	Comment
Active configuration (Base configuration)			Representation of sheet views in new
🔺 🥅 Drawing 📰 🗉	Representation of sheet views	Shaded without edges 🛛 👻	model drawings and on new drawing
Annotations			sheets
Drawing frames	Cut surface hatching	According to material 🛛 🗸	
Views	Arrangement of orthogonal views	Projection method 1 V	
Automatic drawing derivation	And the second second	Ten view and view from left. M	Front view and Axonometry are always
Modelling	Views in "4 views" function	top view and view from left	created; the other two views may vary.
Steel Engineering			
< III >			
Drawing > Views	·		



# **Representation type of insertion view**

If parts are inserted into the model drawing where it is necessary to specify a fitting point on the part in order to place the part in the drawing, HiCAD will display an enlarged preview of the part in order to determine this point. This happens with most functions under Drawing > Insert Part.

The setting from the configuration management under **System settings > Visualisation > Views > Insertion view** is used as the display type for the preview (insertion view).



When inserting large assemblies, it can be useful for performance reasons to select the display type **Shaded with edges**. This will avoid time-consuming Hidden Line calculations.

Configuration Editor	
System settings > Visualisation > Views > Insertion view	

## Still too slow?

If you still have performance problems despite observing the aforementioned tips, go through the checklist below:

### Checklist

- Test HiCAD locally, without network.
- Test HiCAD without any additional plugins or other, simultaneously started software.
- Do you use the latest HiCAD version / Service Pack?
- Please always make sure that you update to the latest version.
- Check your hardware:
- Is the RAM of your computer sufficient?
- Is there enough free disk space?
- Does your computer have a 64 Bit processor?
- Which graphics card / which graphics card driver do you use?

The recommended hadrware equipment can be found on the ISD website at Support > System Requirements.

• Which anti-virus software do you use?

### Random Access Memory (RAM)

The Random Access Memory (RAM) of your computer has a decisive impact on the performance of HiCAD.

If the RAM is insufficient, Windows will switch to the virtual memory of your hard disk. Transfer rates and access times of hard disk memories are very slow compared with RAM modules.

If your computer reaches the limit of its RAM, the system will become unstable.

To achieve an optimal performance for very large drawings, the system used should have a significantly larger RAM than it would usually the case when working with HiCAD. The hard disk accessing operations buffer memory, UNDO and Switch drawing can then be performed up to 4 times faster.

The recommended hadrware equipment can be found on the ISD website at Support > System Requirements.

### Graphics card

- Please do not use gaming cards for your CAD system!
- Always use the recommended driver for your graphics card. You will find a list recommended graphics cards on the ISD website, at Support > System Requirements.
- Check whether your graphics card is HiCAD-capable (fully OpenGL 4.3-capable with 128 MB RAM).

### Anti-virus software

Exclude HiCAD from the scanning by your anti-virus software.

Depending on the type of your anti-virus software you can:

- Exclude your HiCAD application from the virus scan,
- Exclude your HiCAD installation directory from the virus scan,
- Exclude the directory for your CAD drawings from the virus scan,
- Exclude the HiCAD catalogue (if located on a server) from the virus scan.

#### Legal notes

© 2023 ISD ® Software und Systeme GmbH. All rights reserved.

This User Guide and the software described herein are provided in conjunction with a license and may only be used or copied in accordance with the terms of the license. The contents of this User Guide solely serve the purpose of information; it may be modified without prior notice and may not be regarded as binding for the ISD Software und Systeme GmbH. The ISD Software und Systeme GmbH does not assume any responsibility for the correctness or accuracy of the information provided in this document. No part of this document may be reproduced, saved to databases or transferred in any other form without prior written permission by the ISD Software und Systeme GmbH, unless expressly allowed by virtue of the license agreement.

All mentioned products are trademarks or registered trademarks of their respective manufacturers and producers.





Headquarter Dortmund ISD Software und Systeme GmbH Hauert 4 D-44227 Dortmund Tel. +49 231 9793-0 info@isdgroup.de

Sales office Hamburg ISD Software und Systeme GmbH Strawinskystraße 2 D-25337 Elmshorn Tel. +49 4121 740980 hamburg@isdgroup.de

Sales office Nuremberg ISD Software und Systeme GmbH Nordostpark 7 D-90411 Nuremberg Tel. +49 911 95173-0 nuernberg@isdgroup.de

### International

ISD Austria ISD Software und Systeme GmbH Hafenstraße 47-51 A-4020 Linz Tel. +43 732 21 04 22-0 info@isdgroup.at

ISD Benelux - Zwolle ISD Benelux B.V. Grote Voort 293A NL-8041 BL Zwolle Tel. +31 73 6153-888 info@isdgroup.nl

ISD Switzerland ISD Software und Systeme AG Rosenweg 2 CH-4500 Solothurn Tel. +41 32 624 13-40 info@isdgroup.ch

ISD USA - North Carolina ISD Group USA Inc. 20808 N Main Street, Suite 101 USA-Cornelius NC 28031 Tel. +1 770 349 6321 info@isdgroup.us

#### www.isdgroup.com

#### Sales office Berlin

ISD Software und Systeme GmbH Paradiesstraße 208a D-12526 Berlin Tel. +49 30 634178-0 berlin@isdgroup.de

Sales office Hanover ISD Software und Systeme GmbH Hamburger Allee 24 D-30161 Hanover Tel. +49 511 616803-40 hannover@isdgroup.de

Sales office UIm ISD Software und Systeme GmbH Wilhelmstraße 25 D-89073 UIm Tel. +49 731 96855-0 ulm@isdgroup.de

ISD Benelux - Hertogenbosch

ISD Benelux B.V. Het Zuiderkruis 33 NL-5215 MV 's-Hertogenbosch Tel. +31 73 6153-888 info@isdgroup.nl

**ISD France** 

ISD Group France SAS 10 -12 Boulevard Vivier Merle F-69393 Lyon Tel. +33 6 73 72 04 67 info@isdgroup.fr

**ISD Switzerland** 

ISD Software und Systeme AG Rte du Jura 37 A, 4. Étage CH-1700 Fribourg Tel. +41 79 803 51 51 info@isdgroup.ch

ISD USA - Georgia ISD Group USA Inc. 5126 South Royal Atlanta Drive USA-Tucker GA 30084 Tel. +1 770 349 6321 info@isdgroup.us

HiCAD\_2802

This document is generated automatically. © 2023 ISD Software und Systeme GmbH