



CATIA CNC Machining

CADCAM Group is the leading PLM Solutions and Software development company in South-East Europe dedicated to innovation and customer support



65 ECAD/MCAD professionals, engineers and software developers

www.cadcam-group.eu

founded in 1991

Dassault Systemes partner for 3D EXPERIENCE Solutions since 1995

- 3DEXPERIENCE
- CATIA, DELMIA, SIMULIA
- ENOVIA, 3DVia
- CAA partnership
- Education partner

MENTOR Graphics partner since 2010

Services

- ECAD & MCAD integration - MECODES
- Business Integration Services
- Education Services

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Some reference customers



VIRTUAL

ISO

CAM and SIMULATION



Direct Post
Processing

Controller
Emulation

Integrated Machine
Programming & Simulation

PHYSICAL

Distributed
Numerical
Control



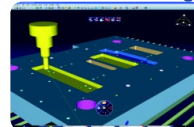
Machining

Machining enables users to program multi-axis CNC machines and complex mill-turn machines efficiently with best-in-class tool paths and integrated machine simulation capabilities.

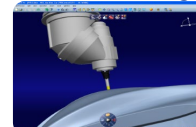
Machining



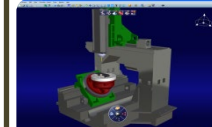
2.5 Axis Machining



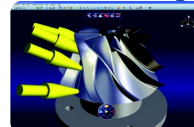
3 Axis Machining



Machine Simulation



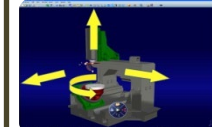
5 Axis Machining



Mill-Turn Machining



Machine Builder



Capabilities Overview

Milling Machining (MIM)

Milling Machining (MIM) is an extension to Prismatic Machining (MTM) that delivers the capability to program milling operations for 3D parts requiring **advanced 3-axis milling capabilities**, including the **ability to switch to 5-axis motion**. NC Programmers are immersed in a 3D environment that delivers **a lifelike experience** as they create, optimize, and validate their milling programs in the context **of the physical workplace**.

- Full set of high end 3 axis operations, with High Speed Milling (HSM) technology and a 3-to-5 converter to automatically adjust the tool axis direction to optimize milling tool paths
- Powerful roughing and seamless roughing rework
- Powerful automation capabilities for efficient NC programming
- A single IP platform to manage machining resources
- Quick tool path verification and editing
- Capitalization of already defined processes thanks to machining process templates
- Accurate verification of the tool path including simulation of material removal and analysis of remaining material

“Enable creation of machining processes with part to machine, stock, cutters and milling operations to program a simultaneous 3-axis milling machine”



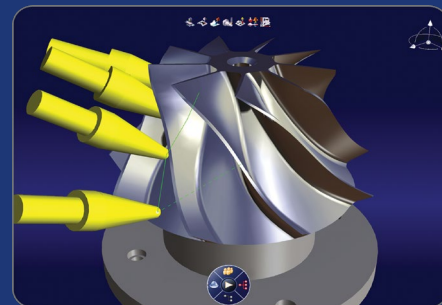
Capabilities Overview

Extended Milling Machining (EMM)

Extended Milling Machining (EMM) is an extension to Milling Machining (MIM) that delivers the capability to **program multi-axis milling machines**. NC programmers are immersed in a 3D environment that delivers a lifelike experience as they create, optimize, and validate their milling programs in the context of the physical workplace.

- Advanced multi-axis milling operations
 - Multiple 5-axis contouring and sweeping strategies
 - Multi-axis machining of multiple surface with full collision avoidance
 - 5-axis flank contouring
 - 5-axis helix machining for Turbo-machinery Parts
 - 5x Tube machining
 - 5-axis spiral milling
 - Several 5-axis contouring and sweeping strategies
 - Dedicated operations to Machine Multi pocket part
 - Global and automatic machining strategy for multi-cavity parts
 - Global flank contouring for multi-pocket parts
 - NURBS output for five axis machining.
 - A single IP platform to manage machining resources

“Dedicated solution to machine complex parts on a multi-axis milling machine with easy to use advanced operations”



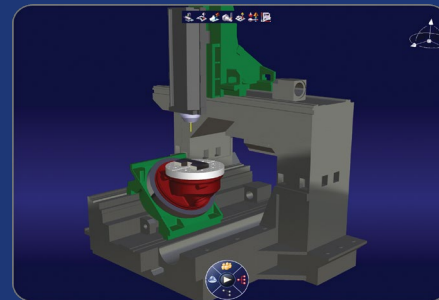
Capabilities Overview

NC Machine Simulation (NMS)

NC Machine Simulation provides the NC programmer with the ability to perform **virtual tool path program validation**. Programmers are able **to simulate machine tool motion**, along **with material removal**, using either the **pre-post processed tool path or post processed ISO code**. NC Machine Simulation aids the NC programmer in delivering high quality, optimized, tool path programs by finding potentially damaging collisions or excessive non-value-added machine tool motion.

- Uses unique NC Machine definition for the enterprise
- Automatic Setup definition
- Verification of tool path accessibility
- Axes Limit Check
- Machine Simulation can be either based on NC Tool Path or ISO Code with integrated material removal capability
- Accurate cycle time calculation
- Fully integrated in Milling and Mill Turn Machining products
- New intuitive solution to mount the setup on the machine and to check machine reach ability.

“Enables validation of NC programs through a complete simulation of the program running on a virtual NC machine”



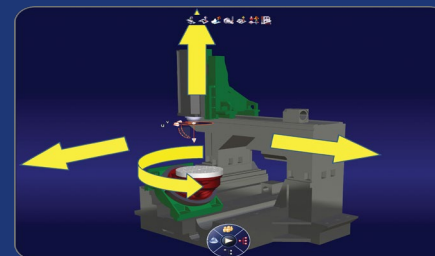
Capabilities Overview

NC Machine Builder (NMB)

Machine Builder (NMB) delivers the capabilities necessary to **create virtual NC machines, machine accessories, and integrate their controllers** for use in NC programming, optimization, and validation in a virtual 3D environment. Besides milling, turning and mill-turn machines, **complex machines such as milling machines with multiple heads, multiple spindles, and multiple turrets, multi-tasking mill-turn machines can be easily modeled.**

- Comprehensive NC Machine definition
- Inverse kinematics support based on Engineering Connections and Mechanism Manager
 - IK support for capability of locking axis (parallel axis machines, machines with more than 5 axis)
 - Full integration with Motion Controller provided by DBG
 - NC machine specific IK solver set and called through Motion Controller
- Controller and NC Technological information
 - Home positions, travel limits, axis names, tool change position support
 - Mount points creation using “Mechanical Ports”

“Enable creation of NC Milling, Turning, and Mill Turn Machines including Kinematics and technological data”



References:

- Alstom
- Teh-Cut d.o.o., Zagreb, Croatia
- Obrt Legradmetal, Oroslavje, Croatia
- Gorenje Orodjarna d.o.o., Velenje, Slovenia
- EMO Orodjarna d.o.o., Celje, Slovenia
- UNIOR Kovaška industrija d.d., Zreče, Slovenia
- IMAS d.o.o, Sežana, Slovenia
- WEBO Bosnia d.o.o., Derventa, Bosnia and Herzegovina
- Milanović Inženjering d.o.o., Kragujevac, Serbia

CATIA CAM – CADCAM Group's role

- Implementation of CATIA CAM
- Development of post - processors for CATIA CAM
- Education of CATIA CAM users
- CATIA CAM consulting



Thank you!

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