COMPUTER AIDED MANUFACTURING
IN CREO

Creo offers you a full-spectrum solution that takes you from design and machining through to part inspection and additive manufacturing.

>>> THE CREO DIFFERENCE:

Creo is the 3D CAD solution that helps you accelerate product innovation so you can build better products faster. Easy-to-learn Creo seamlessly takes you from the earliest phases of product design to manufacturing and beyond. You can combine powerful, proven functionality with new technologies such as generative design, augmented reality, real-time simulation, additive manufacturing and the IoT, to iterate faster, reduce costs and improve product quality.   The world of product development moves quickly, and only Creo delivers the transformative tools you need to build competitive advantage and gain market share.

>>> CREO CAM SOLUTIONS

Creo NC and Tool Design solutions give you everything you need to achieve the highest quality, highest precision machining in the fastest possible time. Now you can handle every aspect of the machine process from mold/cast design and advanced NC to 3D simulation and verification.

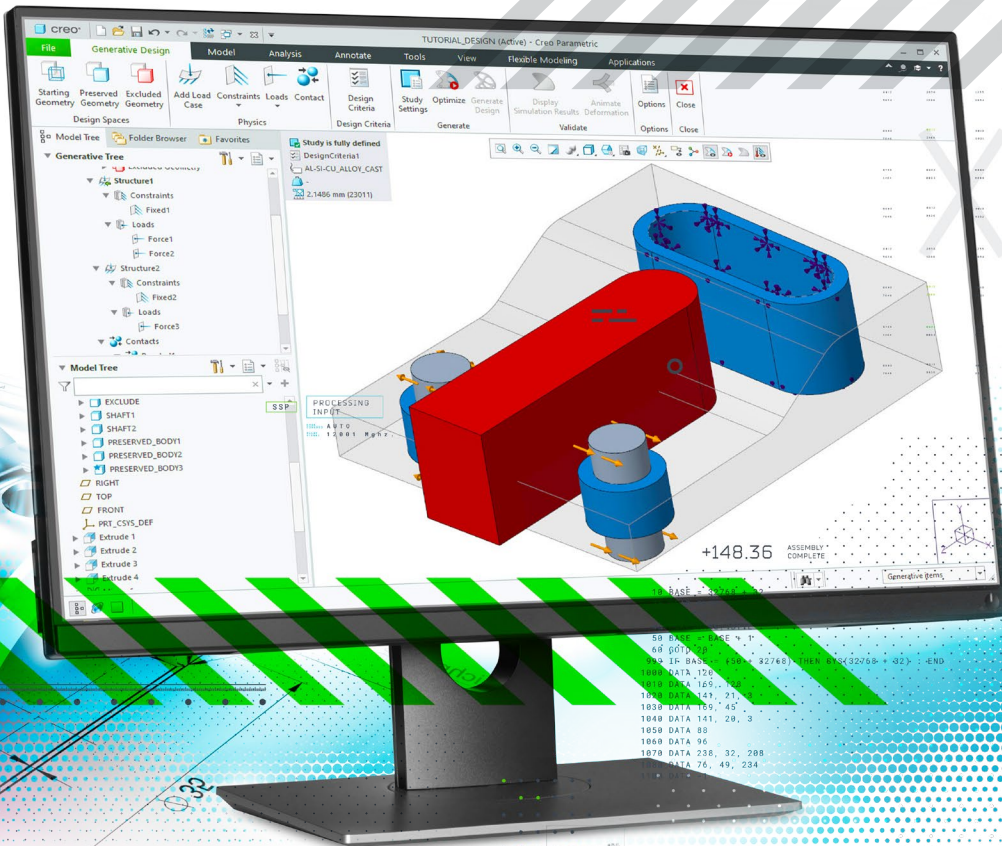| Description	Prismatic & Multi-Surface Milling	Production Machining	Complete Machining	High Speed Milling	High Speed Milling Plus	NC Sheetmetal
• 2-Axis Feature-based Machining	✓	✓	✓			
• 3-Axis Milling	✓	✓	✓			
• 3 Axis High-speed milling (HSM) Roughing, Rest Roughing, Finish and Rest Finish				✓	✓	
• 5 Axis High Speed Milling (HSM) Roughing and Rest Roughing, including automatic 3+2 Axis Roughing and Rest Roughing					✓	
• 3to5 Axis High Speed Milling Conversion for Finish and Rest Finish toolpaths					✓	
• 5 Axis Auto Deburring					✓	
• 4/5-Axis Positioning Milling	✓	✓	✓			

>>> EXTENSIONS

• Prismatic & Multi-Surface Milling • Production Machining • High Speed Milling • High Speed Milling Plus • Complete Machining
• Tool Design • NC Sheetmetal • Expert Moldbase • Progressive Die • Computer-Aided Verification • Additive Manufacturing
• Additive Manufacturing Plus

Description	Prismatic & Multi-Surface Milling	Production Machining	Complete Machining	High Speed Milling	High Speed Milling Plus	NC Sheetmetal
• Basic Holemaking	✓	✓	✓	✓		
• Comprehensive Holemaking			✓		✓	
• 3 Axis Trajectory	✓	✓	✓	✓	✓	
• 2-4 Axis Turning		✓	✓			
• 2-4 Axis Wire EDM		✓	✓			
• Live Tooling for Turning (Mill/Turn)			✓			
• 5 Axis Continuous Milling, including 5 Axis Trajectory			✓			
• Multi-task machining synchronization			✓			
• Dynamic tool axis definition in Turning			✓			
• Extraction of Manufacturing Annotation Features	✓	✓	✓	✓	✓	
• Tool and Fixture Library	✓	✓	✓	✓	✓	
• Manufacturing Process Documentation Pro/PROCESS for Manufacturing	✓	✓	✓			
• Automatic Nesting						✓
• Punch Press and 2 Axis Laser Programming						✓
• GPOST: NC Post-Processor Generator	✓	✓	✓	✓	✓	✓
• ModuleWorks-based material removal simulation	✓	✓	✓	✓	✓	

All of the options above require a seat of Creo Parametric.

Computer Aided Manufacturing in creo®

Description	Expert Moldbase	Progressive Die	Computer Aided Verification	Tool Design
• Moldbase Design, including Moldbase Component Library	✓			
• Progressive Die Design		✓		
• First Article Inspection (compare 3D model with cloud of points)			✓	
• CMM Programming (DMIS output)			✓	
• Automatic Core/Cavity creation				✓
• Moldbase Design, including Moldbase Component Library				◯

◯ Basic moldbase layout functionality.

CREO CAM SOLUTIONS
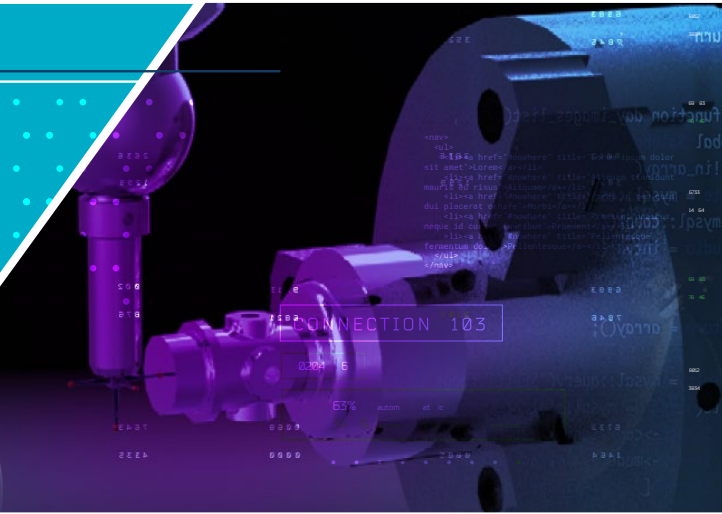
PRISMATIC AND MULTI-SURFACE MILLING EXTENSION >
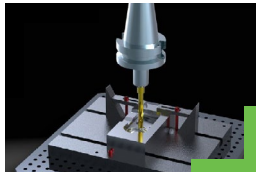
Achieve the highest quality, highest precision machining in the fastest time possible:

- Multi-Surface 3-axis milling with 4- and 5-axis positioning
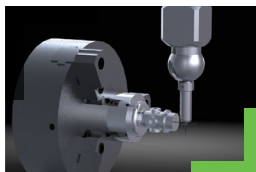- Automatic change propagation and associative update of NC toolpaths

PRODUCTION MACHINING EXTENSION >

Includes all capabilities of Prismatic & Multi-Surface Milling along with:

- 4-Axis Turning
- 4-Axis Wire Electrical Discharge Machine

COMPLETE MACHINING >

Comprehensive capabilities to support advanced NC machining strategies:

- Includes production machining capabilities in previous packages
- 2.5- to 5-axis Milling (Advanced machining strategies)
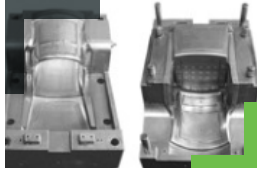- Support for Mill-Turn and live tooling and multi-task machines synchronization

HIGH SPEED MILLING EXTENSION (HSM) >
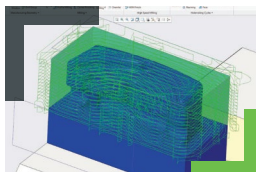
3 Axis High Speed Milling toolpaths with no need to switch to external CAM Solutions

- 3 Axis trajectory milling
- Basic holemaking
- 3 Axis High-speed milling (HSM) Rough, Rest Rough, Finish and Rest Finish sequences

HIGH SPEED MILLING PLUS EXTENSION >

All capabilities in HSM:

- 5 Axis High Speed Milling, continuous toolpaths with high level of automation and collision-checking
- 5-axis trajectory milling
- Comprehensive holemaking
- 5 Axis High Speed Milling, Roughing and Rest Rough, including automatic 3+2 Axis Rough and Rest Rough
- 3 to 5 Axis High Speed Milling Conversion for Finish and Rest Finish; 5 Axis Auto Deburring

TOOL DESIGN >
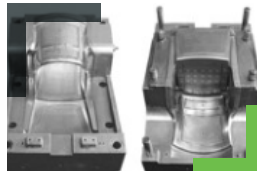
Accelerate the design of high-quality production mold and cast tooling:

- Easy to use process driven UI for Mold and Cast design
- Automated creation of parting line and parting surface geometry
- Associative design and tooling updates

EXPERT MOLDBASE EXTENSION >

Automate manual, time-consuming tasks to speed the creation of moldbase tooling:

- 2D process-driven workflow for moldbase design and detailing
- Customizable "smart" mold component library
- Automatic ejector pin, waterline, and fittings functions; automatic runners, and waterline checks
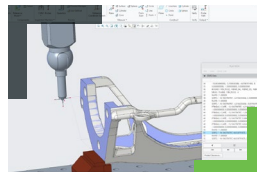
NC SHEETMETAL >
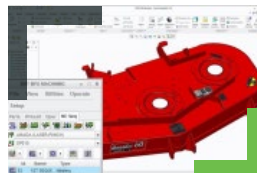
Use materials efficiently and optimize design for manufacturing:

- Automatically create and optimize toolpaths using standard and form tools
- Smart auto-nesting for utilization of maximum sheet area, reduction of scrap and material costs, and shortened lead times
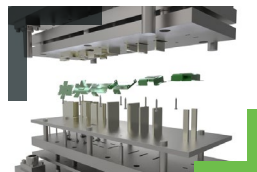
COMPUTER-AIDED VERIFICATION >

Digital quality-checking process:

- Gain absolute confidence in the QA process by performing digital inspections of machined parts and assemblies.

PROGRESSIVE DIE EXTENSION >

Eliminate error-prone manual tasks:

- Easy-to-use wizards guide you through automatic strip layout definition, cut stamp creation, and placement/ modification of die components.
- Automatically create clearance cuts, drilled holes, and documentation

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Computer Aided Manufacturing in **creo®**

ptc.com

ADDITIVE
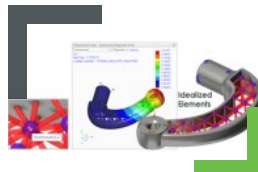# MANUFACTURING

creo®

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With Creo, you can design, optimize, validate, and run a print-check all in one environment reducing time, tedium, and mistakes. Creo 8 helps you easily optimize your designs for additive manufacturing. With the new additive capabilities, you can use advanced lattice structures to minimize weight, or apply variable lattice structures based on simulation results.

Use Creo's strength in generative design and simulation technology to create high-quality, innovative designs you can additively manufacture. With Creo, all these capabilities are fully integrated into the easy-to-use interface. Take your design process to the next level with Creo.

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ADDITIVE MANUFACTURING >

Create and optimize lattice structures and define printer tray setup:

- Automated creation of 2.5D and 3D lattice structures
- Seamless analysis and optimization of lattice
- Printer tray setup and nesting optimization

ADDITIVE MANUFACTURING PLUS >

Connect to 3D metal printers and automatically generate 3D metal support structures:

- Includes lattice structure creation and optimization capabilities of previous packages
- 3D metal printer connectivity
- Generate and customize metal support structures

Please visit the PTC support page for the most up-to-date platform support and system requirements.