

# From 3D PMI to 2D digital drawings.

MBD Solutions Event 26-11-2025

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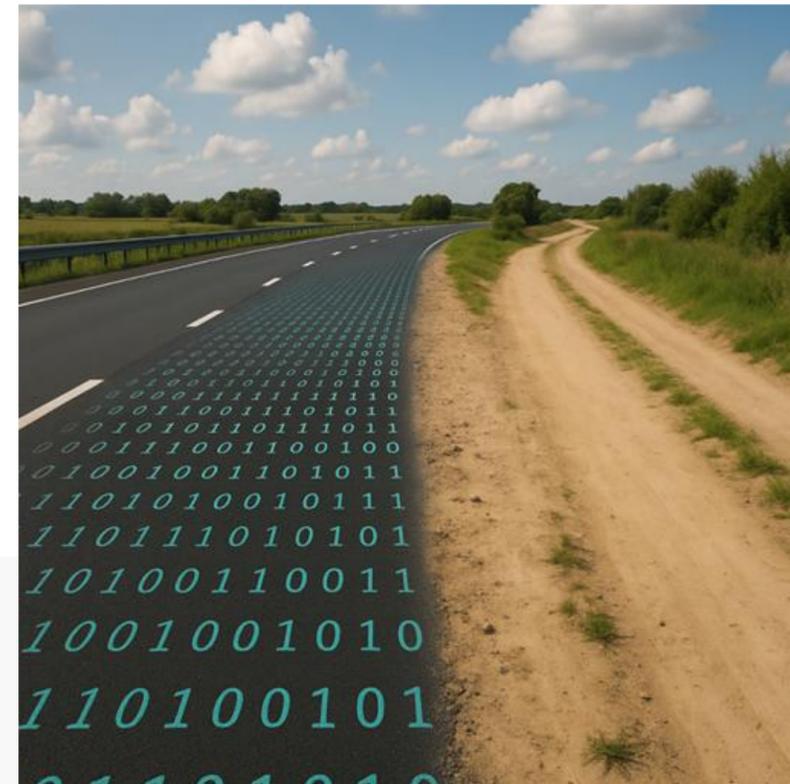
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# Motivation of this presentation.

- At Prodrive full MBD implementation has slowed down because suppliers still request 2D drawings.
- For reviewing 3D PMI files:
  - "full" 3D CAD software = overkill,
  - free 3D viewers are limited in functionality.
- Generating dimensioned 2D drawings within CAD systems seems not straightforward yet.
- I experienced efficient (and user-friendly) reviewing parts and assemblies using an advanced 3D viewer.
- Although meanwhile many CAM and CAI applications can read and process PMI, many manufacturing companies struggle stepping into the fantastic world of MBD.

- Some OEM's merged on the digital highway,
- Most suppliers quickly exit to bumpy sandy paths.....



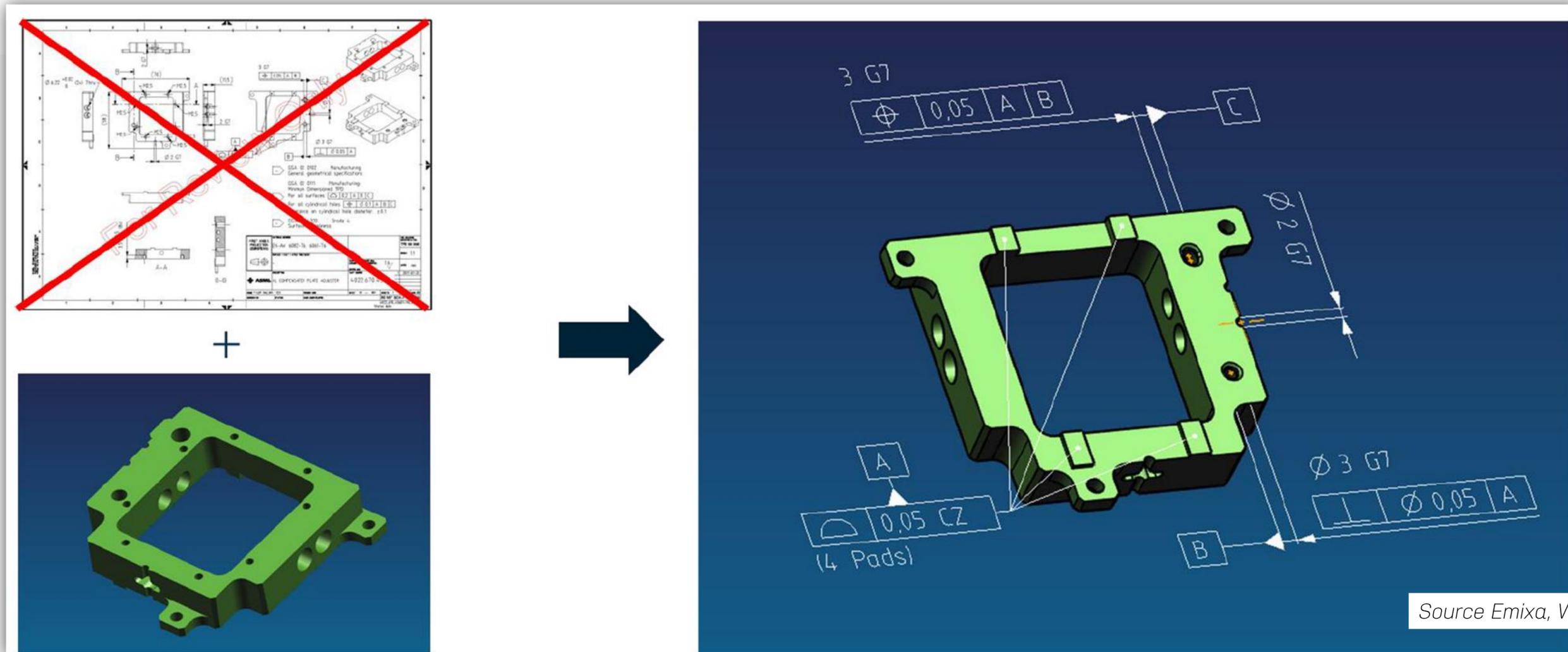
## Goal of this presentation.

Show how an advanced 3D viewer can support manufacturing companies reading and processing 3D MBD files:

- without investing in multiple expensive CAD systems,
- without investing yet in advanced CAM and CAI software.

Stimulate your company start with MBD:

- STEP by STEP 😊 .

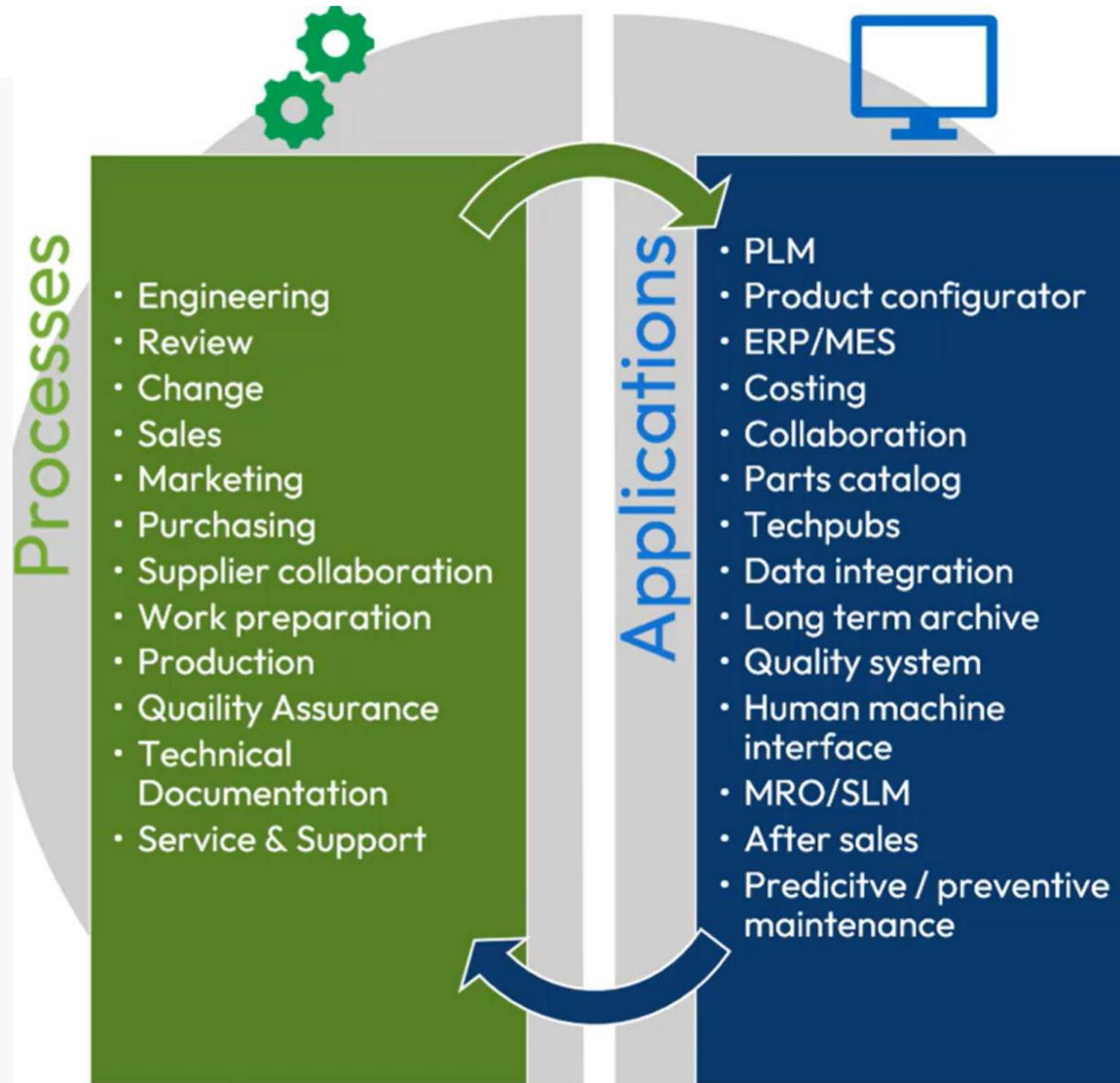


- MBD eliminates making "old fashioned" 2D drawings.
- The embedded product definitions (tolerances, surface treatments etc.) are called "Product and Manufacturing Information" (PMI).
- PMI is machine-readable, 2D drawings not!

# Characteristics CAD systems and 3D viewers.

- CAD systems can create, edit and view 3D models.
- 3D viewers only can view 3D models (cheaper, easier and friendlier to use than CAD systems).
- OEM's usually use 1 CAD platform, suppliers serving multiple OEM's are expected to process many CAD formats.
- Free 3D viewers have limited functionality.
- Advanced 3D viewers offer increased functionality:
  - user friendly visualizing PMI (incl. "flipping" / "parallel to screen")
  - reading many native (NX, Solidworks, Creo, etc.) and standard 3D formats (step, JT, QIF, 3D PDF, etc.)
  - ultra short loading large assemblies and complex parts.
  - efficient creating work-instructions
  - using 3D mice 
  - "drifting" towards CAD functionalities (a.o. "playing" with assemblies)

# Functionality advanced 3D viewers.



Source: Kisters

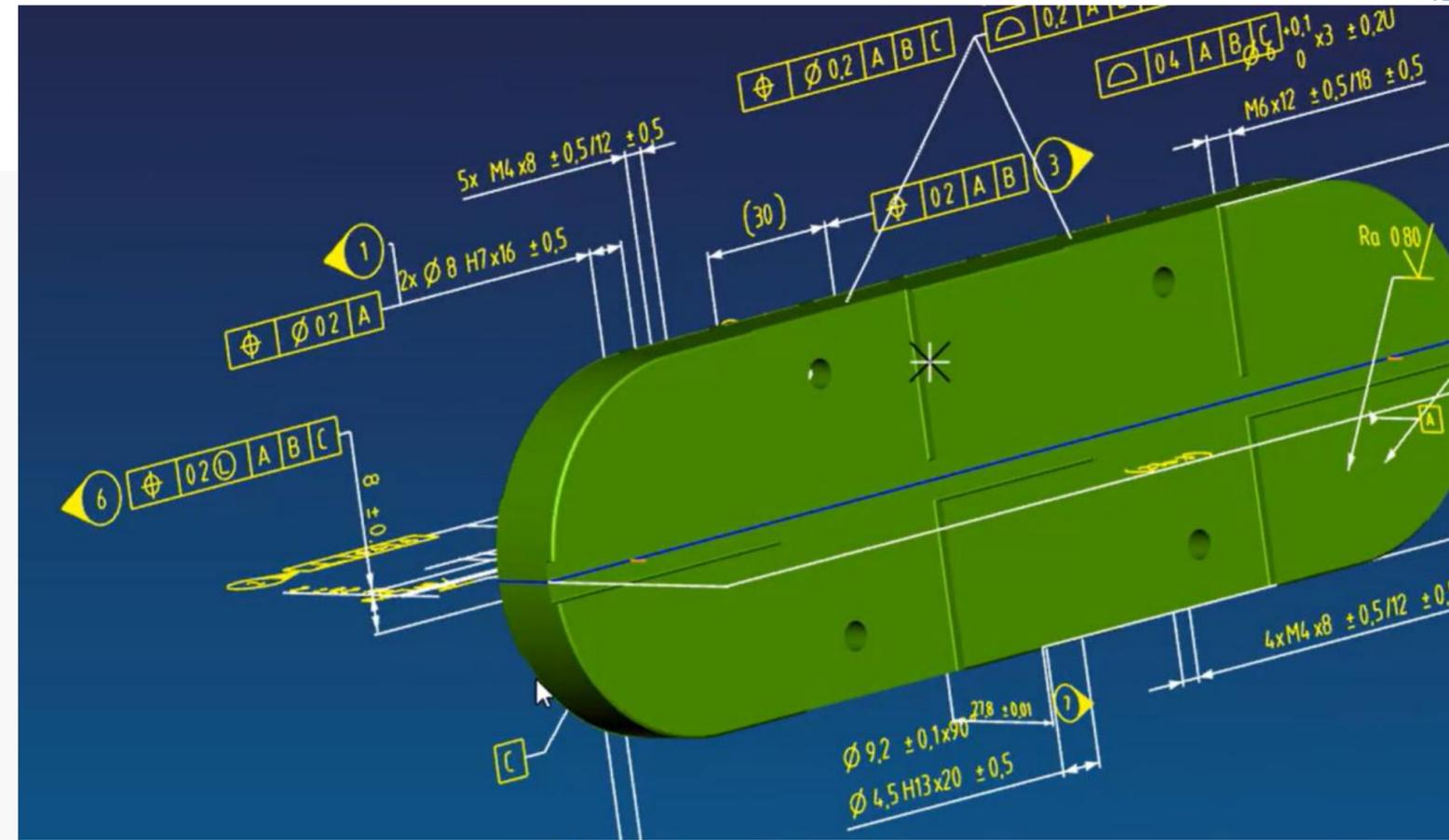
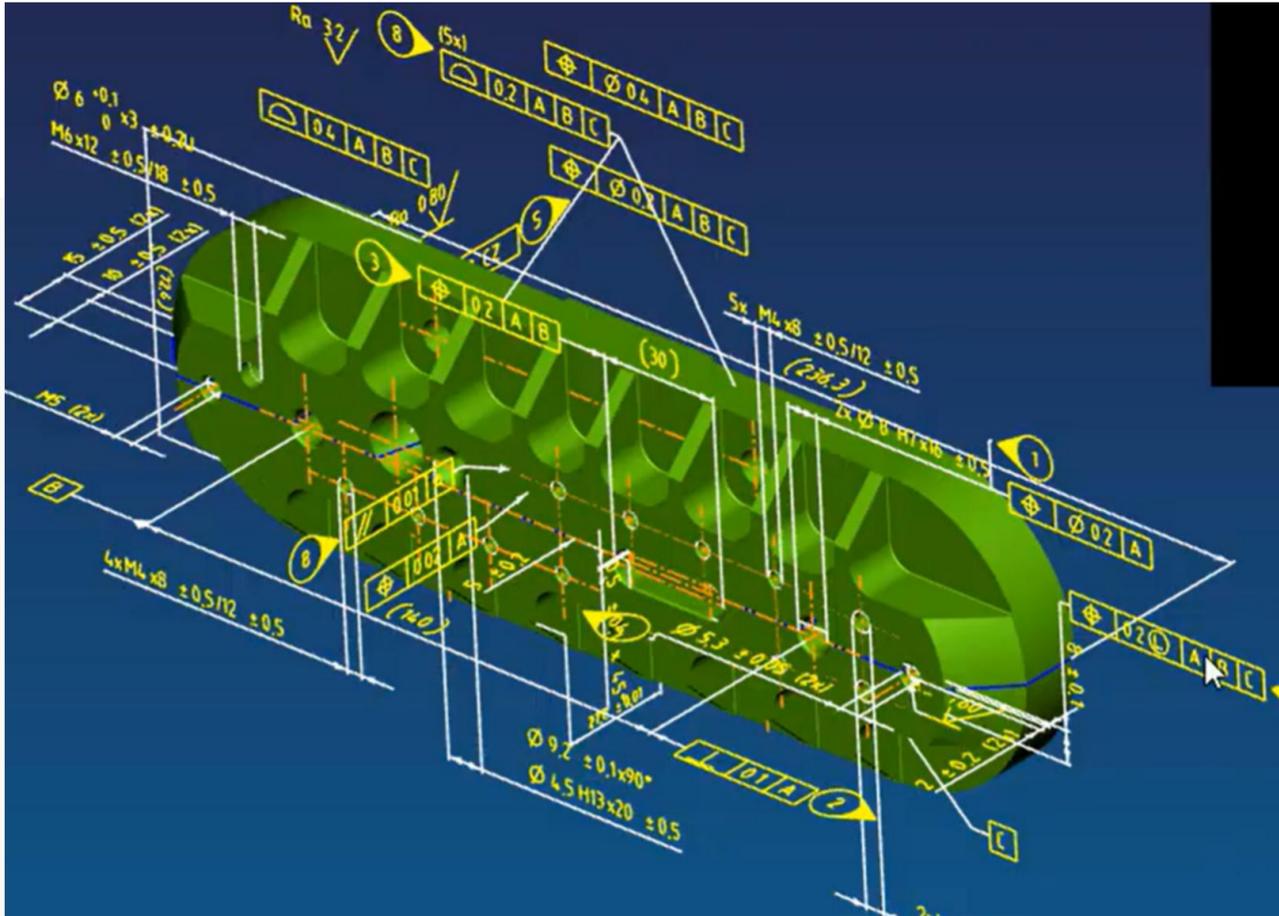
Examples of basic and advanced 3D viewers.



Creo® View MCAD

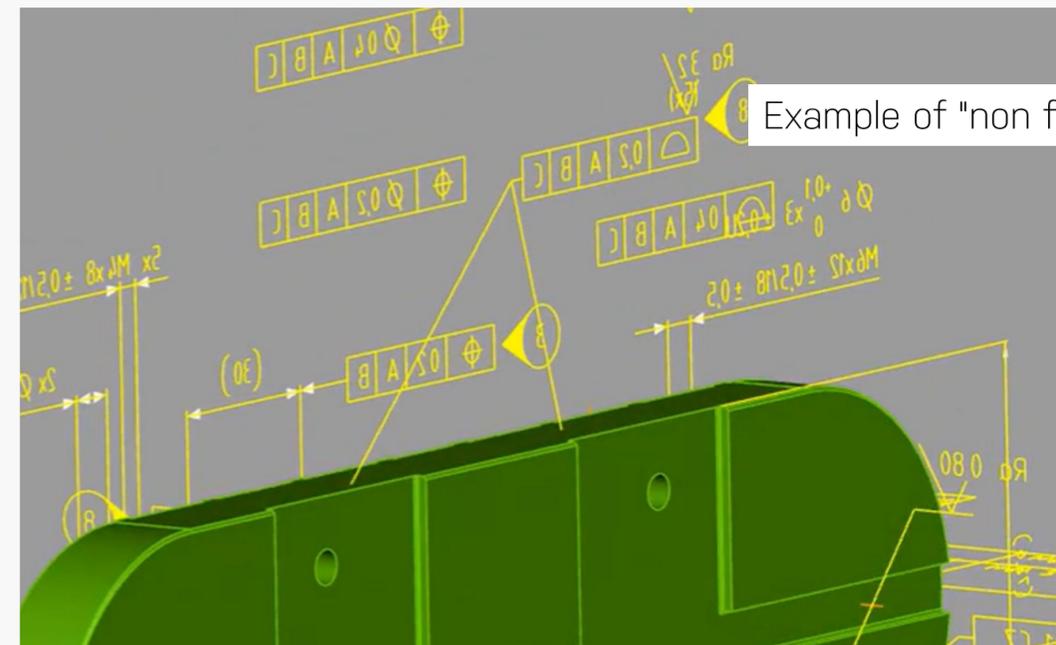


# "Flipping PMI"



"flipping PMI": tolerances and annotations remain human readable during rotating.

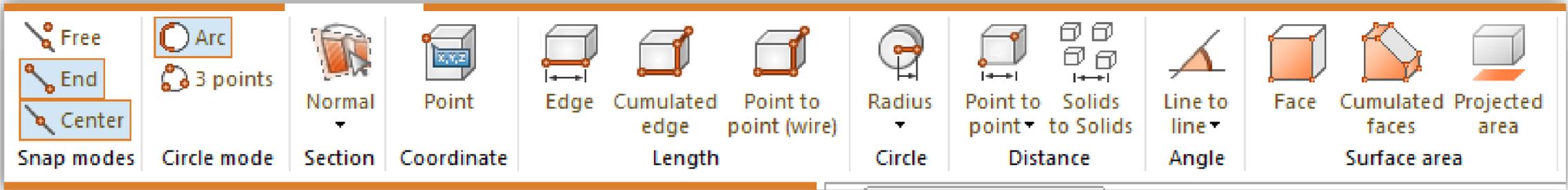
Designers must be aware how, where, and on which plane to define tolerances and annotations to assure human readability while 3D viewing!



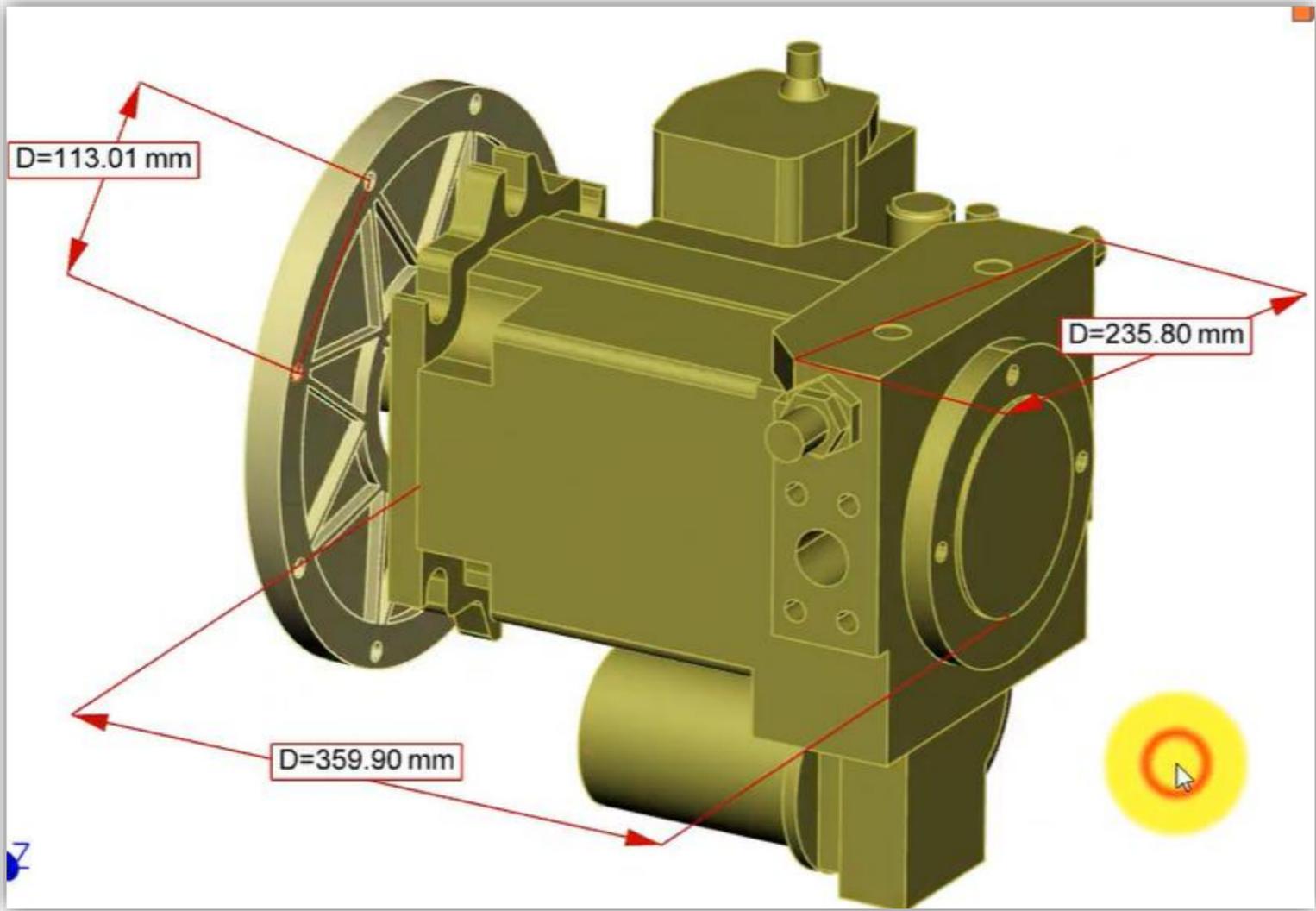
Example of "non flipping PMI".



# Measuring dimensions.



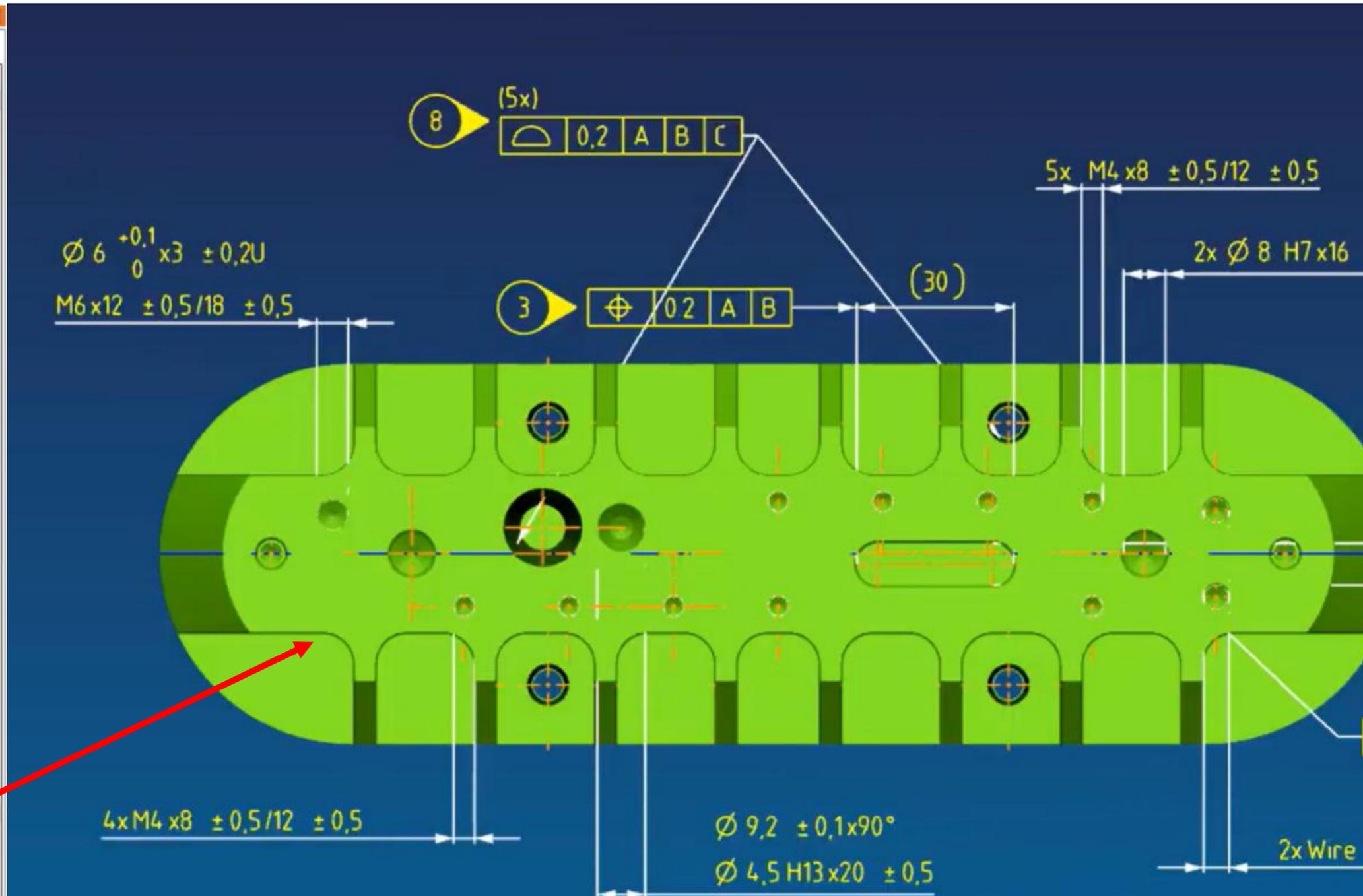
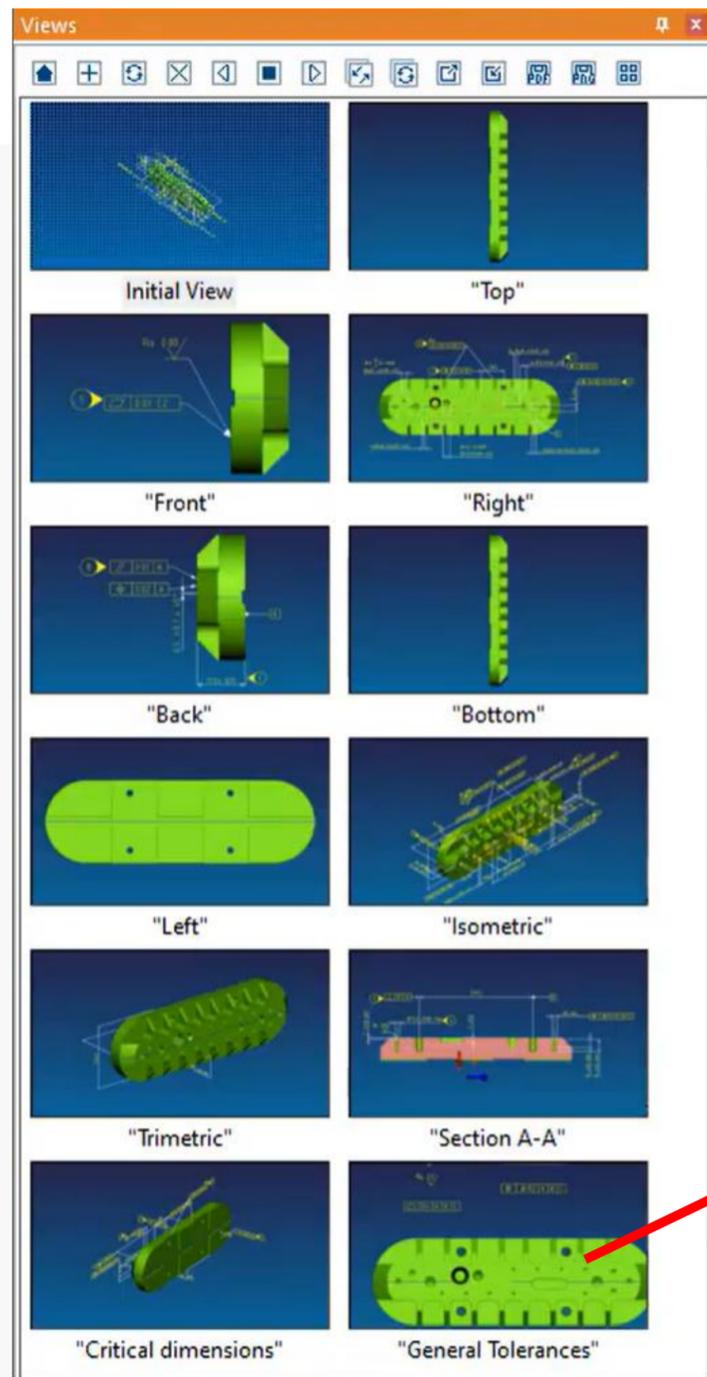
All kinds of handy measurements available (incl. submenu's).



Dimensions can remain visible (and saved as a view)



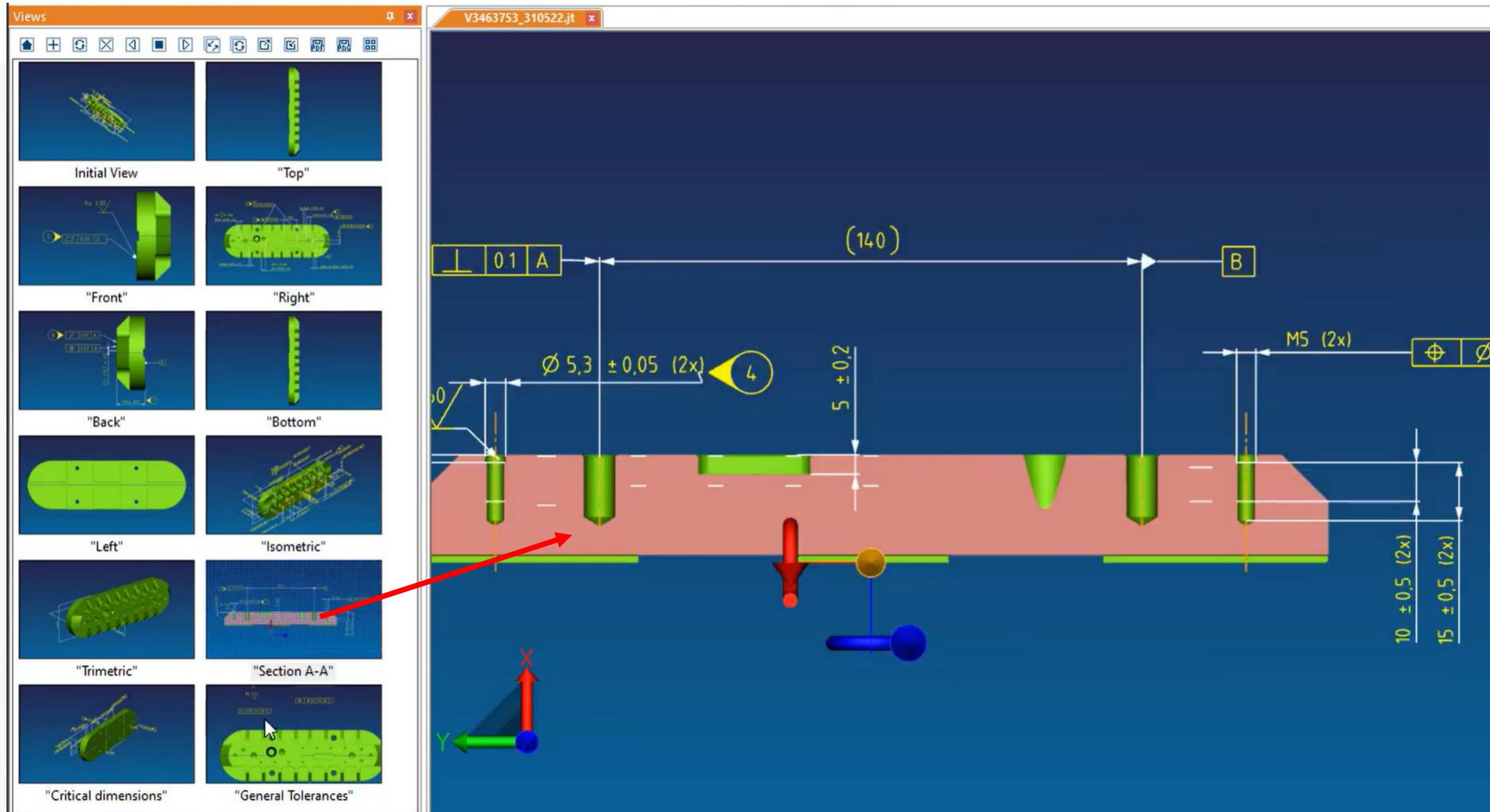
Views can be easily created and viewed (1) (as if you are looking on an old fashioned 2D drawing).



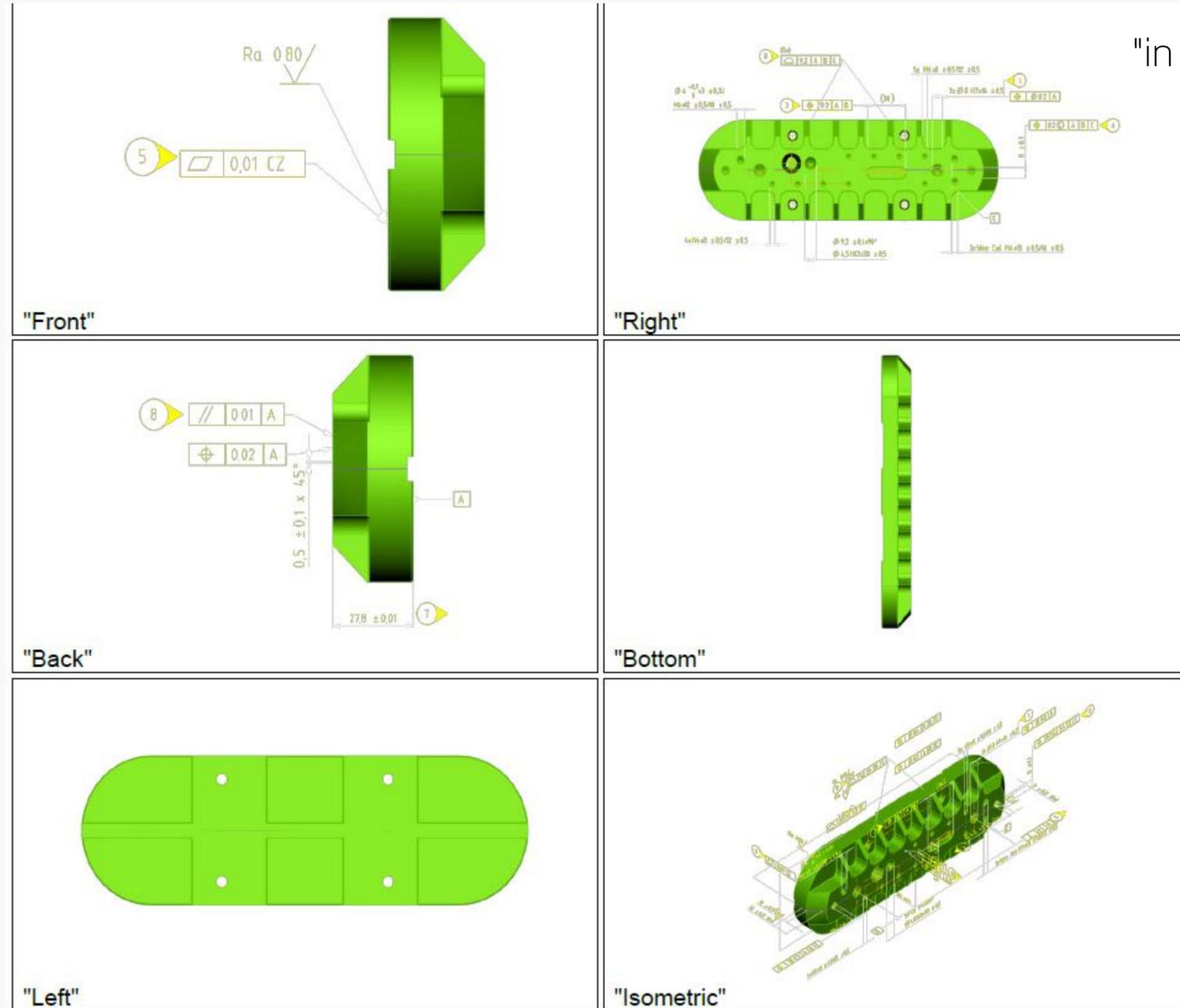
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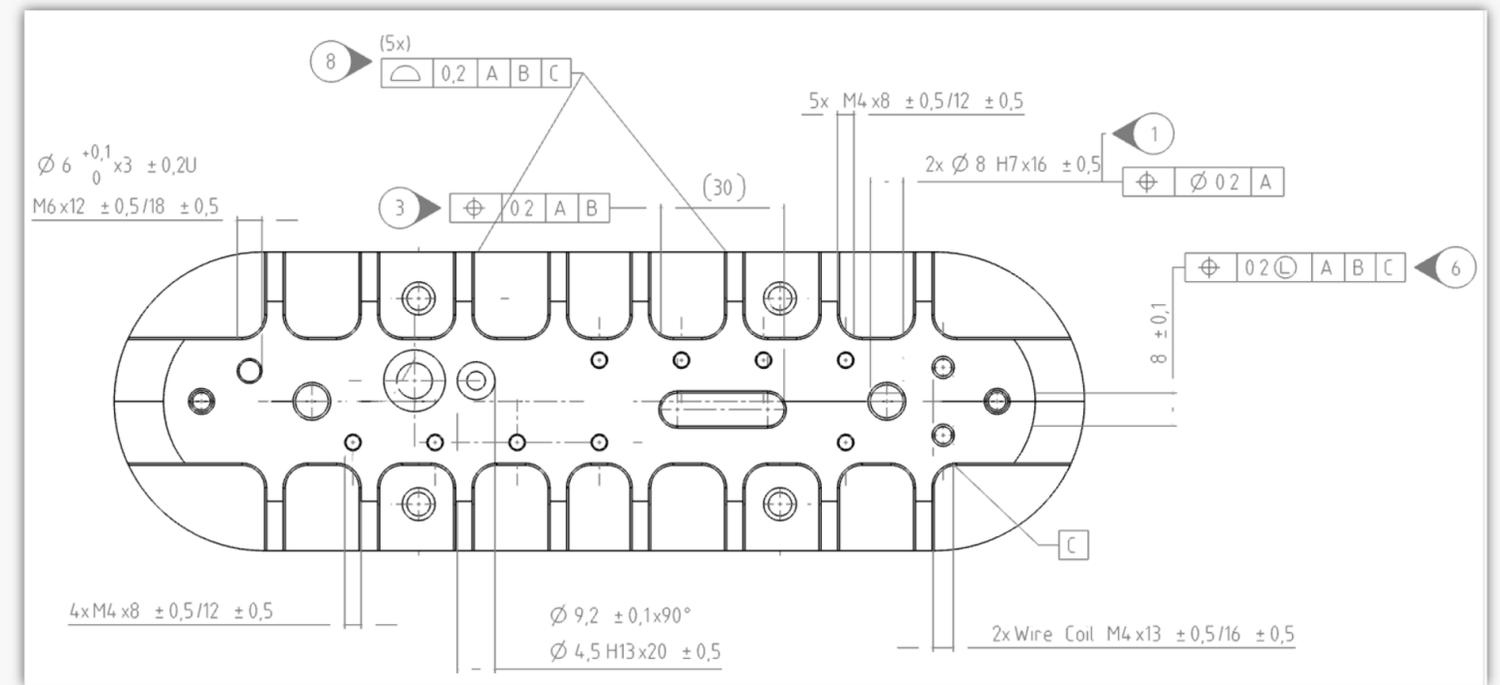
# Views can be easily created and viewed (2) (incl. sections)



# Human readable views can be exported to a.o. PDF format

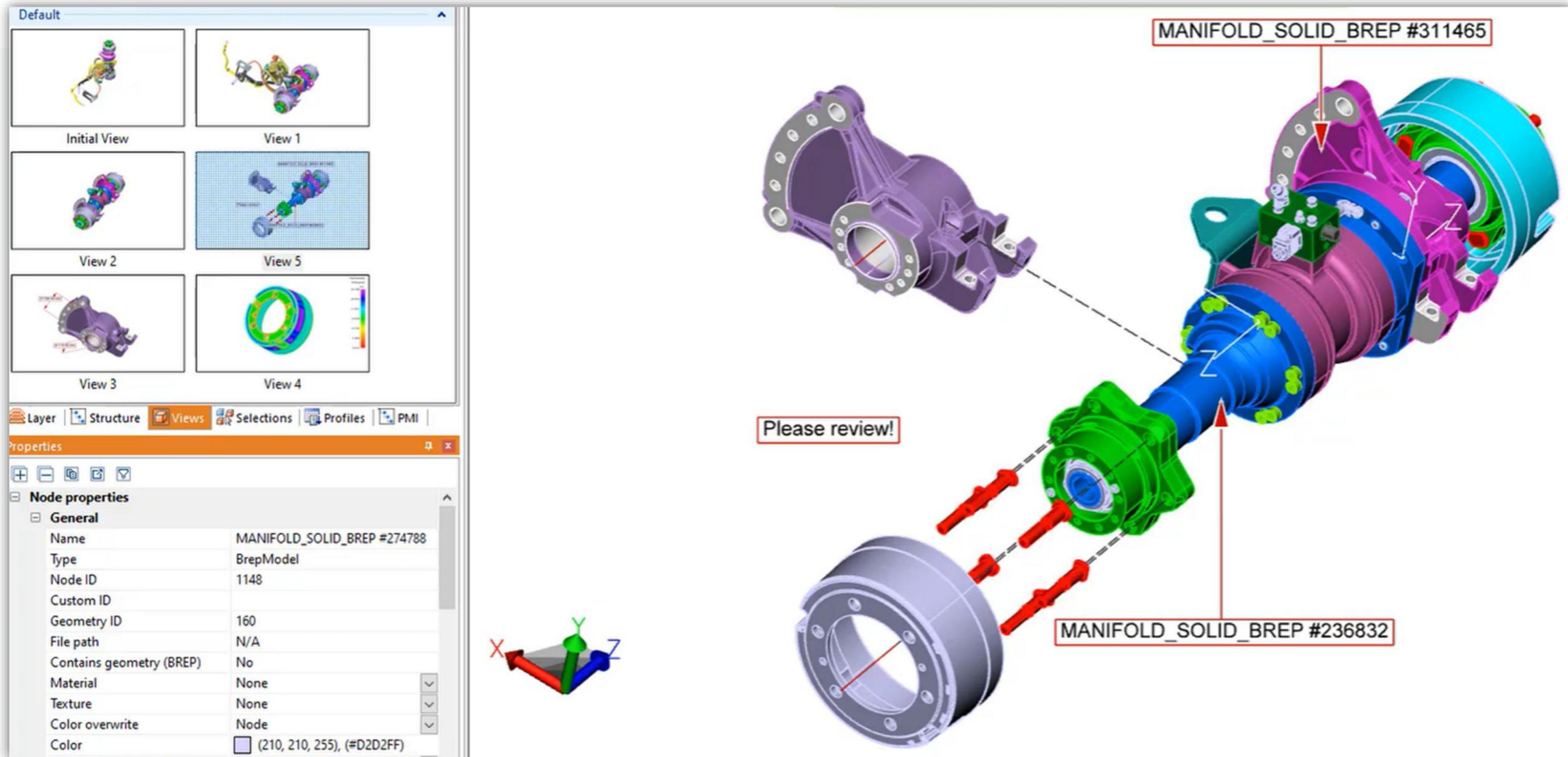


"in colour"



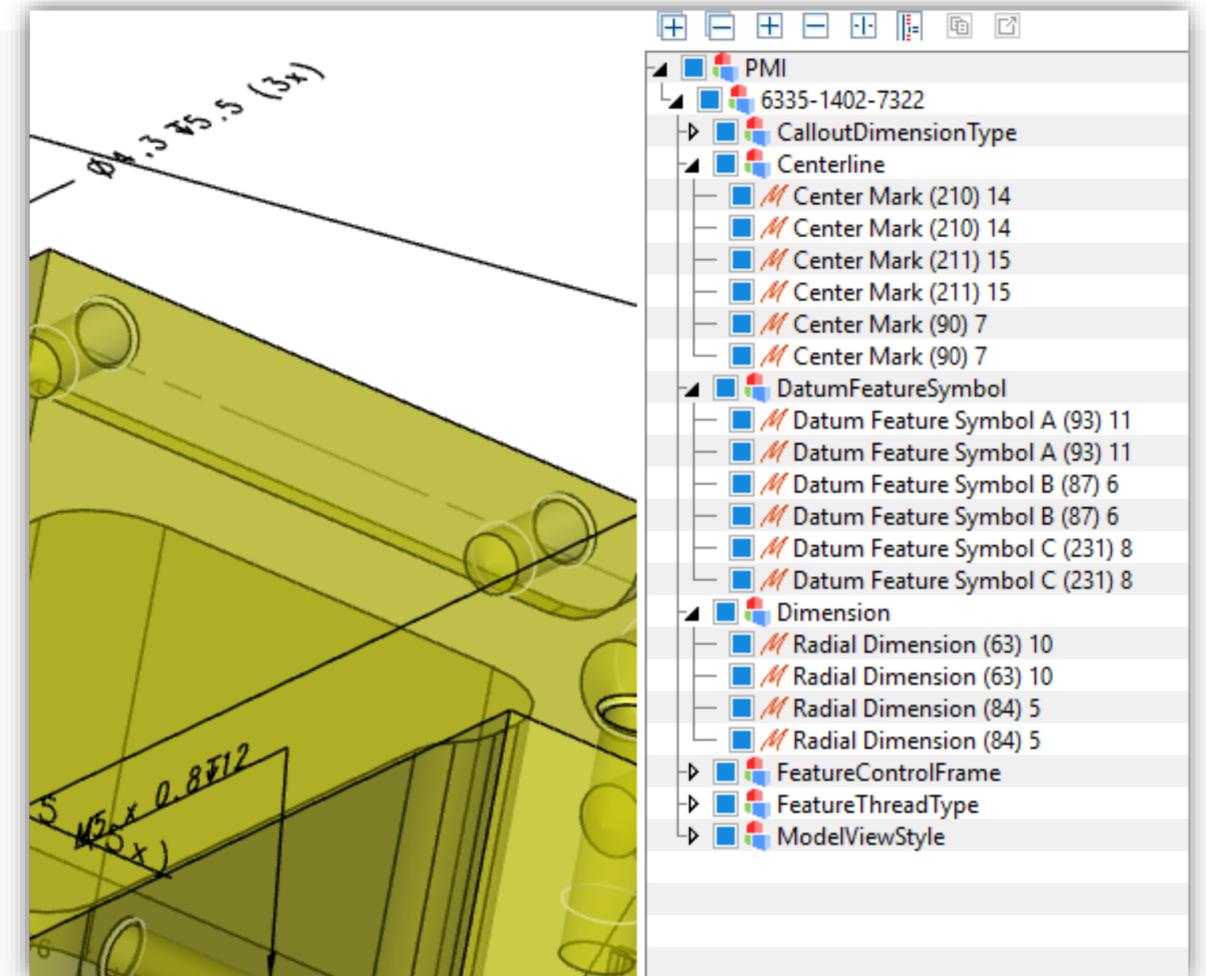
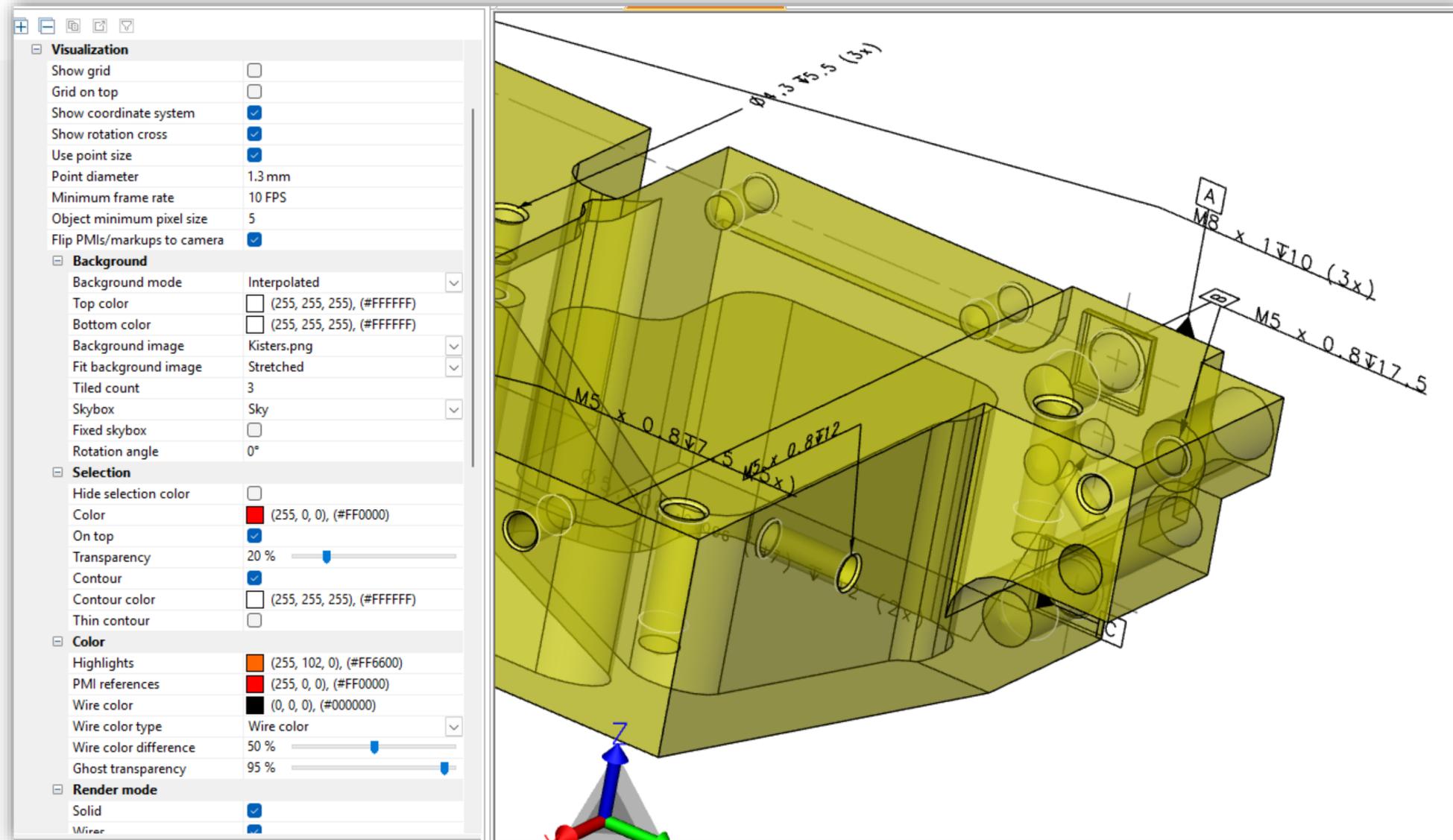
or e.g. in black & white (as if it was an old fashioned 2D drawing).

# Loading and viewing large assemblies within seconds.....

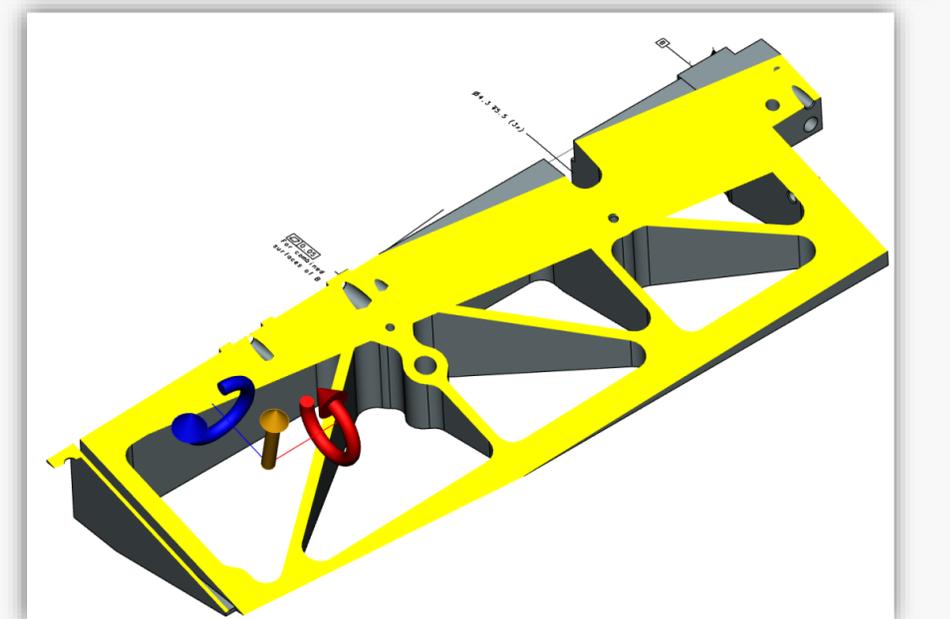
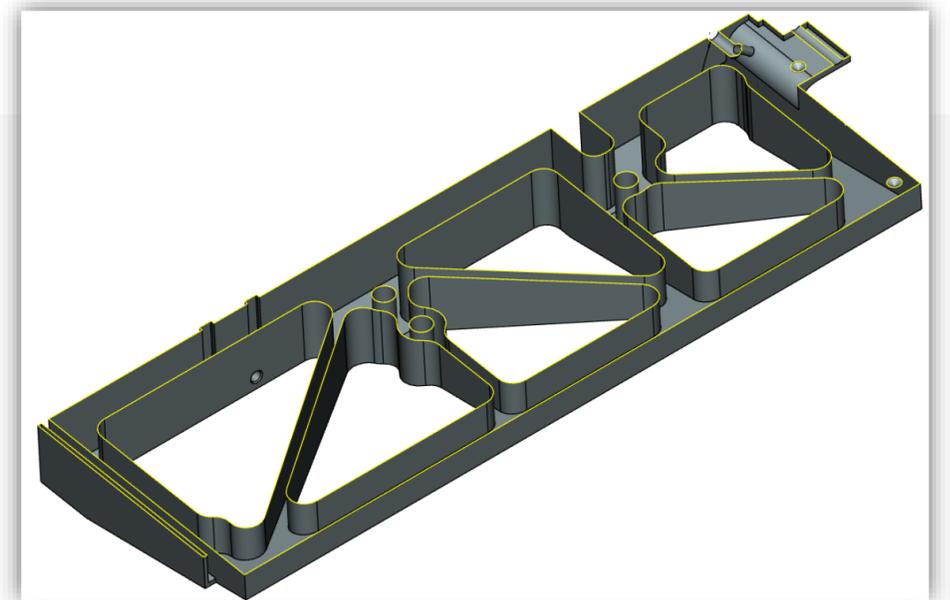
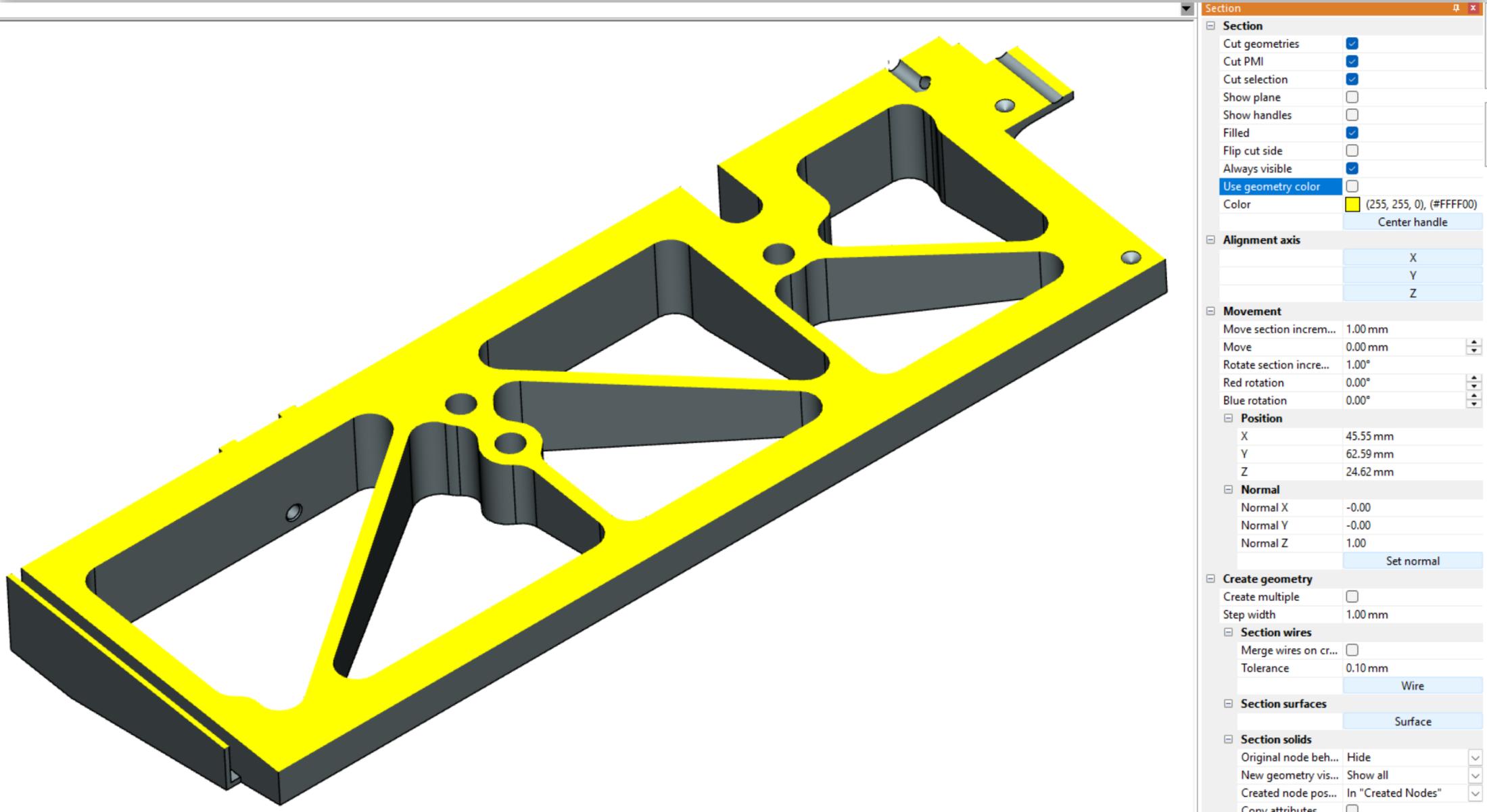


including manipulating and reviewing (adding comments etc.)

Many visualization parameters and PMI settings can be selected / changed.



All kinds of sections can be easily made, visualized and customized.



# Conclusions and recommendations.

- Free 3D viewers have many limitations.
- Advanced 3D viewers:
  - are very useful for manufacturing companies to merge on the digital MBD highway.
  - enable efficient workflows (reviewing, making calculations, instructions etc.).
  - can quickly generate "old fashioned" 2D drawing lookalikes".
- Designers must be trained to "properly" assign PMI within the 3D model.
- Try multiple advanced 3D viewers and experience which would fit your company best.
  - The "MBE Experience Centre" initiative could support this.
    - **SIGN** the Letter of Intent so "we" together can start this MBE Experience Centre!!!!

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