

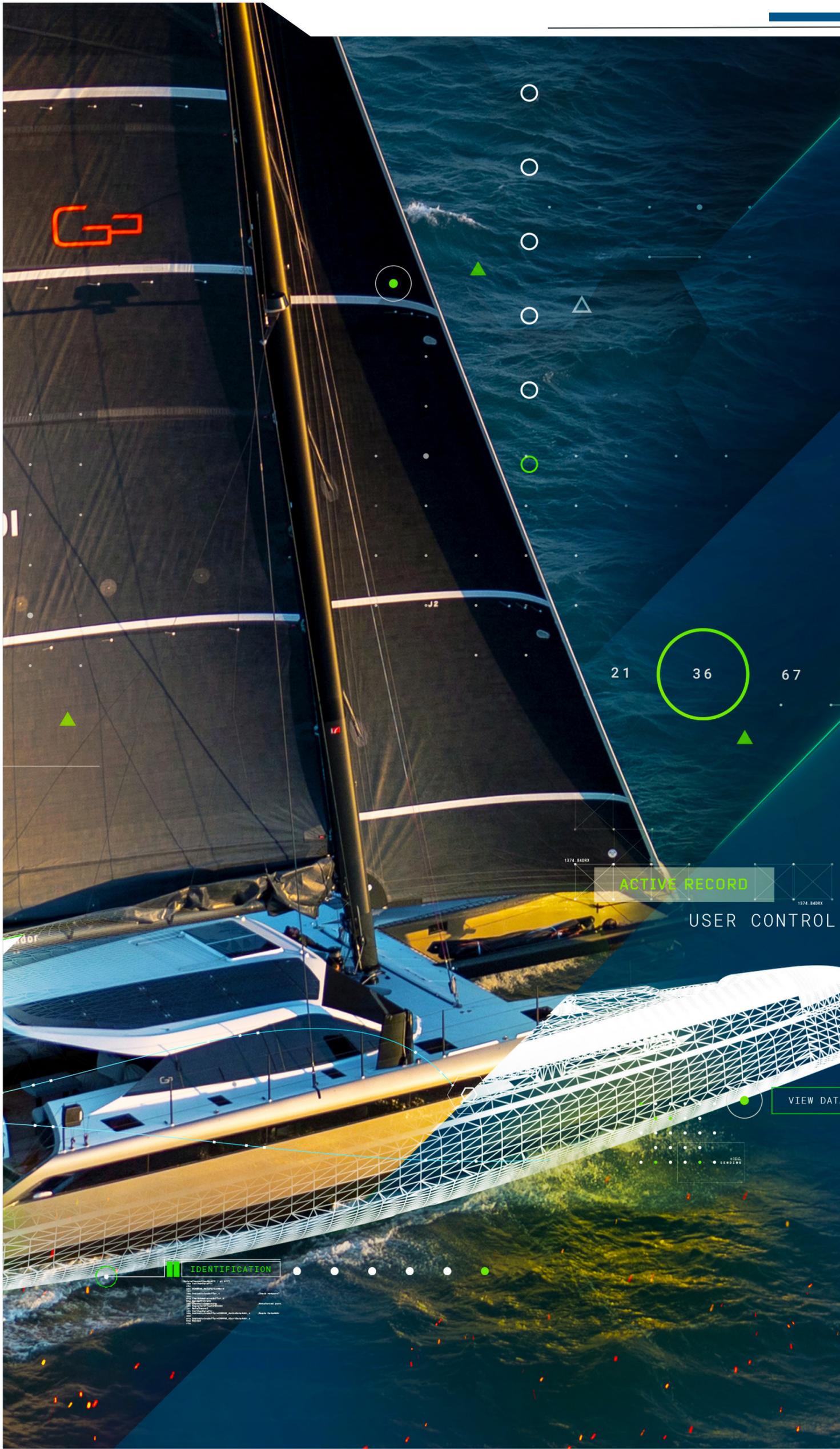
A COMPARISON:

 **SOLIDWORKS**

VS.



creo[®]





SOLIDWORKS

Features

PART & ASSEMBLY DESIGN

SOLIDWORKS 2025 Top Enhancements

- Create linear and circular patterns of planes and axes
- Create a SpeedPak instance from a subassembly
- Interference detection in large design review mode
- Choose Z-up orientation when you create a part or assembly
- Use Find Replacement to fix and repair dangling relations in a sketch
- Use Silhouette Defeature to make simplified, associative part

USABILITY

- Command Predictor recommends relevant tools
- Improved panning and zooming

SHEETMETAL

- Cosmetic thread features
- Improvement in rebuilding drawings

SIMULATION

- Detection of under-constrained bodies
- Bonding interactions with offset

MODEL-BASED DEFINITION (MBD)

- Create DimXpert dimensions from sketch dimensions

SUBTRACTIVE MANUFACTURING

- Contour mill toolpaths that machine from bottom to top

ELECTRICAL DESIGN

- Undo latest MCAD changes
- Generate guidelines to follow a route path

creo® 12

Features

PART & ASSEMBLY DESIGN

Creo 12 Top Enhancements

- Approximate surface reduces complexity of geometry
- Enhanced enclosure volume access in model tree
- Replace/Reroute reference surfaces in Style
- Model tree enhancements. Create a flat assembly from a multibody part
- Enhanced Windchill interactions to open partial assemblies

USABILITY

- Feature presets allow users to set their own default, with drop-down menu of feature choices
- "What's New in Creo 12" highlights and enhances tool tips

SHEETMETAL

- Sheet metal fully dependent mirror and enhanced join command

SIMULATION & ANALYSIS

- Ansys solver updates (25R1)
- Simplified and streamlined results in CSL and CAS
- Bolted structures for both CSL and CAS

MODEL BASED DEFINITION (MBD)

- Enhanced neutral format file export capabilities – STEP AP 242 edition 3 and 3D PDF
- GD&TA support for Datum Reference Features (DRF) and intent references
- Improved re-use of individual annotations

SUBTRACTIVE MANUFACTURING

- High-Speed Milling (HSM) support for undercut machining

ELECTRICAL DESIGN

- Work on a harness as an assembly for easier collaboration
- Improved import control for ECAD

COMPOSITE DESIGN & MANUFACTURE

- Accurately generate a solid model from composite layers
- Create an associative manufacturing reference model
- Merge Plies from neighboring zones

GENERATIVE DESIGN

- Thermal optimization for heat dissipation

ADDITIVE MANUFACTURING

- Conformal cooling for injection molded tooling
- Localized seed points in stochastic lattices
- Enhanced lattice connection of two or more lattices

2025



SOLIDWORKS

creo® 11

| Features | SOLIDWORKS 2024 Top Enhancements |
|------------------------------|--|
| ASSEMBLY DESIGN | <ul style="list-style-type: none"> Apply rules when defeaturing models Represent post-assembly machining operations Simplify assembly STEP file import |
| PART DESIGN | <ul style="list-style-type: none"> Preview and edit a dimension after selecting entities Create bidirectional, symmetric patterns Unit of measurement as a custom property in notes and tables |
| DETAILED DRAWINGS | <ul style="list-style-type: none"> Reattach dangling dimensions to the proper reference point Access chain dimensioning alignment Exclude hidden sketches |
| SHEETMETAL DESIGN | <ul style="list-style-type: none"> Access an option for slots when tabs are created at an angle Automatically propagate slots where a tab intersects a specific part Create a stamp/form feature on the fly |
| STRUCTURE SYSTEM | <ul style="list-style-type: none"> Edit corner treatments faster and automatically create an open corner when adding a connection block |
| ELECTRICAL DESIGN | <ul style="list-style-type: none"> New options for flattening, reorienting, and displaying wires and connectors Faster creation of electrical documentation |
| MODEL-BASED DEFINITION (MBD) | <ul style="list-style-type: none"> Export Hole Tables to 3D PDF Edit dangling dimensions to reattach to a feature in the model Display dual dimensions while creating geometric tolerance symbols |

| Features | Creo 11 Top Enhancements |
|------------------------------|---|
| PART DESIGN | <ul style="list-style-type: none"> Improvements to multibody design workflow includes support for the multibody design of sheetmetal parts With improved Spot welding, get faster and more flexible definition of multiple projected point references Get faster, more comfortable selection of many surfaces with support for Box, Lasso, and Trace selection as well as selection priority for Quilts |
| USER INTERFACE | <ul style="list-style-type: none"> Create simplified models easier with a Shrinkwrap option to collect bodies from a referenced assembly into a part Pick up enclosure volume information for packaging optimization |
| SIMULATION & ANALYSIS | <ul style="list-style-type: none"> Creo Simulation Live now includes support for conjugate heat transfer between solid geometry and fluid bodies Creo Ansys Simulation Advanced includes support for transient structural simulation (time dependent boundary conditions) |
| GENERATIVE DESIGN | <ul style="list-style-type: none"> Creo's award-winning generative design has been improved with minimum feature size constraints, bearing load support, and planar symmetry constraints |
| ELECTRICAL DESIGN | <ul style="list-style-type: none"> With cabling, access the remove locations capability to get a dynamic preview in the graphics area, expanded filtering, and Undo/Redo options Harness settings can now be changed during routing, and the cabling tree has been updated for greater visibility of harness structure Get more flexibility to control the transparency control of various layers in ECAD with improved context data visibility |
| MODEL-BASED DEFINITION (MBD) | <ul style="list-style-type: none"> Quickly and easily organize data in simple tables. Get access to flat-to-screen or annotation planes and support for parameter callouts With semantic query for inheritance models enhance search precision and efficiency GD&T Advisor has now been enhanced with support for ISO 22081 for indication of general tolerances and combined simplified hole callouts for ISO models Support for export of STEP AP242, edition 3. This ISO standard for data exchange enables seamless sharing of 3D models along with associated semantic product manufacturing information. (Available in an upcoming maintenance release) |
| ADDITIVE MANUFACTURING | <ul style="list-style-type: none"> It's now easier to create complex lattices with a new lattice command to connect two or more separate lattices Get additional flexibility with expanded capabilities for stochastic lattices and the ability to adjust Simplified lattices using Warp |
| SUBTRACTIVE MANUFACTURING | <ul style="list-style-type: none"> High-Speed Milling now supports 4-Axis rotary roughing and finishing toolpaths Additional Area turning capabilities have been added to 4-Axis |
| COMPOSITE DESIGN | <ul style="list-style-type: none"> Explore expanded functionality for transitions, laminate section, and draping simulation, making it easier to manage and visualize plies With zone based design apply conceptual top-down composite design using zone regions and zone stack recipes to automatically create plies Get more flexibility during composite design and preparation for manufacturing as well as better clarity on the ply book drawing Increase composite product quality through support of leading laser projection formats |

2024



SOLIDWORKS

Features

ASSEMBLY DESIGN

SOLIDWORKS 2023 Top Enhancements

- Automatically optimize resolved mode
- Repairing a missing mate reference
- Additional end conditions for cut features

DETAILED DRAWINGS

- Overrides for Bills of Materials
- Filters for Bill of Materials

PART DESIGN

- Coordinate systems
- Dimension support for the Move/Copy Body command
- Single-line fonts for Wrap features

SHEETMETAL DESIGN

- Sensors

MODEL-BASED DEFINITION (MBD)

- Limiting geometric tolerances to a standard
- Dimension extension lines

STRUCTURE SYSTEM

- Corner treatment to similar corners in structure systems
- Configuration-specific size of weldment members

creo® 10

Features

PART DESIGN

Creo 10 Top Enhancements

- Freestyle and Style surfacing tools have been enhanced with rotational symmetry and smooth normal connection, respectively
- Improved global modeling with enhancements to spline and stretch in the warp feature
- Improvements to multibody design workflows including a new split/trim feature and the ability to propagate appearances and references during Boolean operations
- Standard parameters and hole note for simple holes
- More flexible dimension pattern for pattern-of-pattern

USER INTERFACE

- The model tree has been improved to remove confusion between restructuring and reordering an assembly
- Drag and drop support between quilt/body tree and design items tree

SIMULATION & ANALYSIS

- Support for non-linear materials including Neo-Hookean hyperplasticity, linear orthotropic elasticity, and bi-linear plasticity
- Support for combined thermal and structural analysis
- Support for non-linear contact including new contact types such as frictional and rough is included
- Creo Simulation Live now includes expanded contact simulation options and improved result options for fluids and structures
- Creo Flow Analysis and Creo Simulate have been enhanced with better animation and multibody support, respectively

GENERATIVE DESIGN

- For generative design, there is now rotational symmetry and the ability to add point mass and remote loads

ELECTRICAL DESIGN

- The split/merge harness tool for cabling can split an existing harness into two separate harnesses which can be later merged back together
- A new application-centric tree has been added with three different views (cables, bundles and connectivity views)
- New ECAD capabilities have been added, including paste masks and hole parameters, to better design and control PCB design

HUMAN FACTORS

- Updated manikin library as inseparable assemblies
- Support multiple reach envelopes per hand
- Improved usability with multiple snapshots and dimension control for manikin manipulation
- Visual Field feature is updated to now support reflection analysis as well

MODEL-BASED DEFINITION (MBD)

- The user can now relate a symbol or a surface finish to other annotations in the 3D model, inheriting its annotation plane from the parent during the placement
- The user can learn about the relation nature between any related annotations, by choosing either one of them and observing the cross highlighting of the other one
- GD&T Advisor has now been enhanced for improved semantic behavior of general profile tolerances, enhanced compliance with detailing standards and other usability improvements

ADDITIVE MANUFACTURING

- Create several new beam-based lattice types such as rhombic, rhombic with diamond structure, dodecahedron and elongated dodecahedron.
- Support for Auxetic cells which produce geometry that exhibits negative Poisson ratio
- Supports simulation-based variable wall thickness and highly efficient I-graph-wrapped (IWP) lattice cell for formula-driven lattices

SUBTRACTIVE MANUFACTURING

- High-speed milling now supports barrel tools for both wall and floor 5-axis finish, to reduce toolpath time and increase surface finish quality
- Additional control for CUTCOM and clearance has been added to area turning
- New CL player for synchronized NC steps

COMPOSITE DESIGN

- Dedicated environment and tools to accurately define, validate and manufacture composite products

2023

creo+

Features

CLOUD-BASED CAPABILITIES

Creo+ Top Enhancements

- Creo+ is a SaaS product that combines the power and proven functionality of Creo, with new cloud-based tools to enhance design collaboration and simplify CAD administration
- PTC Control Center, powered by Atlas and included in Creo+, has cloud-based tools to help you deploy software licenses, right from your desktop, along with rich telemetry to help you optimize license usage
- Creo+ includes real-time design collaboration tools to enable multiple team members to review, explore and edit assemblies



SOLIDWORKS

creo® 9

| Features | SOLIDWORKS 2022 Top Enhancements |
|-------------------|---|
| ASSEMBLY DESIGN | <p>Open subassemblies in Large Design Review or resolved mode from an assembly opened in Large Design Review mode.</p> <p>Use configuration table to modify configuration parameters for parts and assemblies with multiple configurations</p> |
| DETAILED DRAWINGS | <p>Detailing mode</p> <p>Geometric tolerance symbols</p> <p>Symmetric linear diameter dimensions</p> |
| PART DESIGN | <p>Using numeric values to define coordinate systems</p> <p>Selection for coordinate systems</p> <p>Draft across parting lines</p> <p>External threaded Stud Wizard</p> <p>Hole Wizard slots</p> <p>Hybrid modeling</p> <p>Mirroring about two planes</p> |
| SHEETMETAL DESIGN | Etched contours on bends |
| STRUCTURE SYSTEM | Connection element for a structure system |

| Features | Creo 9 Top Enhancements |
|------------------------------|---|
| ASSEMBLY DESIGN | <p>Quick and easy access to the circular references report</p> <p>Replace a component with an assembly</p> <p>Replace a component with a copy</p> <p>Retrieve a missing component</p> <p>Grouping of exploded view offset lines</p> |
| DETAILED DRAWINGS | <p>Placement and editing workflows for surface finish</p> <p>New gallery of surface finish symbols</p> <p>Improved surface finish customization</p> <p>Improved drawing support for model replace operations and inseparable assemblies</p> <p>New hatch tree in drawings</p> <p>Hatch designer for creating and editing hatch patterns</p> |
| USER INTERFACE | <p>Improvements to the model tree help to clarify design intent</p> <p>New quilt tree, new design items tree and a toolbar in the model tree itself</p> |
| PART DESIGN | <p>New Divide Surface and Unify Surface commands</p> <p>Freestyle brushes allow unrivaled sculpting of organic geometric shapes as well as greater control of curve definition and connection</p> <p>Sketcher improvements include enhanced project command, enriched inspection tools and Auto-scale first sketch.</p> <p>Increased flexibility in Pattern feature</p> <p>New functionality to define a geodesic curve on surface starting from a point and an angular direction</p> |
| SIMULATION & ANALYSIS | <p>Creo Simulation Live introduces multiphysics capabilities for simultaneous structural and thermal analysis, and now allows the inclusion of gyroids and lattices features in fluid studies</p> <p>With Creo Ansys Simulation, automatically create mid-surface geometry for shell meshes, apply loads to create a pin and hole connection and simulate unconstrained structures</p> <p>Use Creo Flow Analysis to carry out multiple computational fluid dynamics projects in more than one model, enjoy more robust meshing and support for lattice geometry, and take advantage of an integration with Creo Behavioral Modeling Extension for optimization and sensitivity studies</p> <p>Improvements to generative design include the ability to design products to a specified safety factor</p> <p>Conduct modal optimization to achieve the desired frequency response of the specified material</p> |
| ELECTRICAL DESIGN | ECAD enhancements allow you to import silk screen layers and solder mask layers as ECAD data from the EDA (electric design automation) files |
| MODEL-BASED DEFINITION (MBD) | <p>Streamlined placement and editing workflows for surface finish</p> <p>New gallery for surface finish symbols</p> <p>Including 3 new ASME/ISO standard symbols</p> <p>Improved surface finish customization</p> <p>Semantic support for surface finish</p> <p>Ability to define which parameters will be exposed on symbol instances in MBD</p> <p>Weld symbol parameters are automatically created</p> |
| ADDITIVE MANUFACTURING | <p>Support for open quilts on stochastic lattices enables the creation of skin lattices</p> <p>Variable wall offset for formula-based lattices</p> <p>User defined support structures</p> |
| MANUFACTURING | <p>Adaptive feed for HSM rough and rest-rough</p> <p>Geodesic 5-axis finish toolpath for better surface finish and additional flexibility for 5-axis finishing</p> <p>Tool motions tab in all HSM sequences for increased tool life</p> <p>Fully associative in-process stock models, now on the model tree</p> <p>Added flexibility to define the NC tool paths and tool path color setting</p> |
| FRAMEWORK | Expanded library to include aluminum sections |
| HUMAN FACTORS | <p>New manikin editor allows creation of custom manikin populations</p> <p>Improved manikin manipulation and constraint handling</p> <p>3D dragger control for forward and inverse kinematics</p> <p>Reach behavior shows missing distance when the target is too far and provides an optional reach constraint</p> <p>Model tree alignment and modernization</p> <p>New Visual Field feature to construct a vision cone representing the field of view accounting for obstructing objects</p> |

2022

A COMPARISON:



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THE CREO ADVANTAGE

Creo is the 3D CAD solution that helps you accelerate product innovation to build better products faster. Easy-to-learn Creo uses a model-based approach to seamlessly take you from the earliest phases of product design to manufacturing and beyond. Combining powerful, proven functionality with new technologies including generative design, real-time simulation, advanced manufacturing, IIoT and augmented reality, Creo helps you iterate faster, reduce costs and improve product quality. Creo is also available as a SaaS product, providing innovative cloud-based tools for real-time collaboration and streamlined license management and deployment. The world of product development moves quickly, and only Creo delivers the transformative tools you need to build competitive advantage and gain market share.

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