

Realize **LIVE**

Optimize and Protect NX and JT Designs

Danielle Perelli –Elysium Inc.

Dan Dezarov –Elysium Inc.

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Presenter Background

Danielle Perelli, Customer Engagement Lead - Elysium Inc.

- Manage customer engagements to address Data Migration, Multi-CAD Interoperability/Collaboration, Data Quality Management, Data Optimization, and Validation
- Collaborate with technical team members, development, and Elysium offices globally on product enhancement, global marketing, and to support customer engagements



Dan Dezarov, Manager Of Applications & Services - Elysium Inc.

- Manage the technical support group for both pre & post sales in which he has played an integral part of for the past fifteen years
- Engineering software professional with over 24 years of successful experience in the aerospace, automotive, consumer products and defense industries
- Holds Bachelor's of Science in Mechanical Engineering and has an in-depth knowledge of computer aided design, CAD to CAD translation, product data quality, product validation, and system implementation.



PRESENTATION AGENDA



Company Overview →

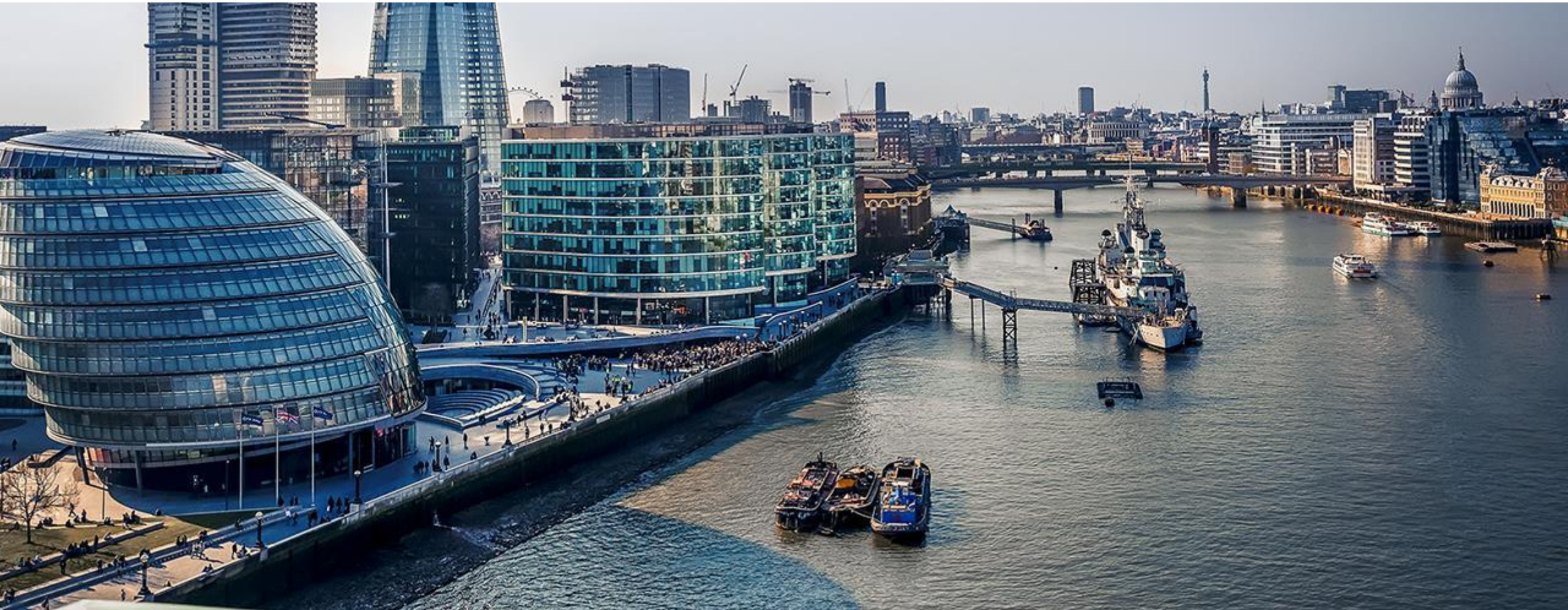
Product + Solutions Overview →

Optimization + Use Cases →

Demonstration →

Questions? →

Company Overview

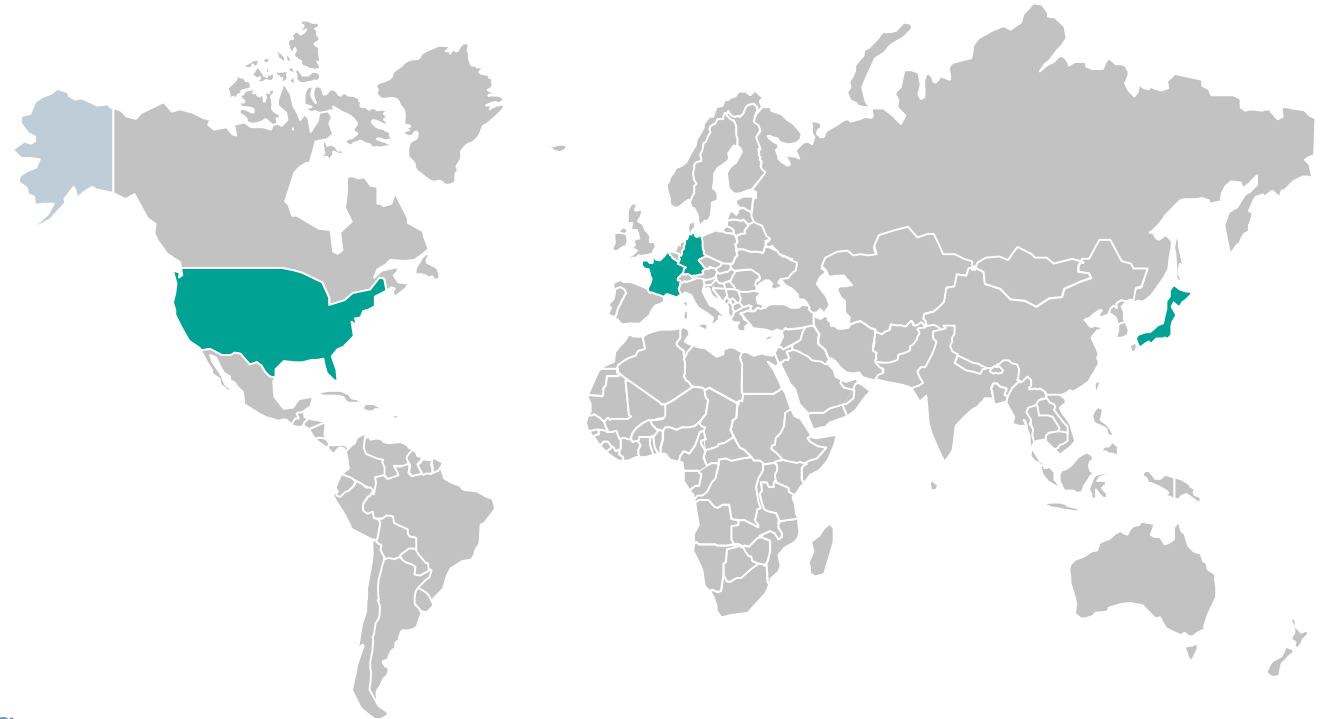


Elysium Global

Specialize + dedicated technologies with a global reach

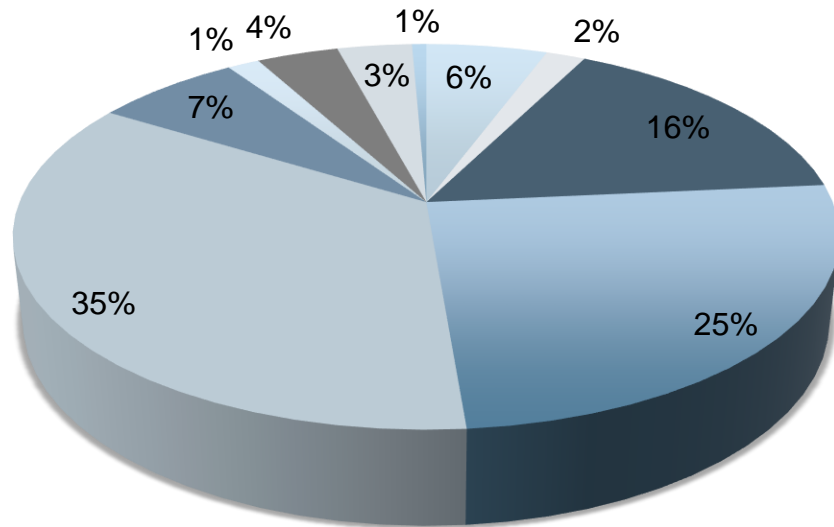


- Over 30 years of CAD Expertise
- Strong partnerships with CAD Vendors
- 3D Data Expertise
 - Translation
 - Geometry Healing
 - Quality Management
 - Validation
 - Simplification
 - Reverse Engineering/ Point Cloud Rendering
- “Off-the-Shelf” Software, Development Projects & Migration Services



Industries Served

Elysium has over 2800 customers around the world with a strong position in the manufacturing industry

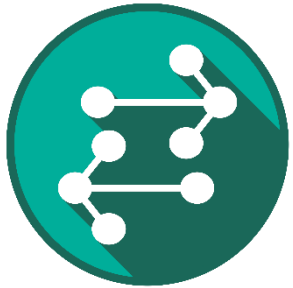


- Aerospace & Military
- Automotive OEM
- Automotive Supplier (Tier-x)
- Energy | Oil & Gas
- Engineering Services
- Architecture & Construction
- Automotive Supplier (Tier-1)
- Consumer Electronics & Products
- Heavy Industry
- Shipbuilding



Model Quality in all Applications

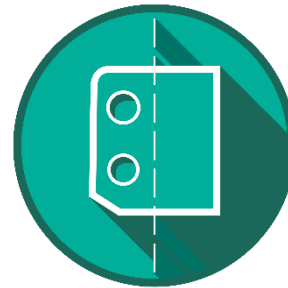
Many solutions to help you 3D data interoperability



Translation



Healing



Simplification



Validation



Migration

(Feature-Based Translation)



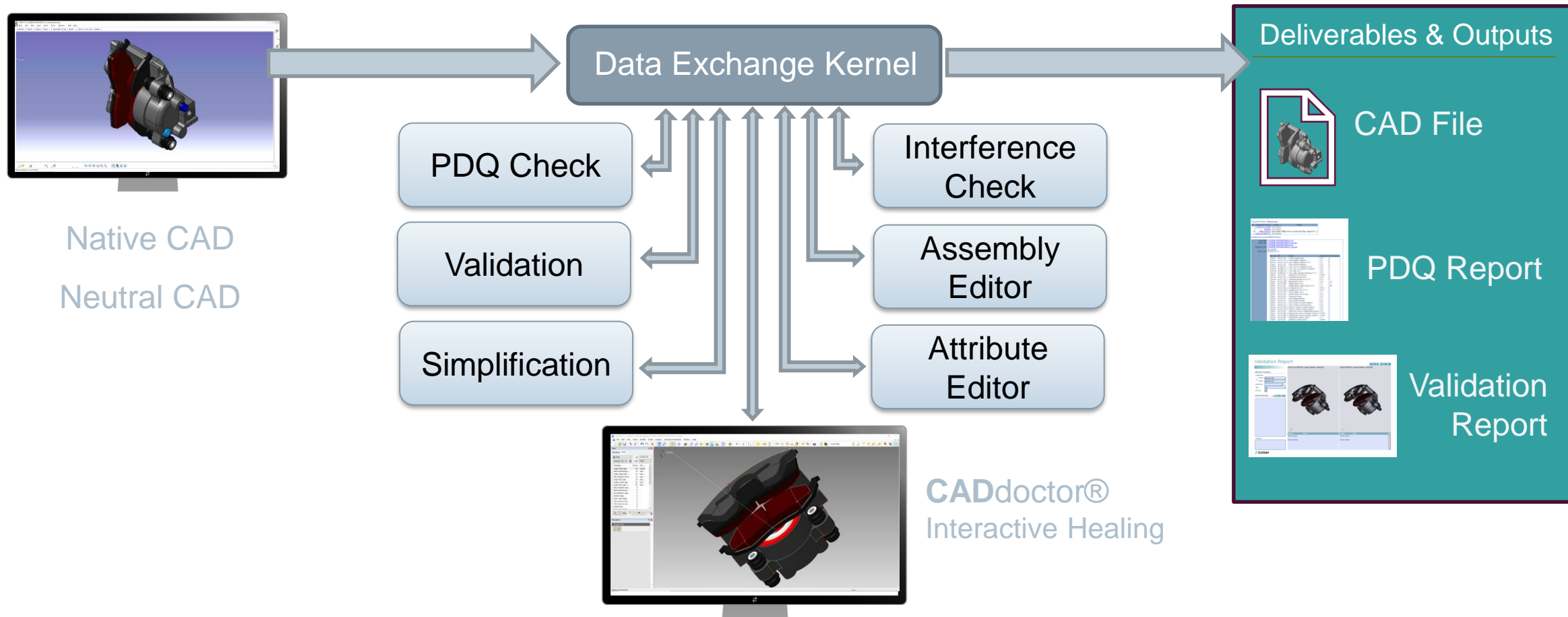
Quality Check

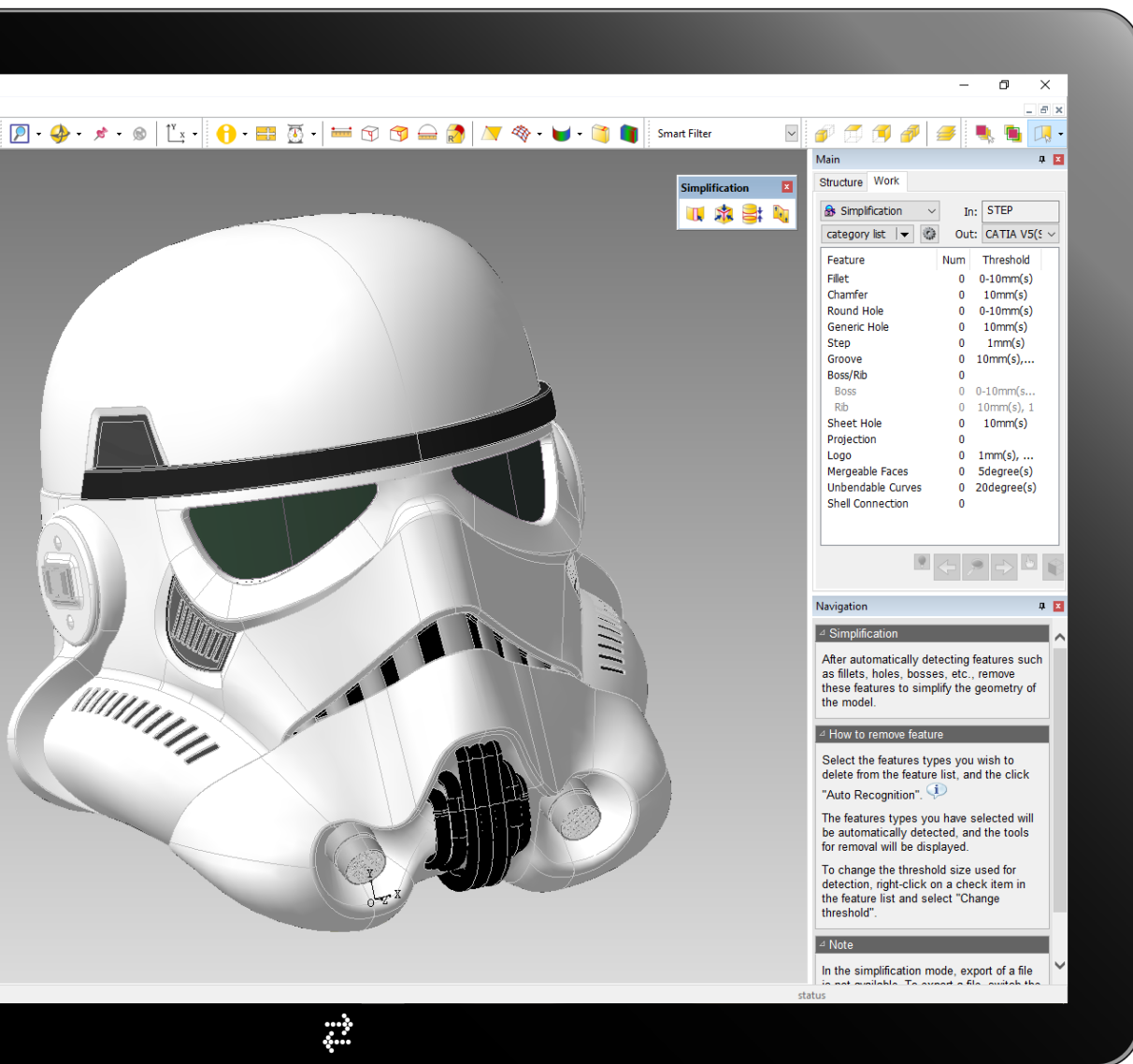


Solid Enveloping

ASFALIS™ Functionality

Enterprise system for automated translation and optimization of 3D CAD data





CADdoctor is packaged software for geometry PDQ checking, geometry healing, data translation and geometry optimization.

Built-in geometry healing module

Data Exchange Kernel (DEK) with pre-defined 'flavoring' options for the following CAD systems/formats:

- NX (Unigraphics)
- JT
- CATIA V4
- CATIA V5
- I-DEAS
- Creo
- CoCreate
- SolidWorks
- Autodesk Inventor
- Mechanical Desktop
- ACIS
- Parasolid

CADdoctor® interactive functionality enables advanced levels of healing and simplification

Optimization + Use Cases



Use Cases for Optimization of NX/JT



1 To create a Light-Weight 3D model

- Create a light 3D model from a huge assembly model
- Digital mock-up, interference check, translation to viewer formats, etc.

2 To create a CAE model (Simulation)

- Simplify and merge assembly model to use for simulations
- Widely used in fluid analysis, particularly thermal fluid analysis

3 IP Protection

- Delete internal geometry that includes company proprietary information such as design know-how
- Keep exact outer geometry while deleting internal geometry

Geometry Simplification

Optimize models for CAE analysis and intellectual property protection

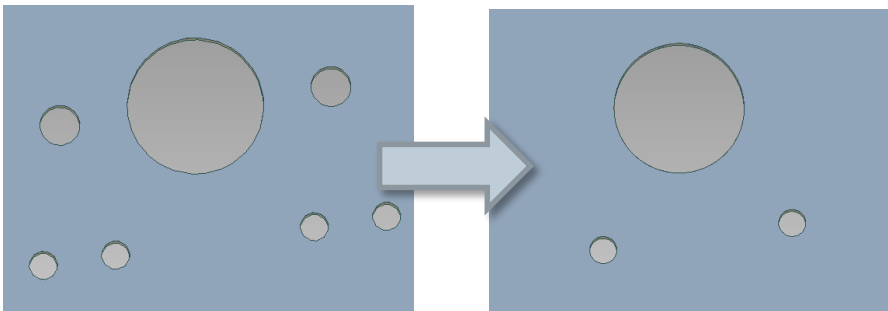


Feature Recognition and Simplification

Automatically recognize geometric features like fillets or holes and remove them. Enable to recognize and remove overlapped/converging fillets and variation fillets.

Flexibility for Feature Removal

Choose which features you want to remove and which ones you want to remain. Allowing you to have full control of information shared.



Automatically recognize features, such as holes, and allow you to remove all or select the ones you want to remove



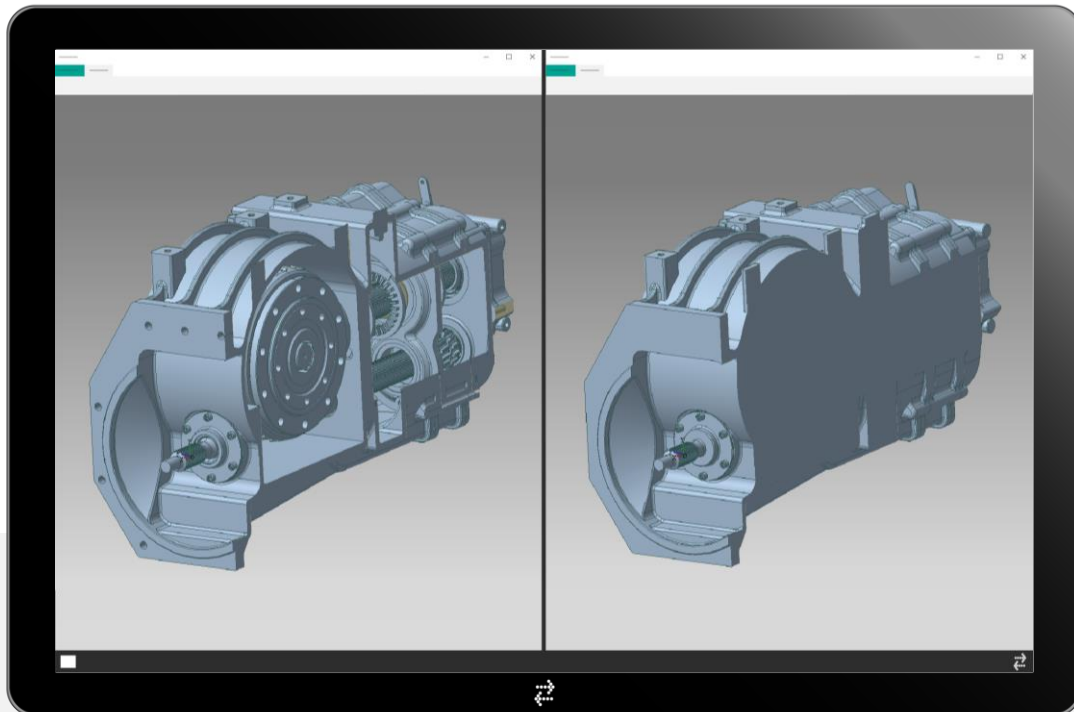
Solid Envelope | Surface Extraction

Automatically simplify models for CAE, DMU or other downstream processes



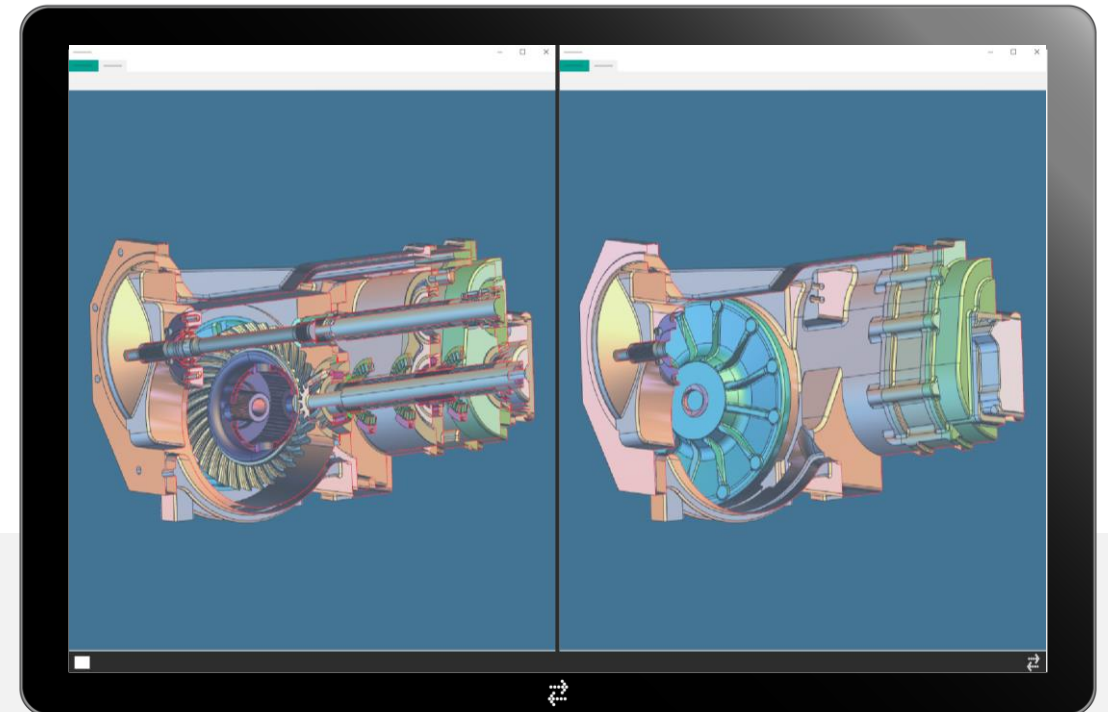
Solid Envelope

Fill inside of assembly model to create a solid model for size reduction and protect IP.



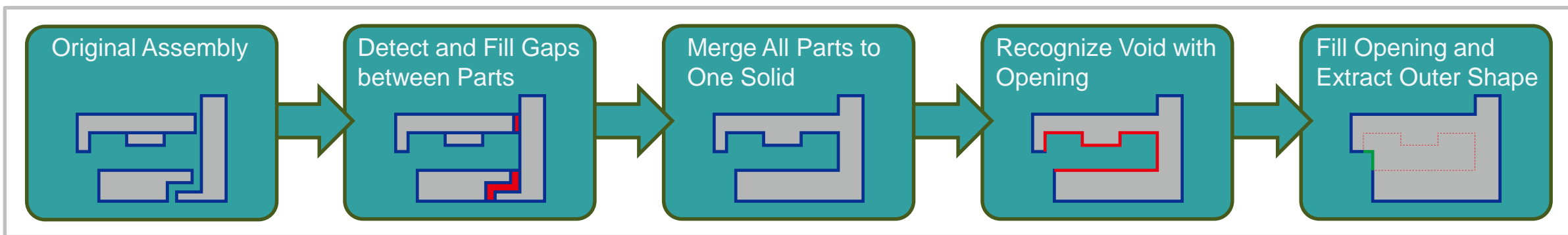
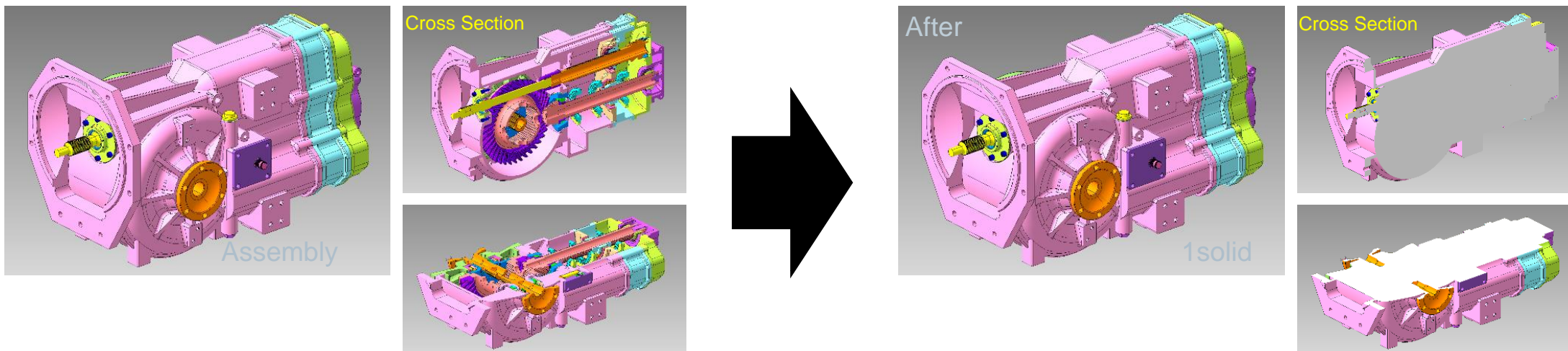
Surface Extraction

Extract the outline of the exterior parts or interior parts.

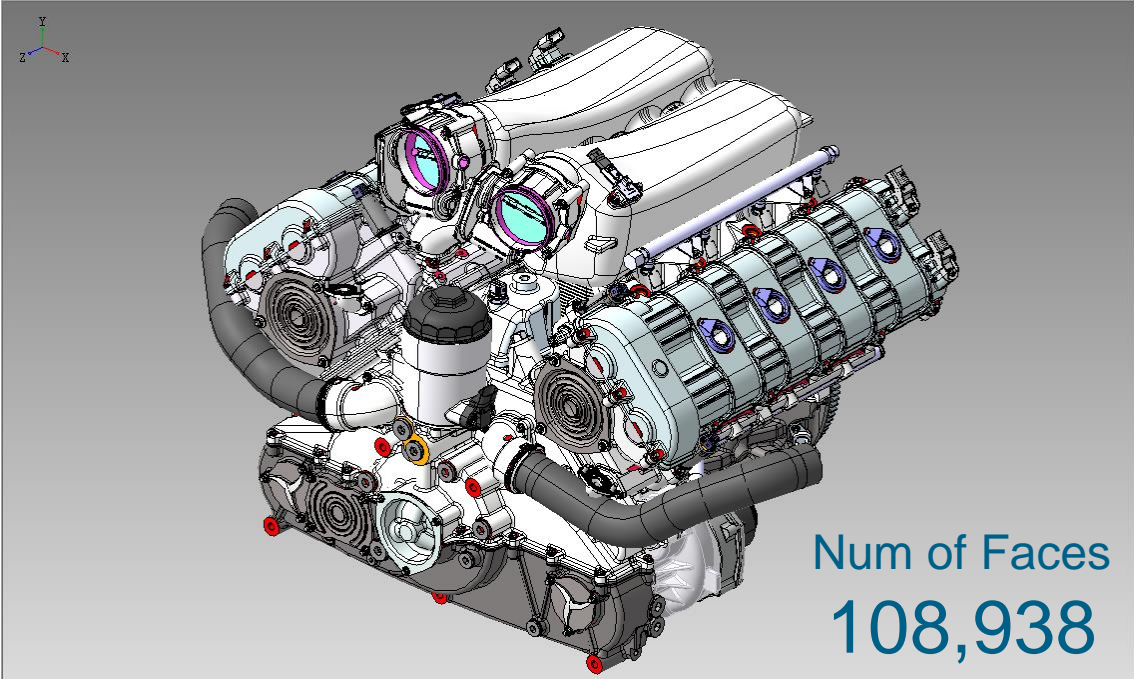


Solid Enveloping Function

Extract Assembly Outer Shape as 1 Solid
Focus on CAE Model Creation

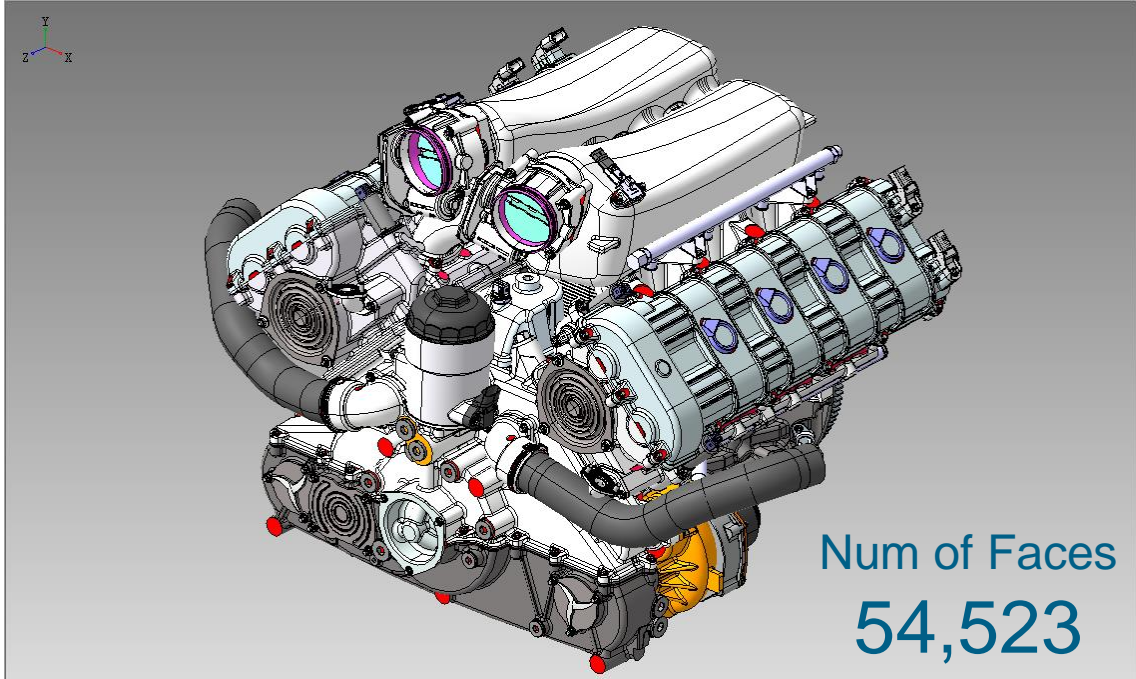
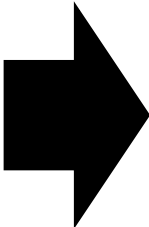


Case Study



Num of Faces
108,938

Type	Number
PART	290
VOLUME	473
SHELL	489
FACE	108938
SURFACE	108938
CURVE	265038
DEGENERATE CUR...	0
POINT	157508



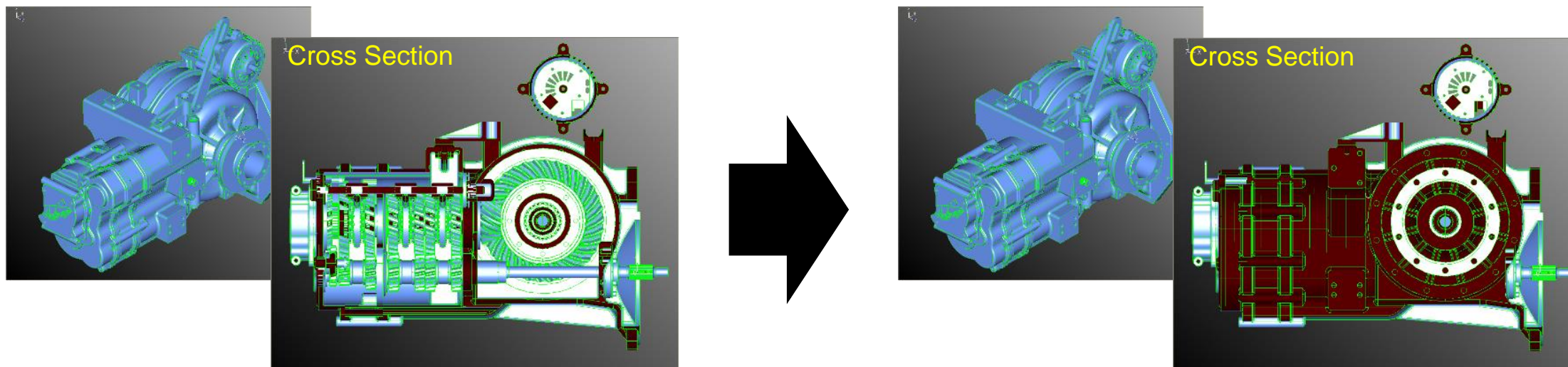
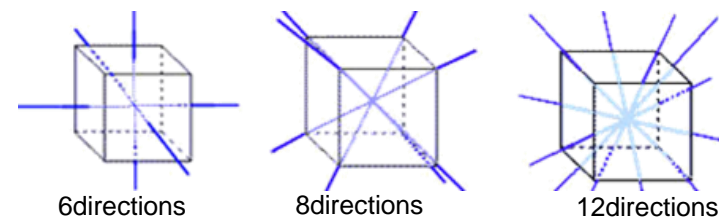
Num of Faces
54,523

Type	Number
PART	1
VOLUME	1
SHELL	1
FACE	54523
SURFACE	54523
CURVE	130472
DEGENERATE CUR...	1248
POINT	76883

Function to Delete Invisible and Small Elements



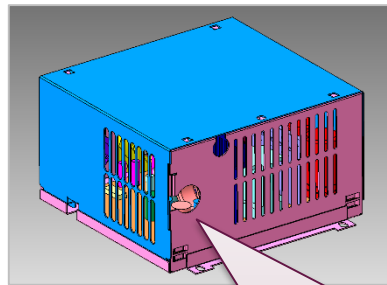
- Extract Visible Faces or Volumes by Pre-Defined View Direction
- Focus on Automation and File Size Reduction



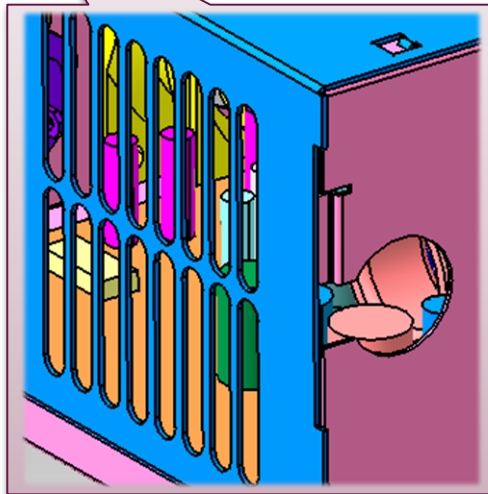
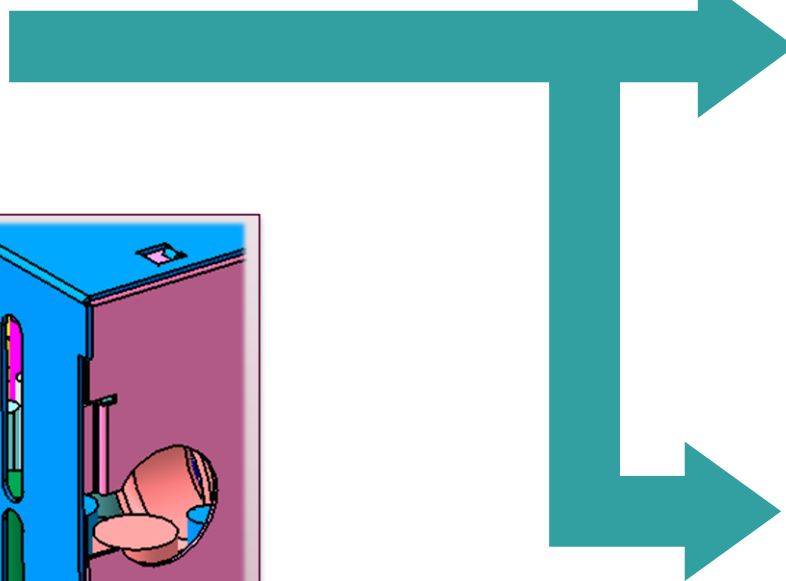
Extract visible faces from 6 directions

Delete Invisible Volumes

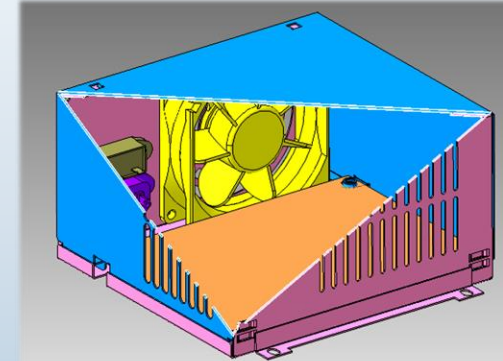
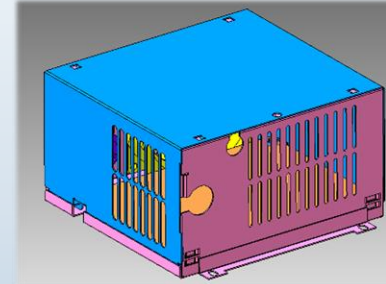
Enabled to Specify the Gap which should be Ignored
Fully Automated Function



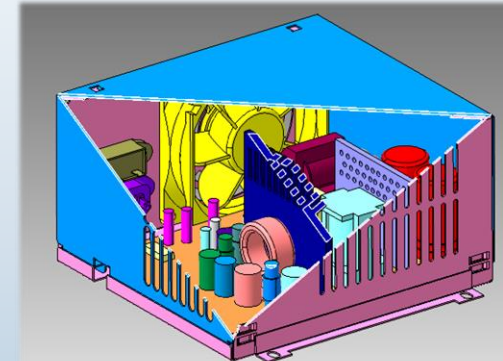
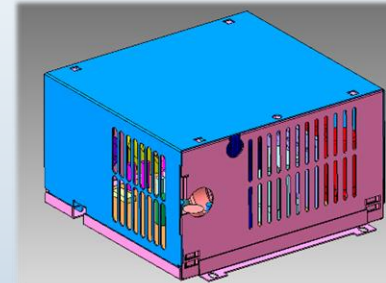
Remove Invisible Volumes



ON: Interior parts removed



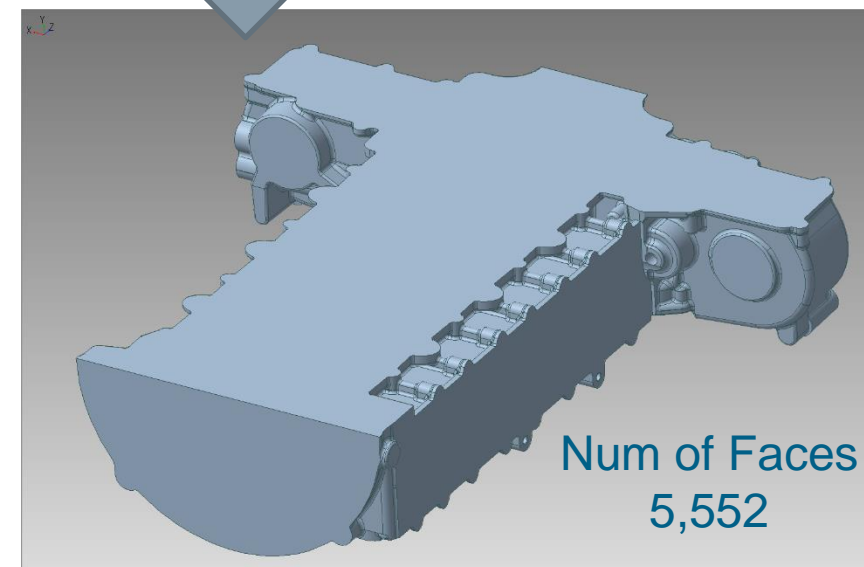
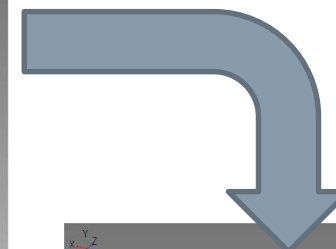
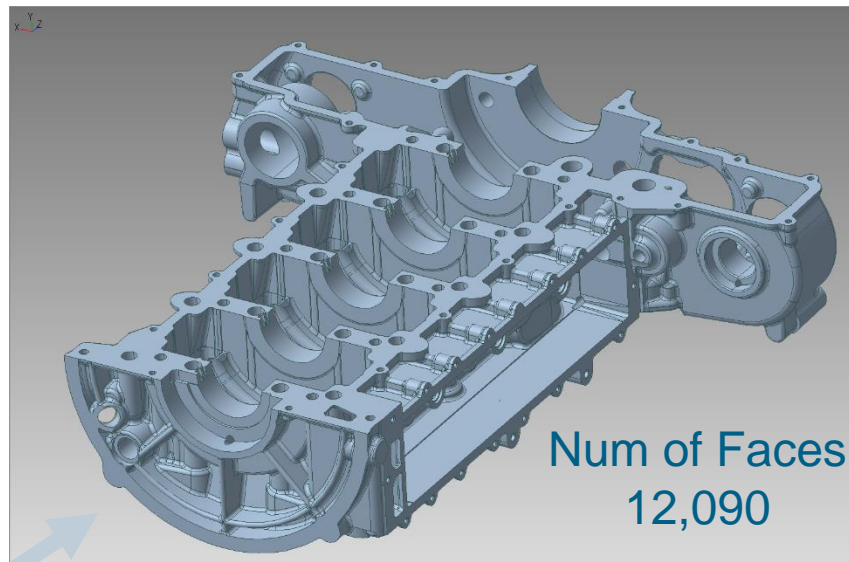
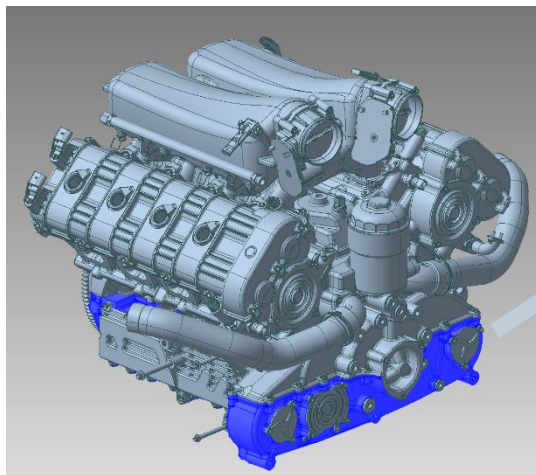
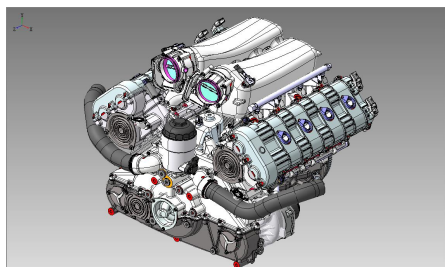
OFF: Interior parts kept



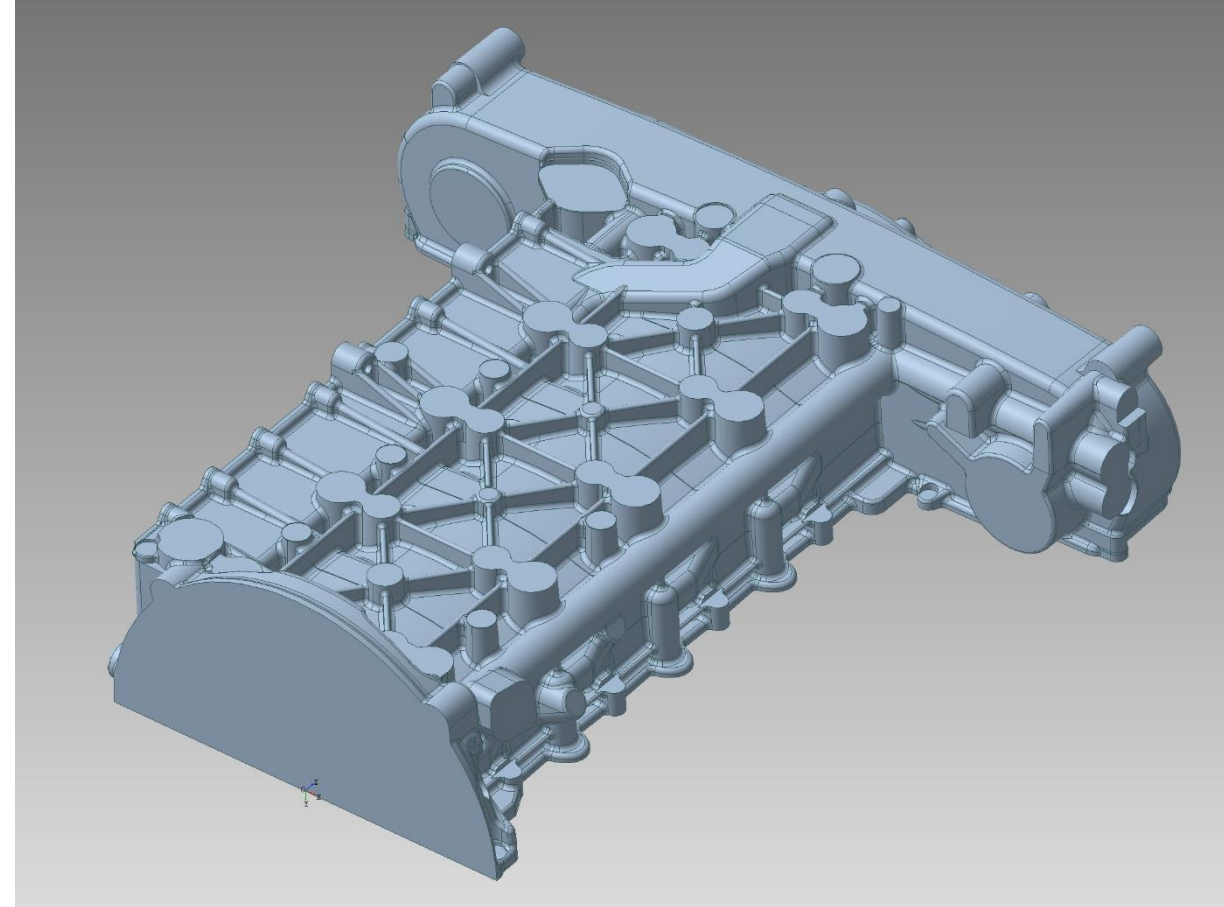
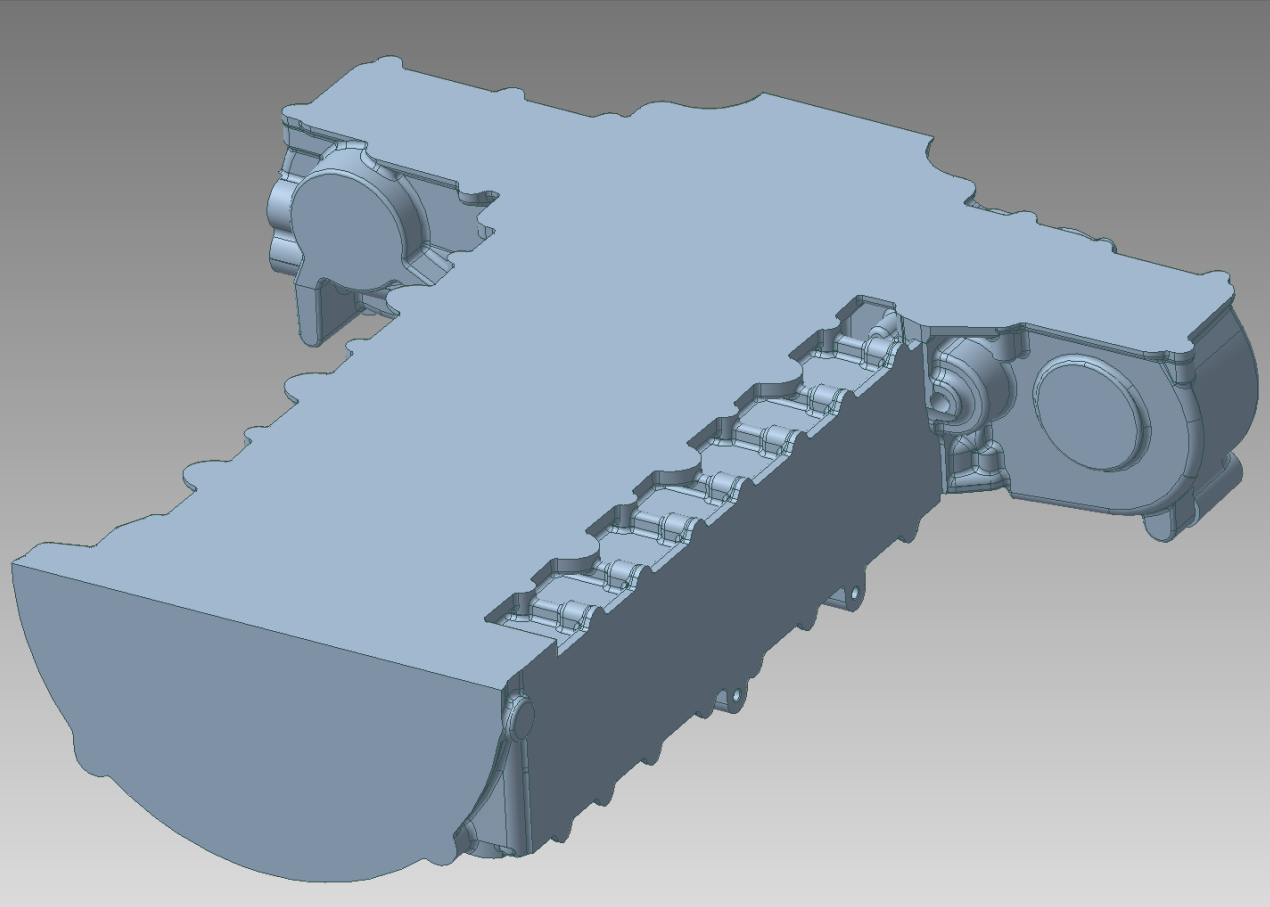
Remove ALL Holes / Grooves / Protrusions

Generate Simplified, Light Weight Model

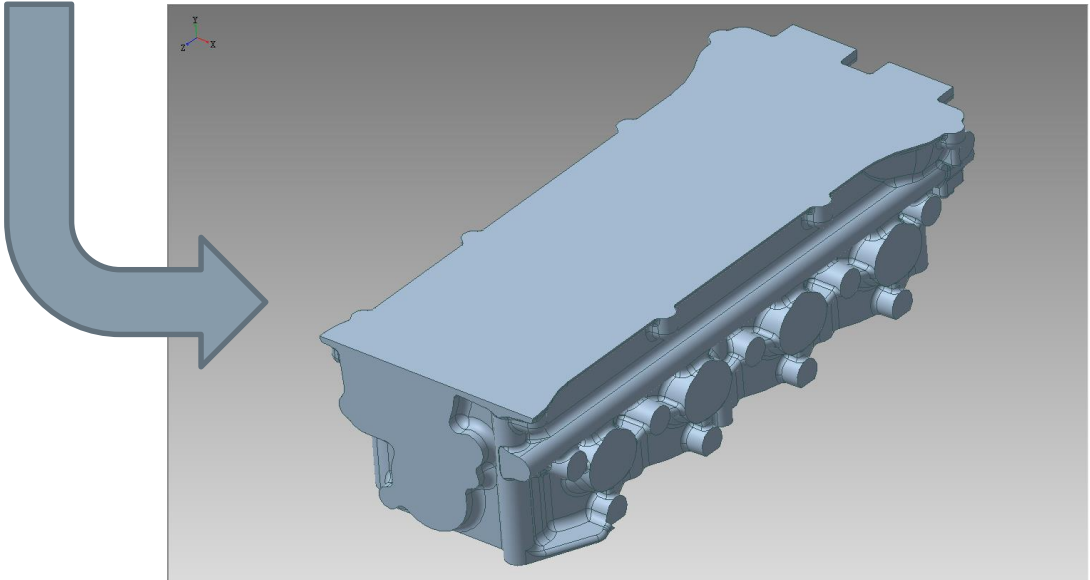
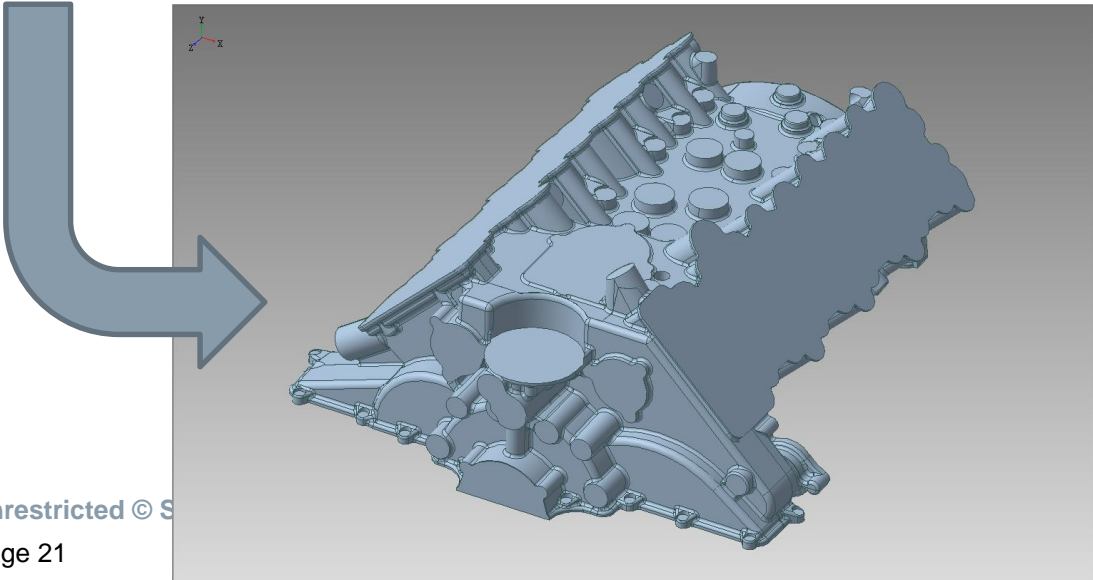
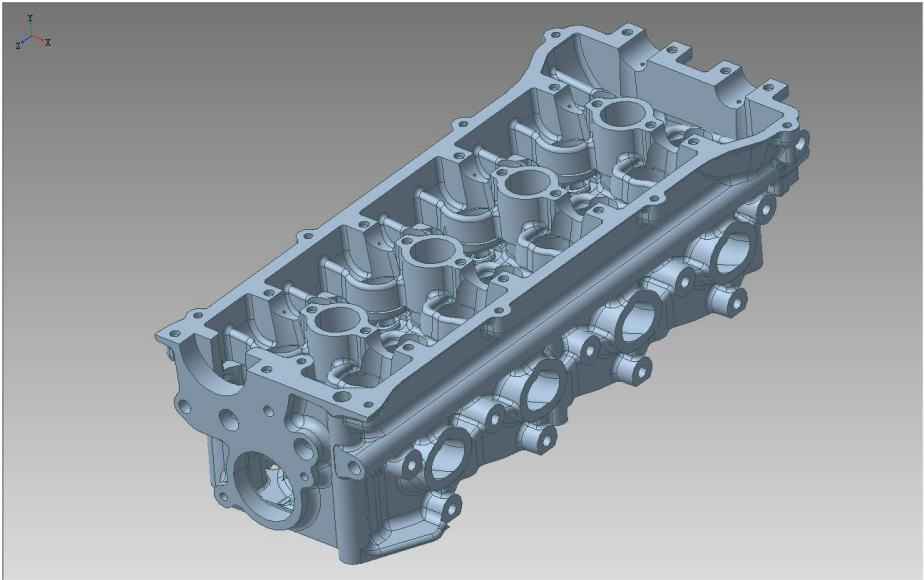
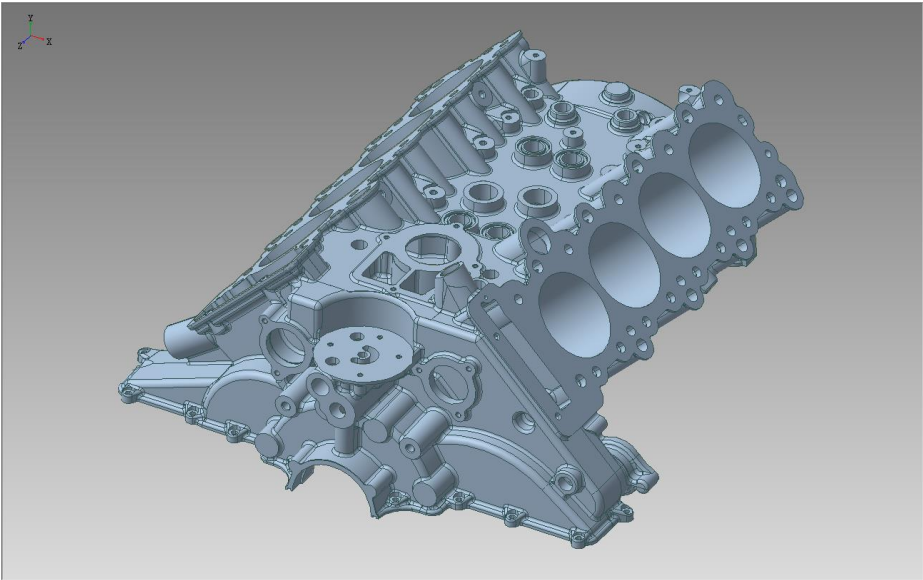
Robust and Fully Automated Function



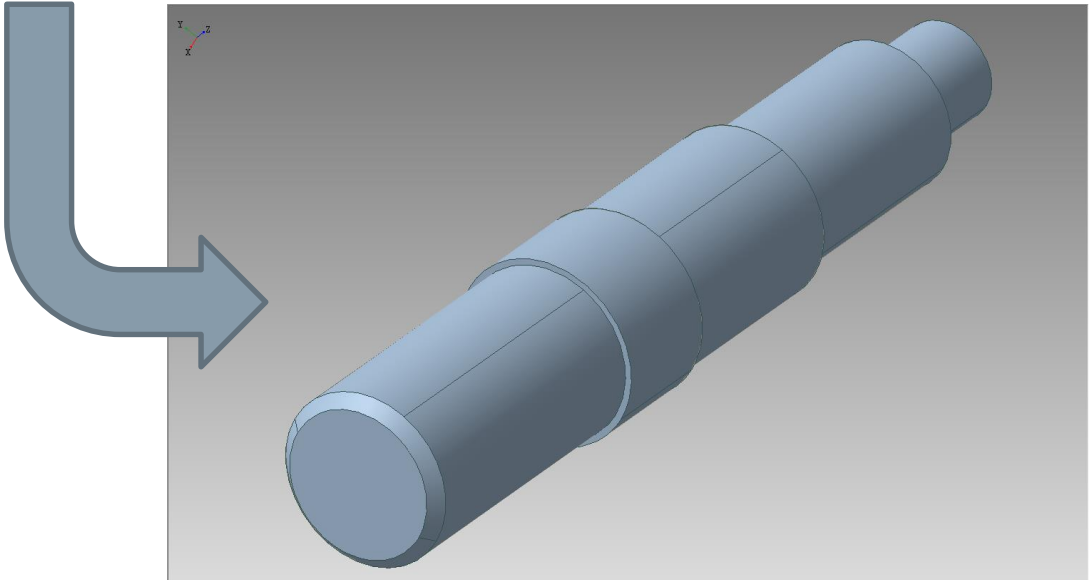
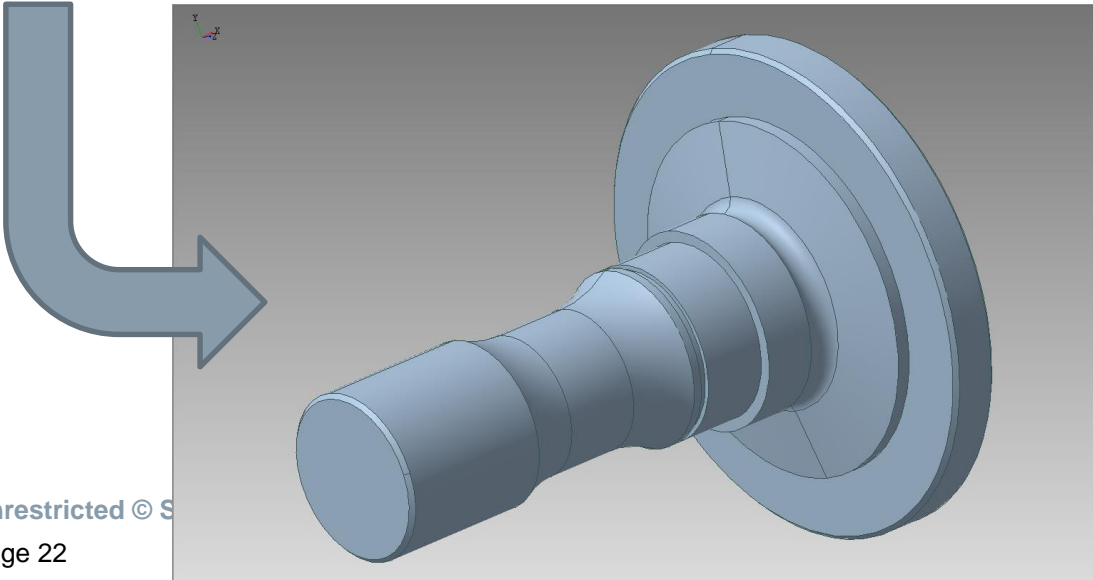
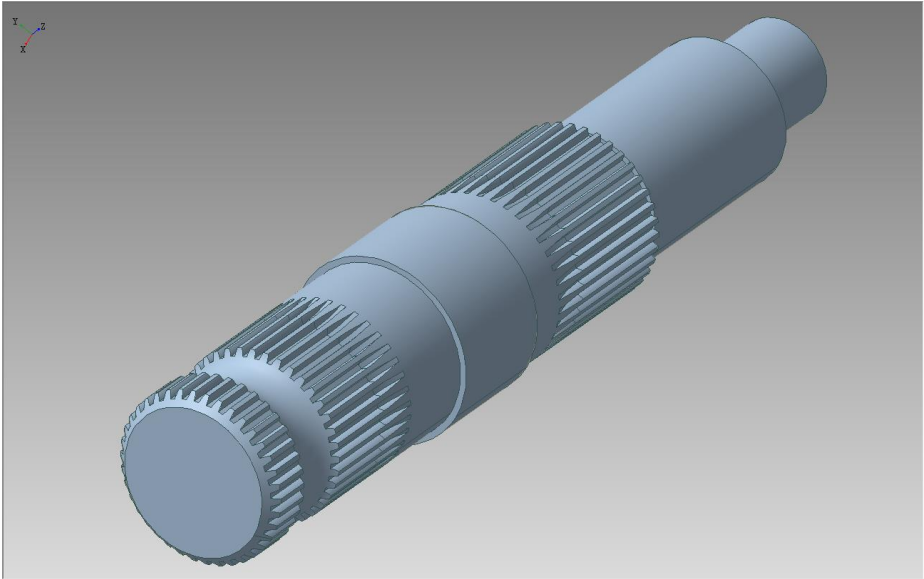
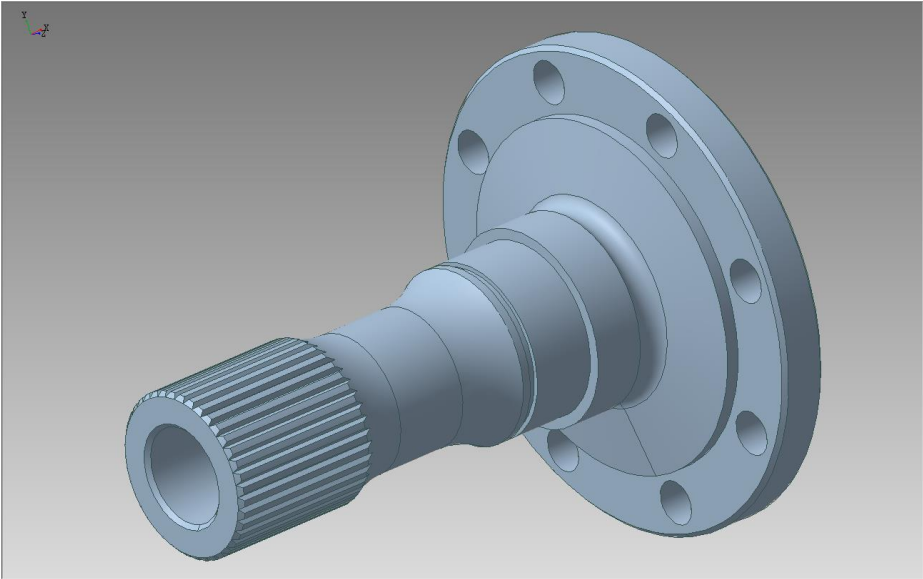
Remove ALL Holes / Grooves / Protrusions



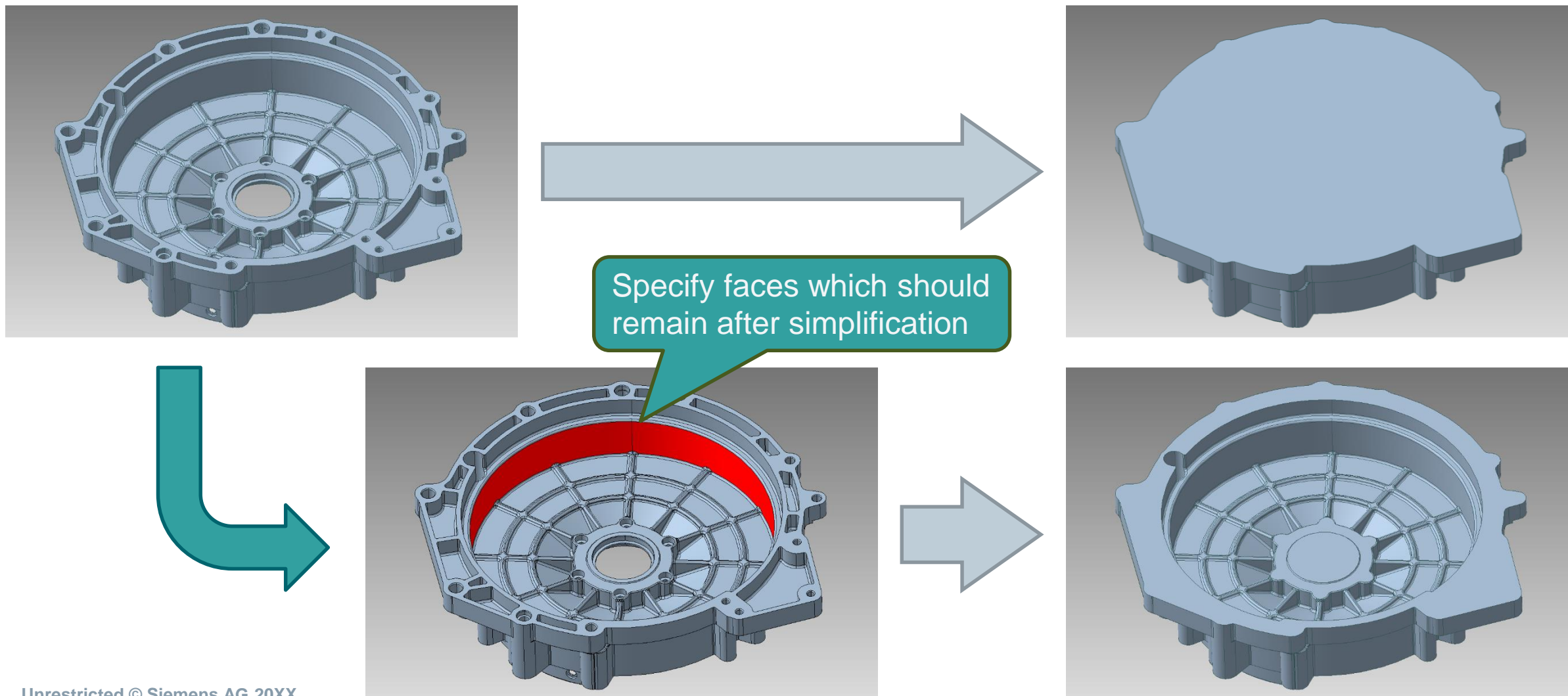
Examples



Examples



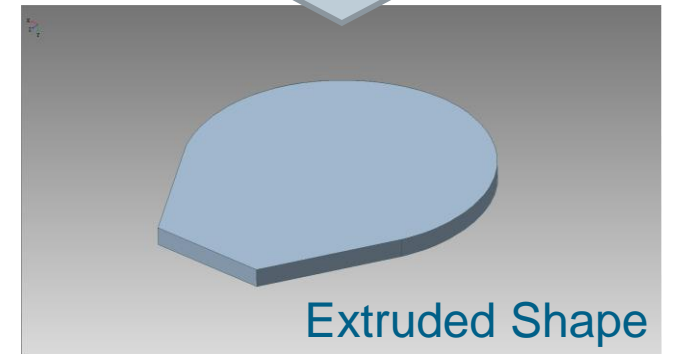
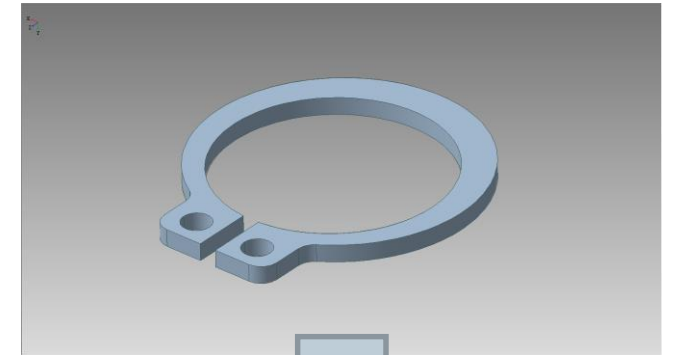
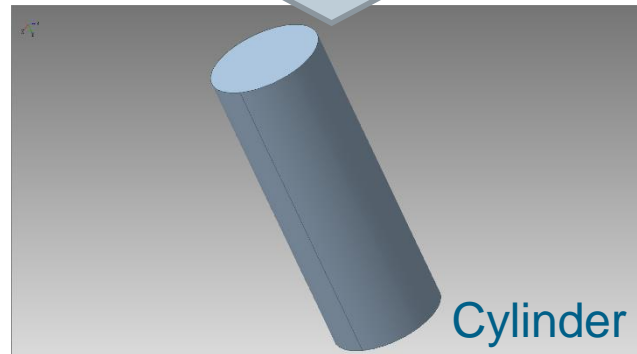
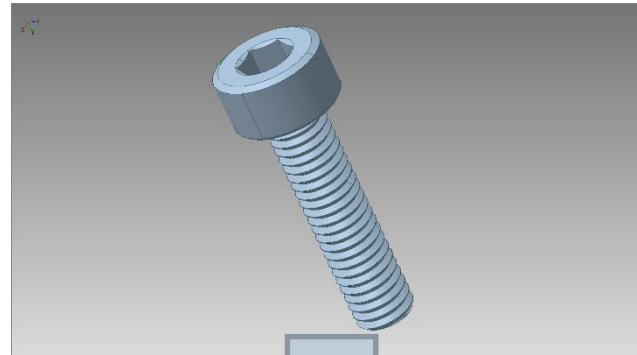
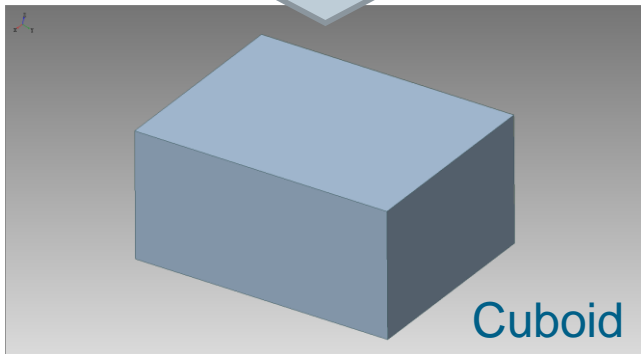
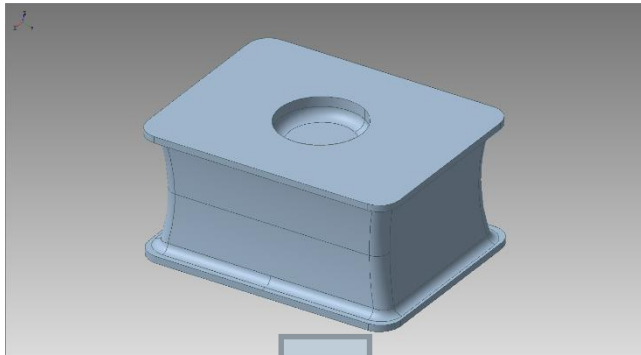
Advanced Usage



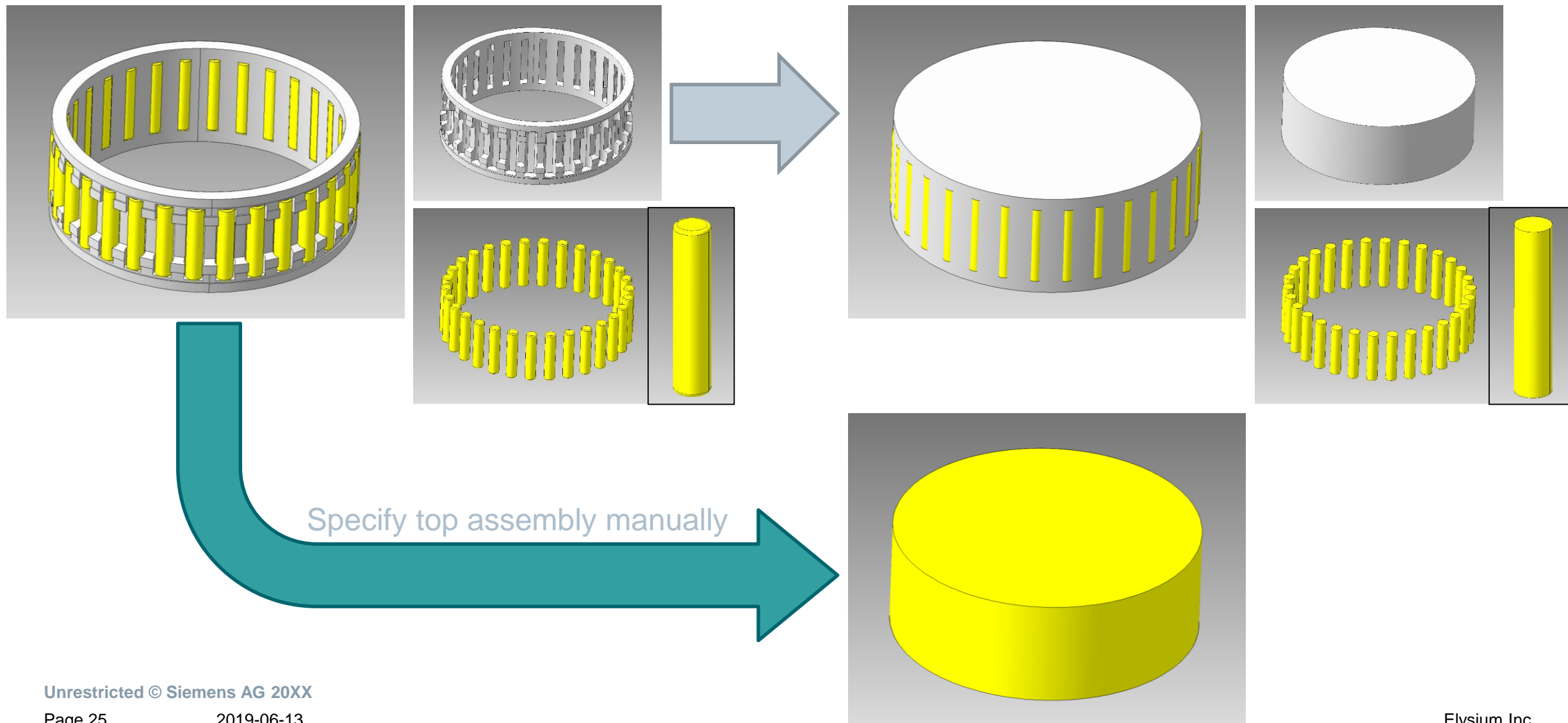
Replace Volume with Simple Shape

Replace Volume with Cuboid, Cylinder and Extruded Shape

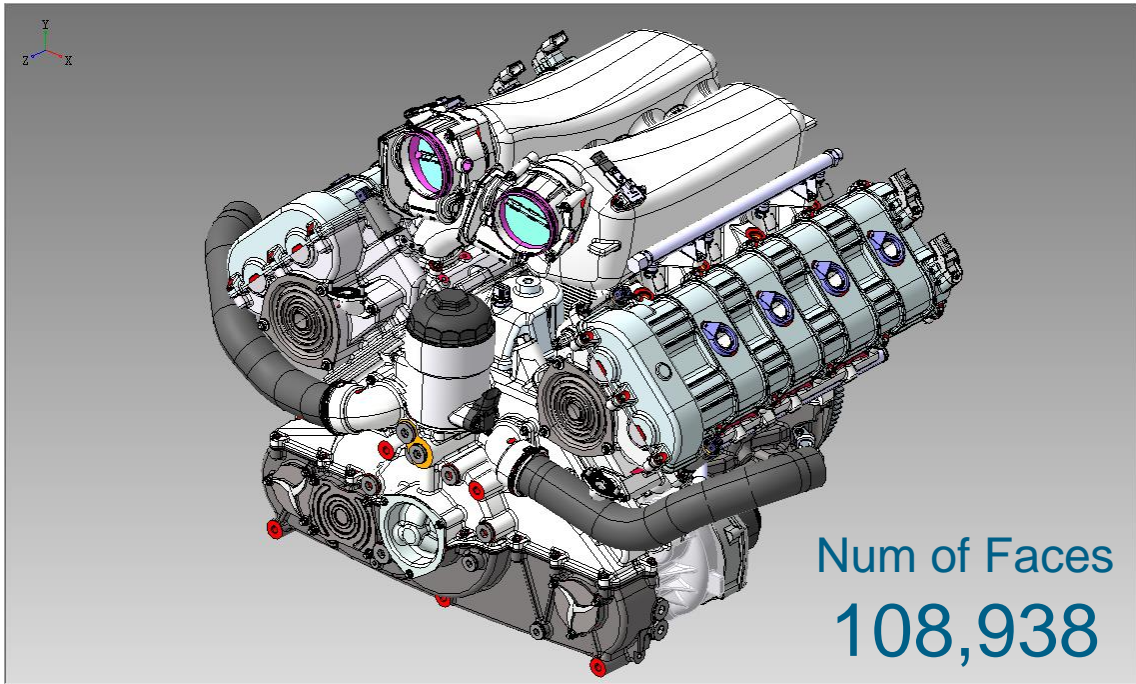
Robust and Fully Automated Function



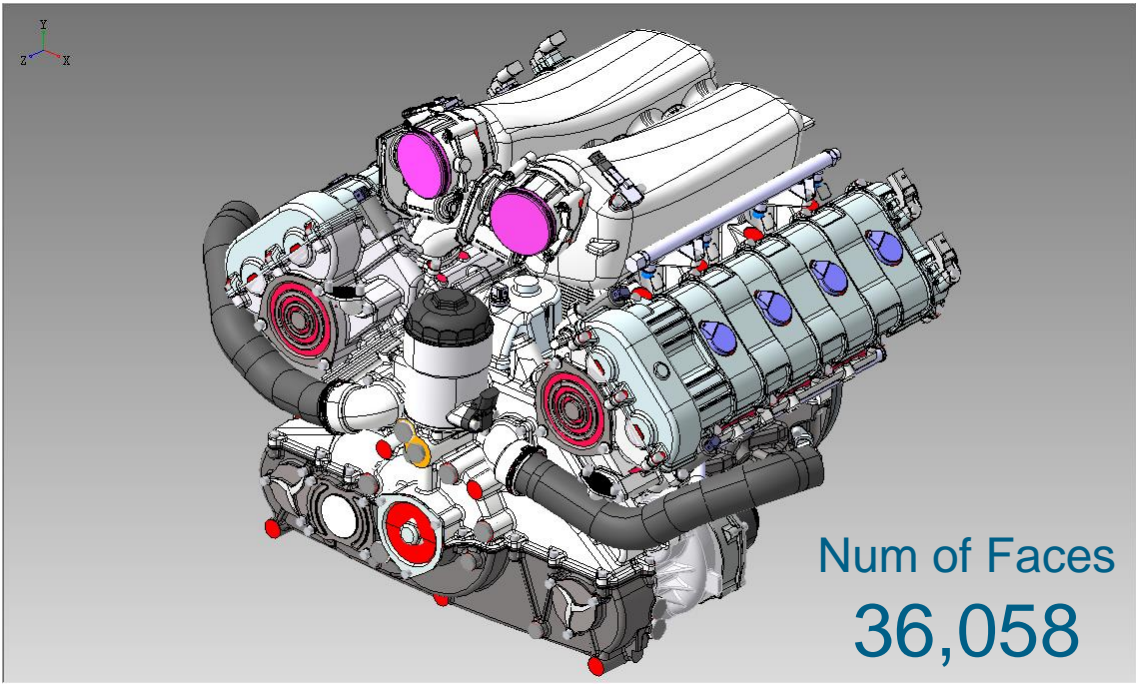
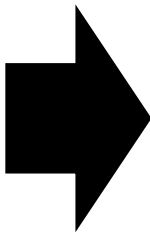
Advanced Usage



Case Study

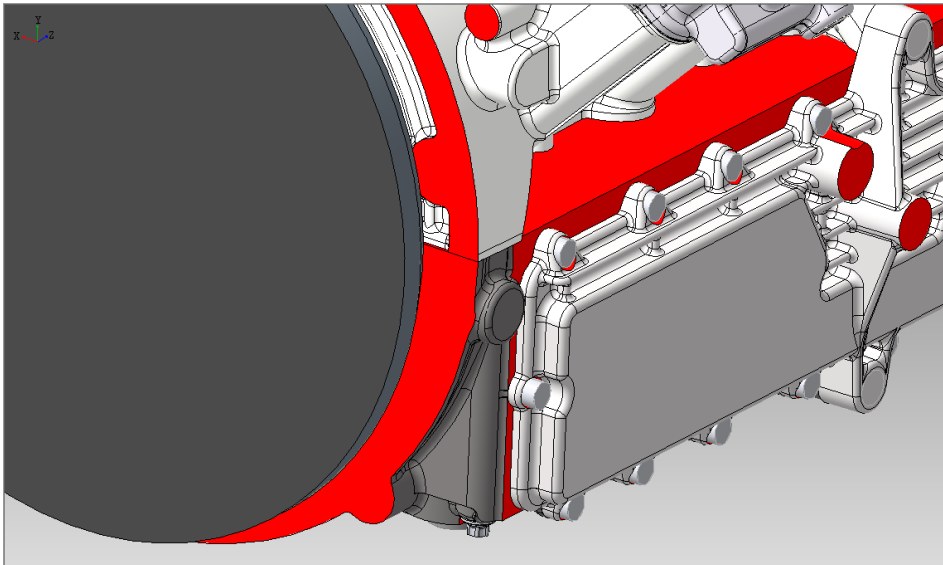
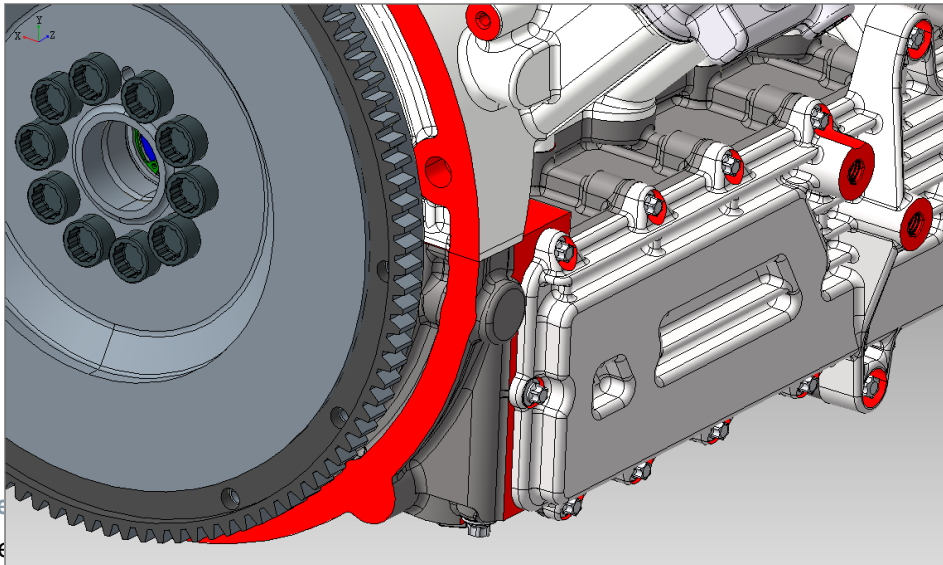
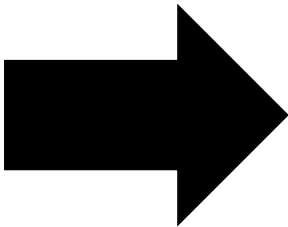
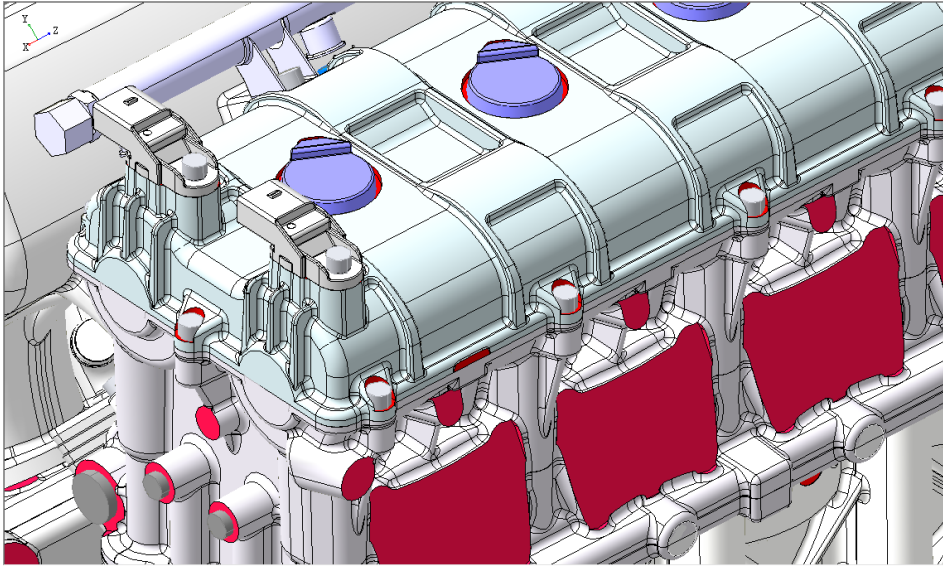
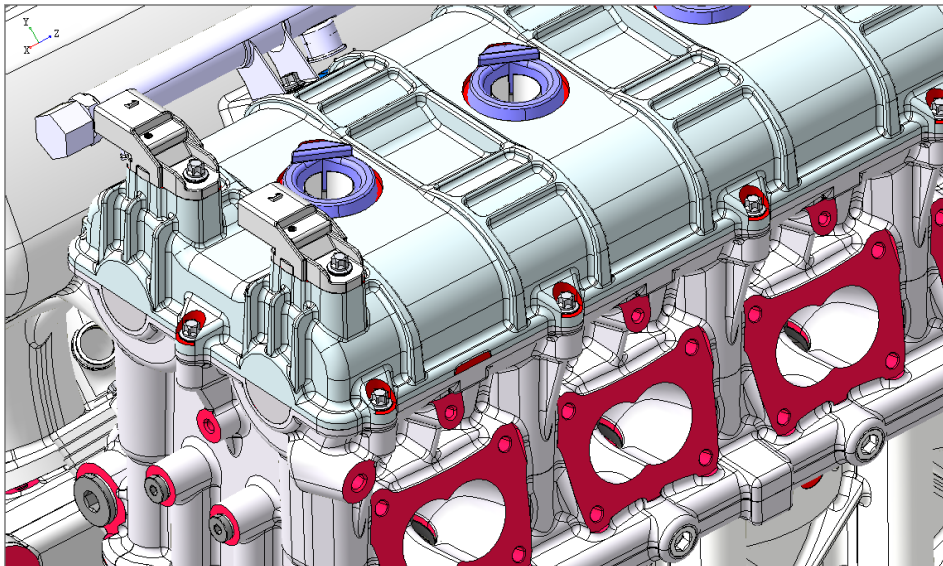


Type	Number
PART	290
VOLUME	473
SHELL	489
FACE	108938
SURFACE	108938
CURVE	265038
DEGENERATE CUR...	0
POINT	157508

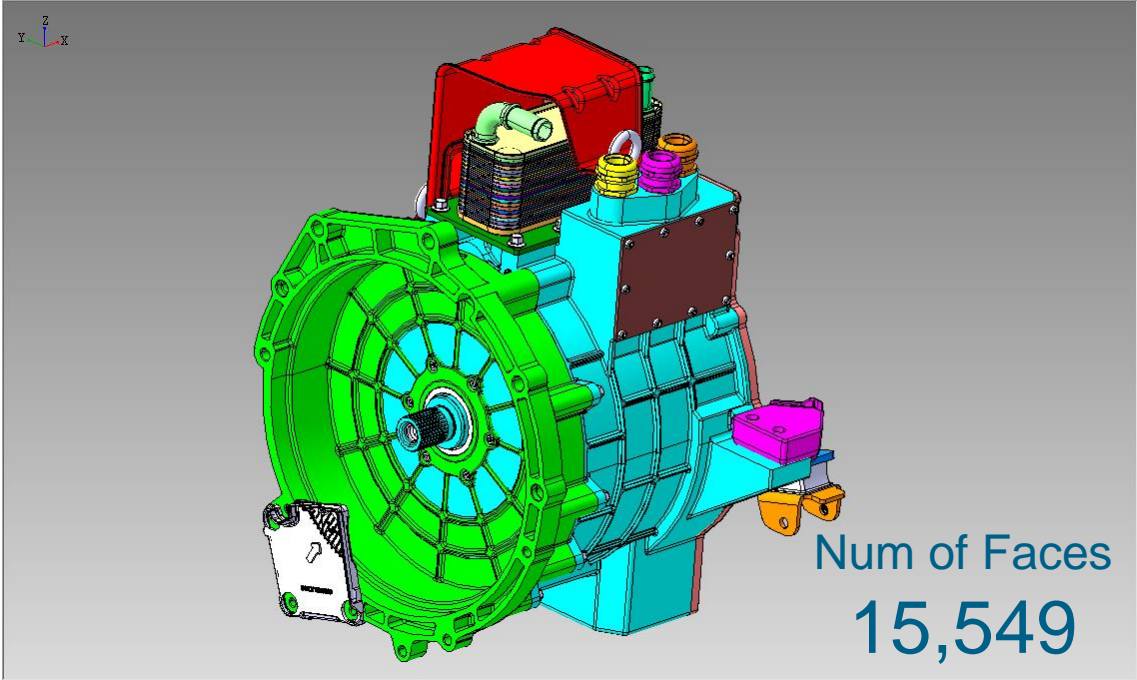


Type	Number
PART	82
VOLUME	84
SHELL	84
FACE	36058
SURFACE	35520
CURVE	85045
DEGENERATE CUR...	0
POINT	49397

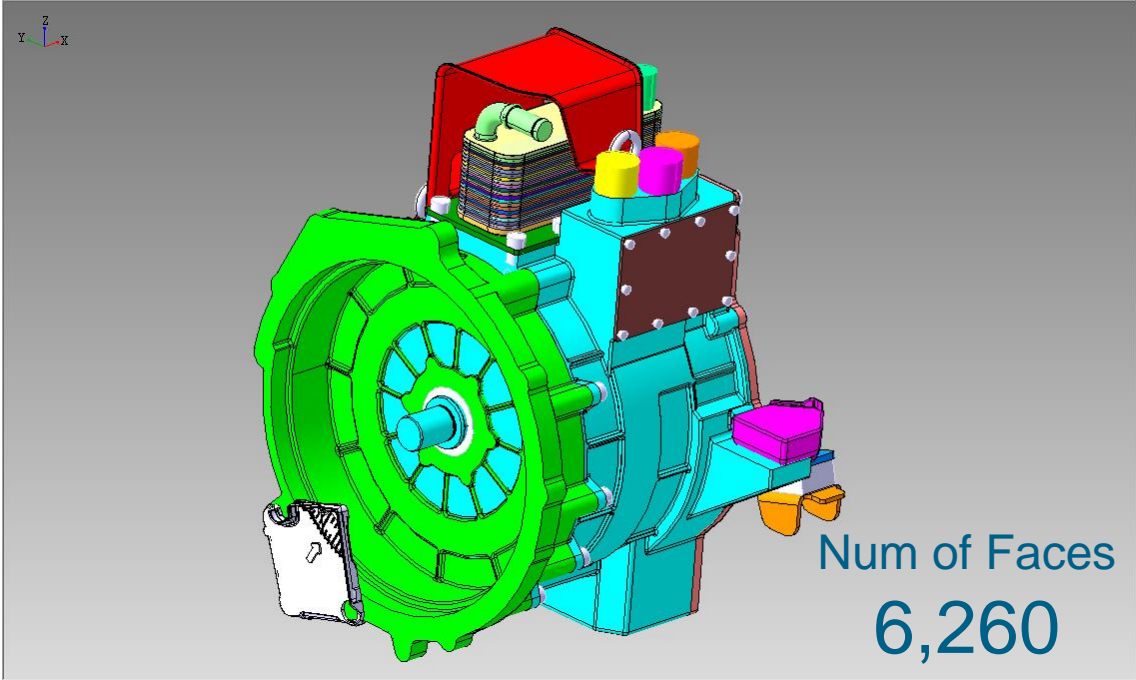
Case Study - detail -



Case Study

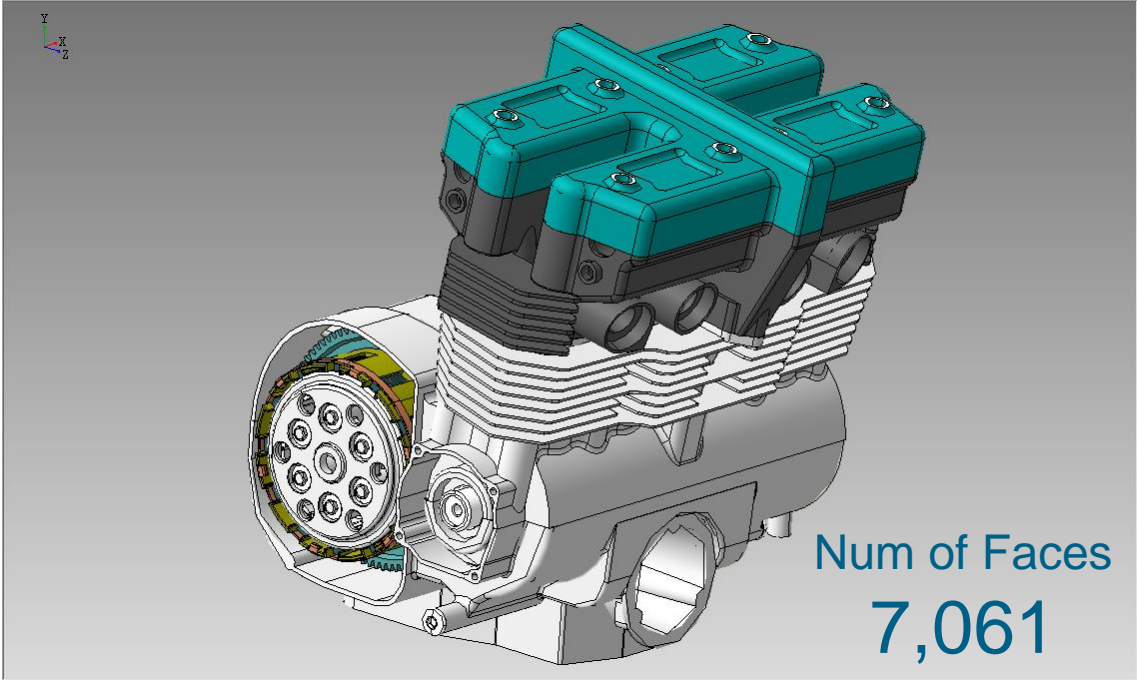


Type	Number
PART	6
VOLUME	131
SHELL	131
FACE	15549
SURFACE	15549
CURVE	40718
DEGENERATE CUR...	1
POINT	26015

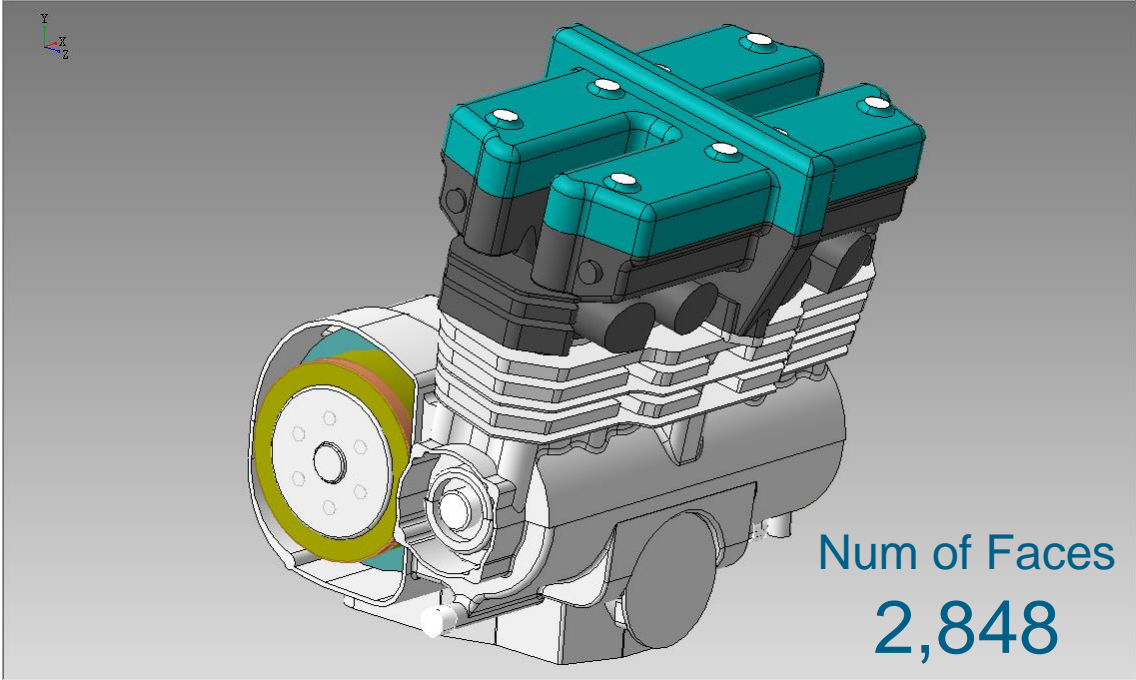
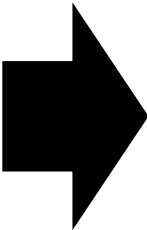


Type	Number
PART	6
VOLUME	120
SHELL	120
FACE	6260
SURFACE	5977
CURVE	15016
DEGENERATE CUR...	213
POINT	9069

Case Study



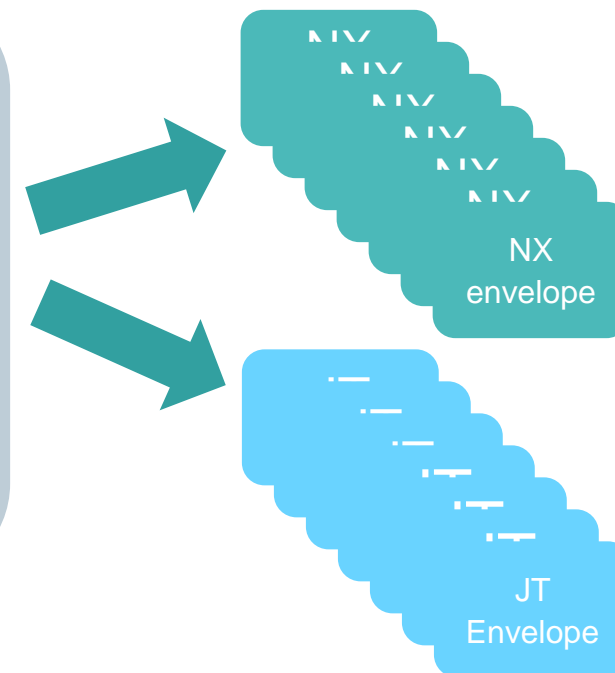
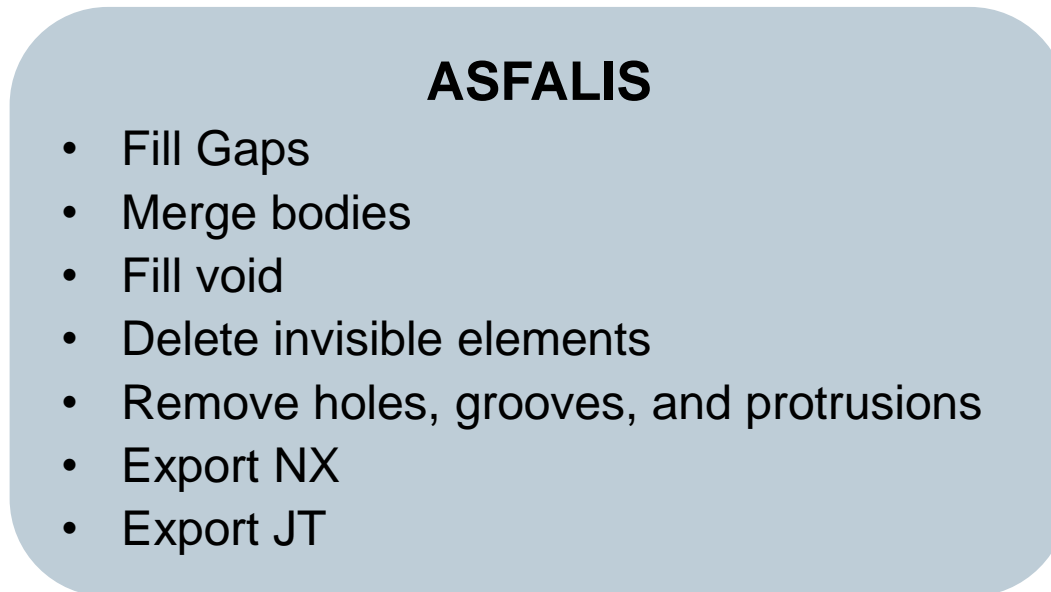
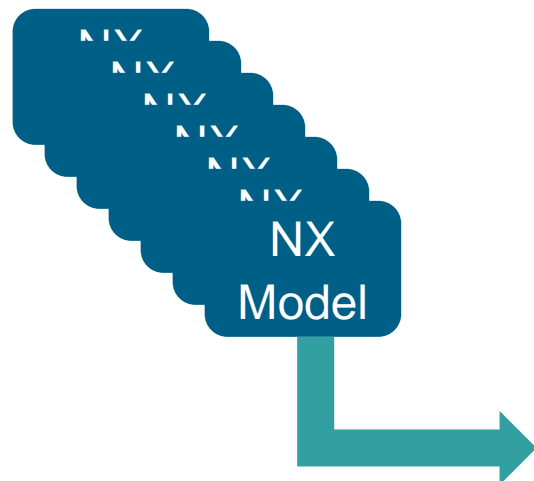
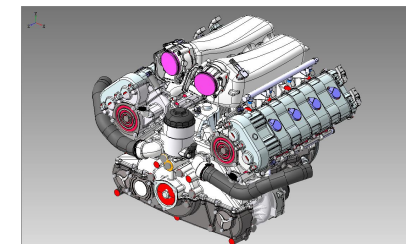
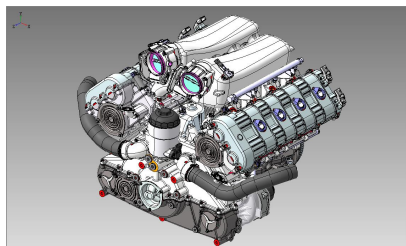
Type	Number
PART	23
VOLUME	23
SHELL	23
FACE	7061
SURFACE	7061
CURVE	19397
DEGENERATE CUR...	0
POINT	12499



Type	Number
PART	16
VOLUME	16
SHELL	16
FACE	2848
SURFACE	2662
CURVE	7675
DEGENERATE CUR...	26
POINT	4881

ASFALIS™ Simplification

Batching multiple optimization techniques for multiple files automatically



Demonstration



Thank you!

Danielle Perelli

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