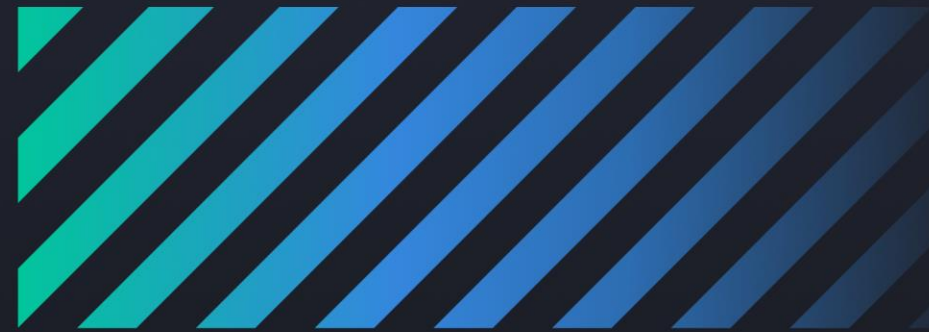# ency Robot
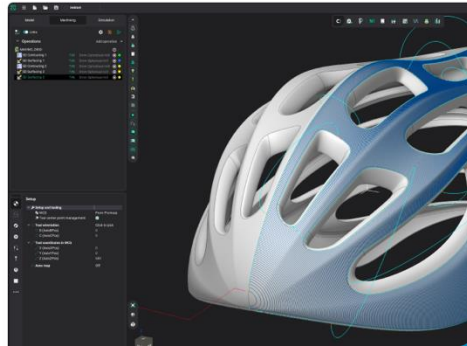
A complete offline robot programming solution

What we make

ENCY

CAD/CAM for a new generation
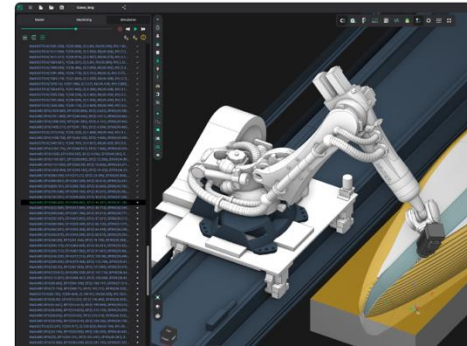
Delivering sophisticated CAM technology with an intuitive user interface and natural workflow

ENCY Robot
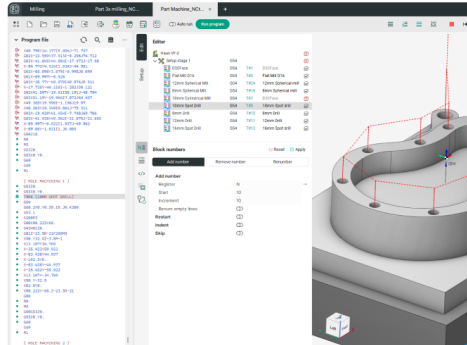
A complete offline robot programming solution

The ultimate toolpath calculation, kinematics management and simulation software for robots
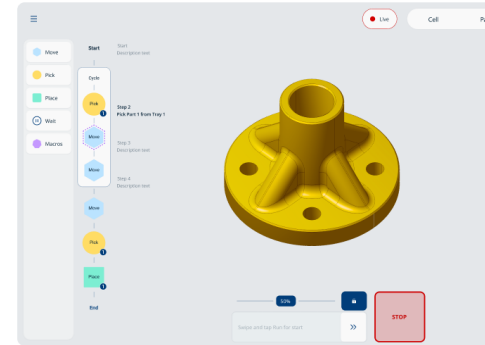
ENCY Tuner

Shop-floor G-code simulator and NC program editor

G-code simulation, fine-tuning and re-engineering for CNC machines and industrial robots

ENCY Hyper

Real-time robot programming software

Ecosystem

- Post Processors, Digital Twins

- MachineMaker, Robot calibration App, Project Library, etc.

- ENCY Clouds & AI

- API, Add-Ins

All ENCY products are built on a unique interactive platform that immerses users in a realistic production environment. Equipped with a variety of innovative technological features, it delivers a distinctive and engaging user experience.

ency

Our values

ENCY is a groundbreaking European CAD/CAM/OLP system designed to transform your workflow.
ENCY is more than just software for automating CNC machine and industrial robot programming.
It is a state-of-the-art platform for seamless collaboration.

Mission

To redefine the possibilities of CAD/CAM for a better future.

Vision

To create a seamless CAD/CAM workflow which results in transition from design to finished part in a shortest time in the industry.

ENCY Platform

- One platform for both worlds:
  CNC machines and Industrial Robots

- Unique user experience and interface

- Machine-Aware technology

- Best-in-Class Manufacturing AI Assistant

- Tools for Remote Support and Team Collaboration

- Digital Twin & Cloud-based apps

- Phenomenal interactivity, Efficiency and Safety

- Technological independence
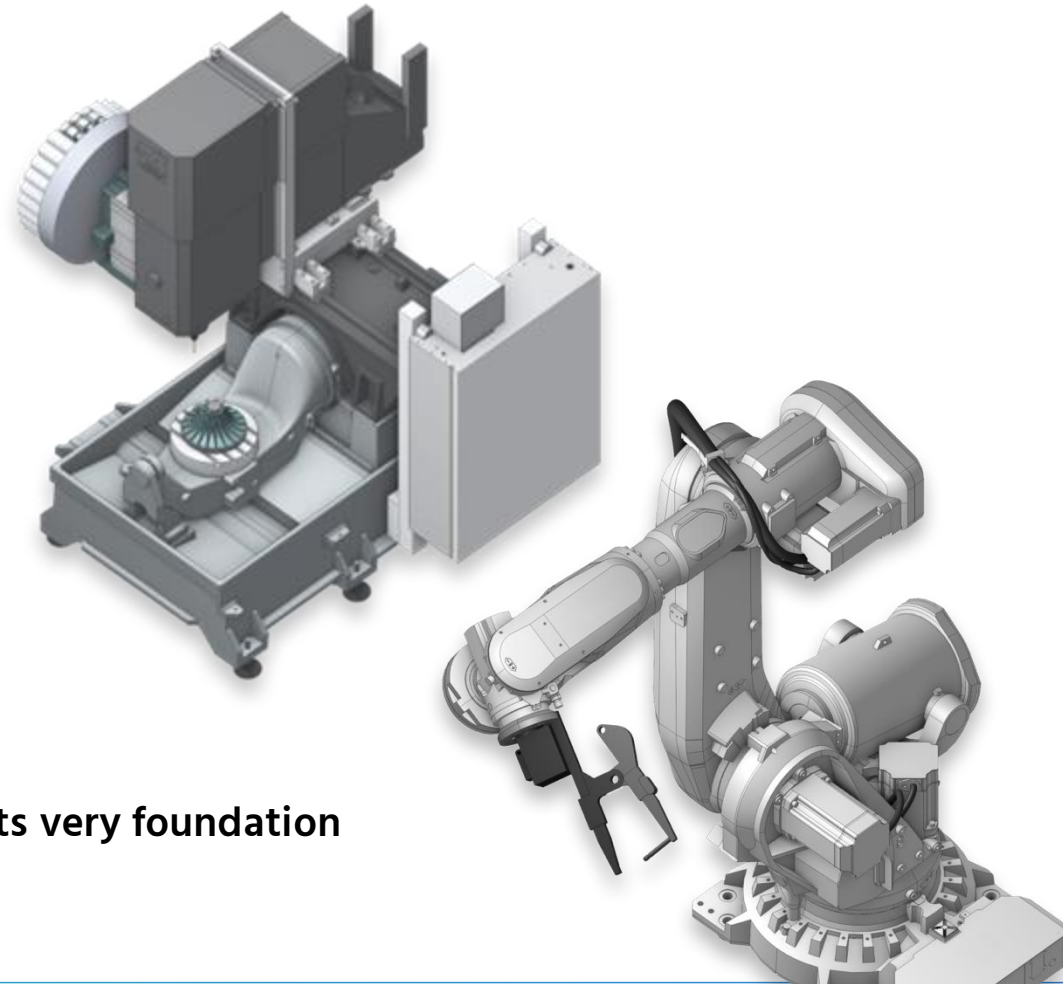
The advantages of our software are embedded in its very foundation

ency

The interface and user experience

UI/UX designers are essential to ENCY software development, ensuring the interface delivers a natural and intuitive experience for CAM programmers.

- Crisp, crystal clear and simple interface

- An elegant dark mode designed to reduce eye strain

- 4K displays support

- Smart hints for quick system learning
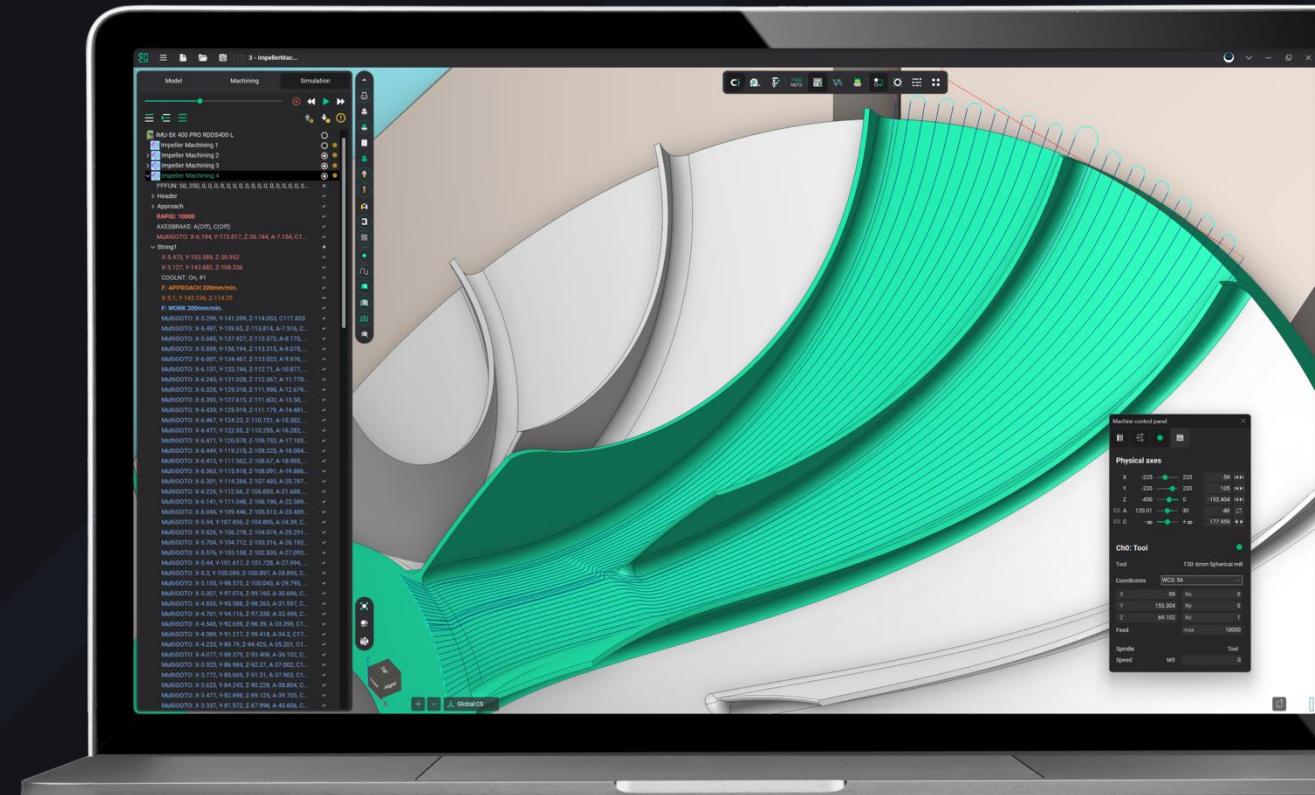
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Offline Robot Programming

Offline Robot Programming (OLP) enhances the efficiency, affordability, and scalability of integrating robotic systems in manufacturing.

Key benefits of using OLP

- Swift response to customer demands and market shifts

- Quick ROI on industrial robotics investments

- Shorter production cycles by minimizing equipment setup times

- Cost-effective robotics for small-scale production

- Enhanced manufacturing analysis with 3D robot element views, pre-empting costly errors and on-site changes

- Minimizes downtime for new product changeovers

Online programming   Offline programming

ency

All-in-one CAD/CAM/OLP for robots

ENCY Robot combines design, programming, simulation, and code generation for efficient, error-free robot programs. It's a complete standalone package, eliminating the need for additional CAM systems.

A complete solution for industrial robots

- Technology setup and toolpath calculation

- State-of-the-art simulation

- Robot kinematics optimization for singularity avoidance and collision free movements

- Robotic cell zero-code digital twin builder

- Robot components library

- Postprocessing

- Built-in tools for 2D design and 3D modeling
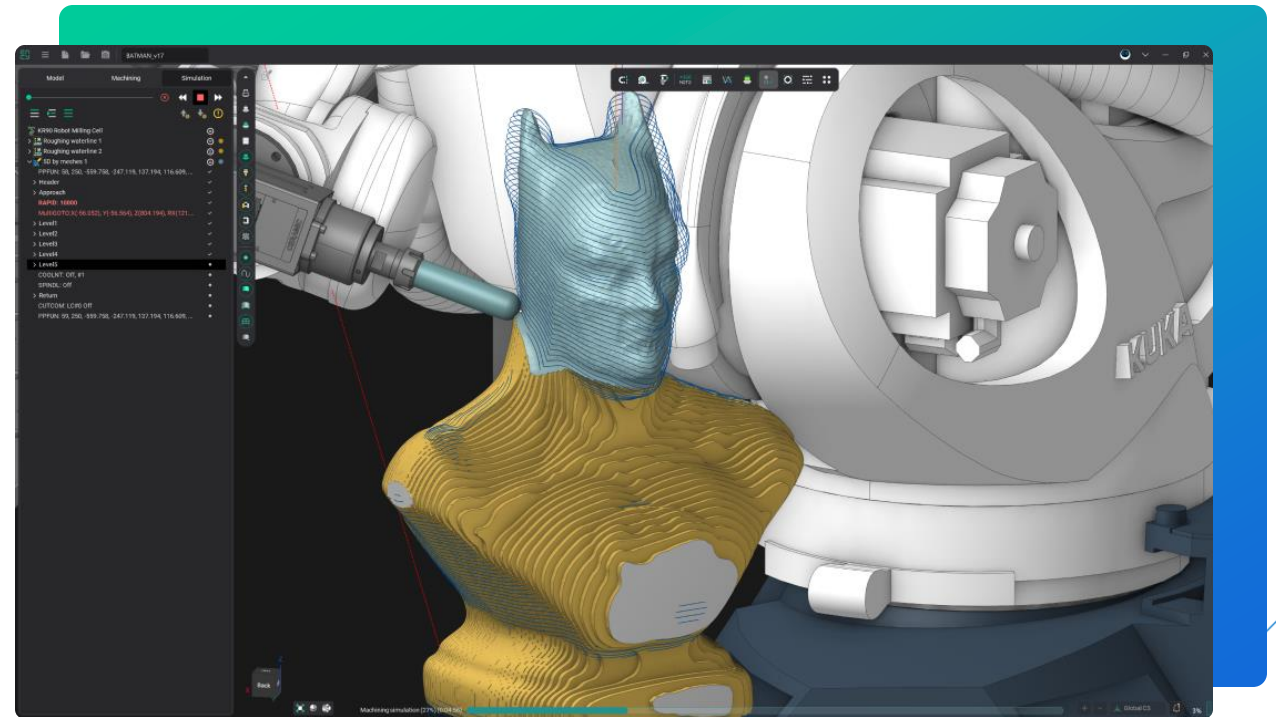
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ENCY Design

Specifically tailored for the requirements of robot programmers, our CAD module simplifies the import of CAD files in diverse formats, facilitates 2D sketch creation, delivers parametric 3D modeling features, and includes geometric dimensioning capabilities.

CAD functionalities
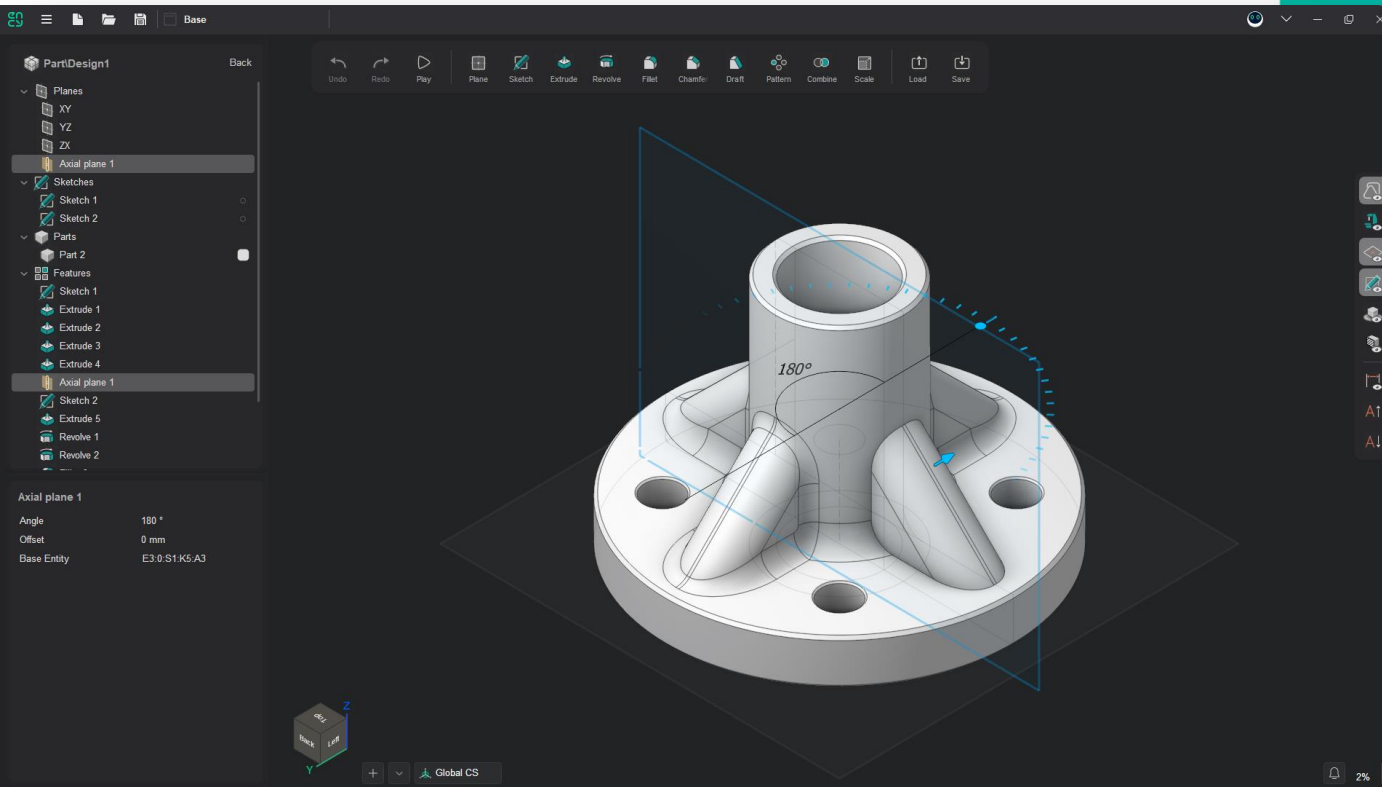
- 2D Sketching
- Dimensioning
- 3D Solid Modeling

CAD file import

IGES, STL, VRML, PostScript, DXF, Rhinoceros, Parasolid, STEP, SolidWorks, Solid Edge, PLY, AMF, JTOpen, PLMXML

CAD integration

SolidCAM, SolidWorks, NX, Teamcenter, Alibre, CADbro, FreeCAD, Autodesk Inventor, CAXA 3D, IronCAD, KeyCreator, MegaCAD, Rhino, Solid Edge, SpaceClaim, ZW3D
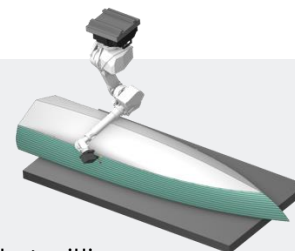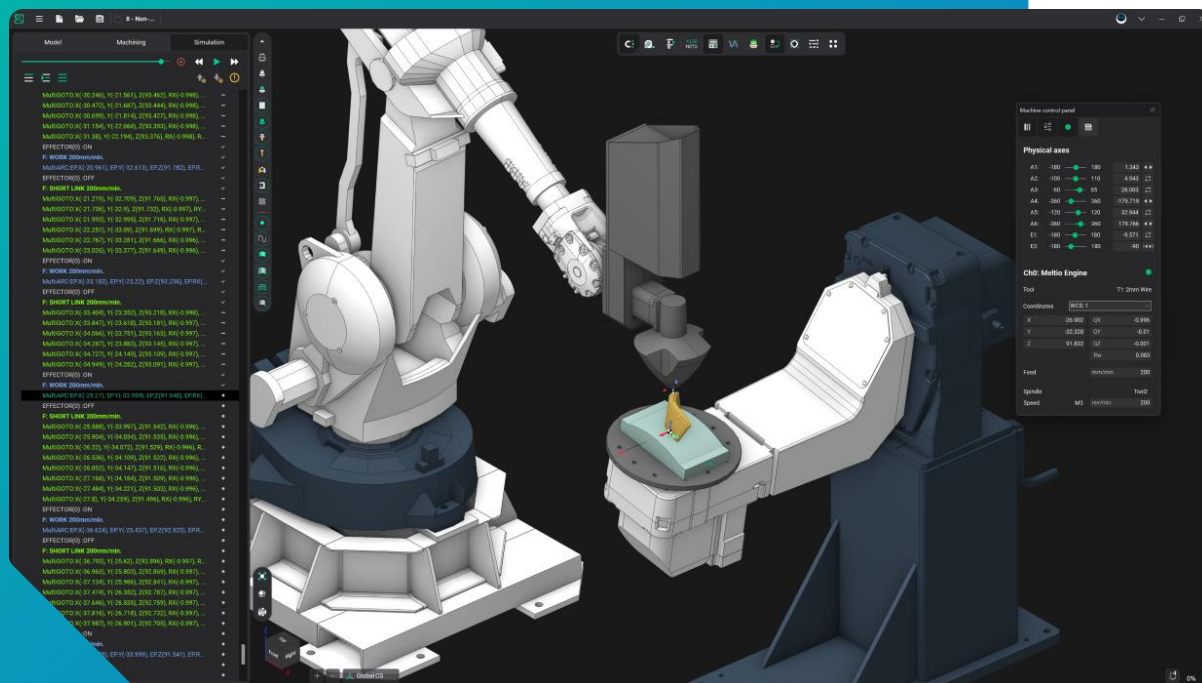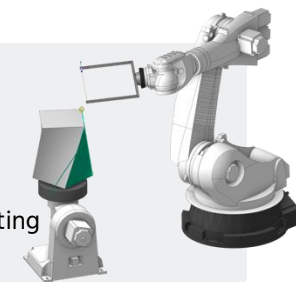
CAD/CAM associativity

ENCY Robot

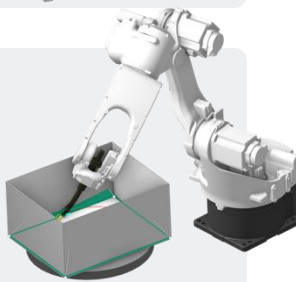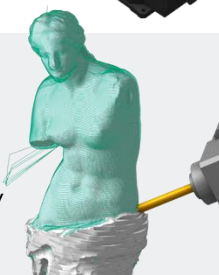A complete offline robot programming
solution
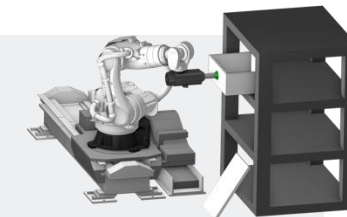

Robot milling
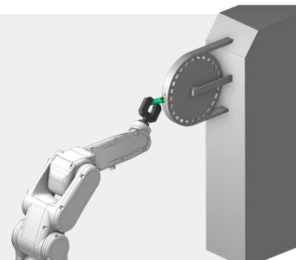
Robot cutting

Additive

Robot welding

Sculpture/ Stone

Pick and place

Spray painting

Polishing

ency

Machining

With ENCY Robot you can easily solve complex and creative production tasks such as milling sculptures and stone, grinding and polishing, de-burring, and much more.

Features

- Wide range of proprietary machining strategies and options for milling, grinding, polishing, deburring, etc.

- Dedicated Mesh Finishing Toolpaths for milling sculptures and art objects based on STL format files

- Collision avoidance and robot kinematics control

- State-of-the-art simulation

- Third-party code import into the project

- Managing Multi-Robot Workstations

- Multiple external axes support

- Part-to-tool & Tool-to-part modes
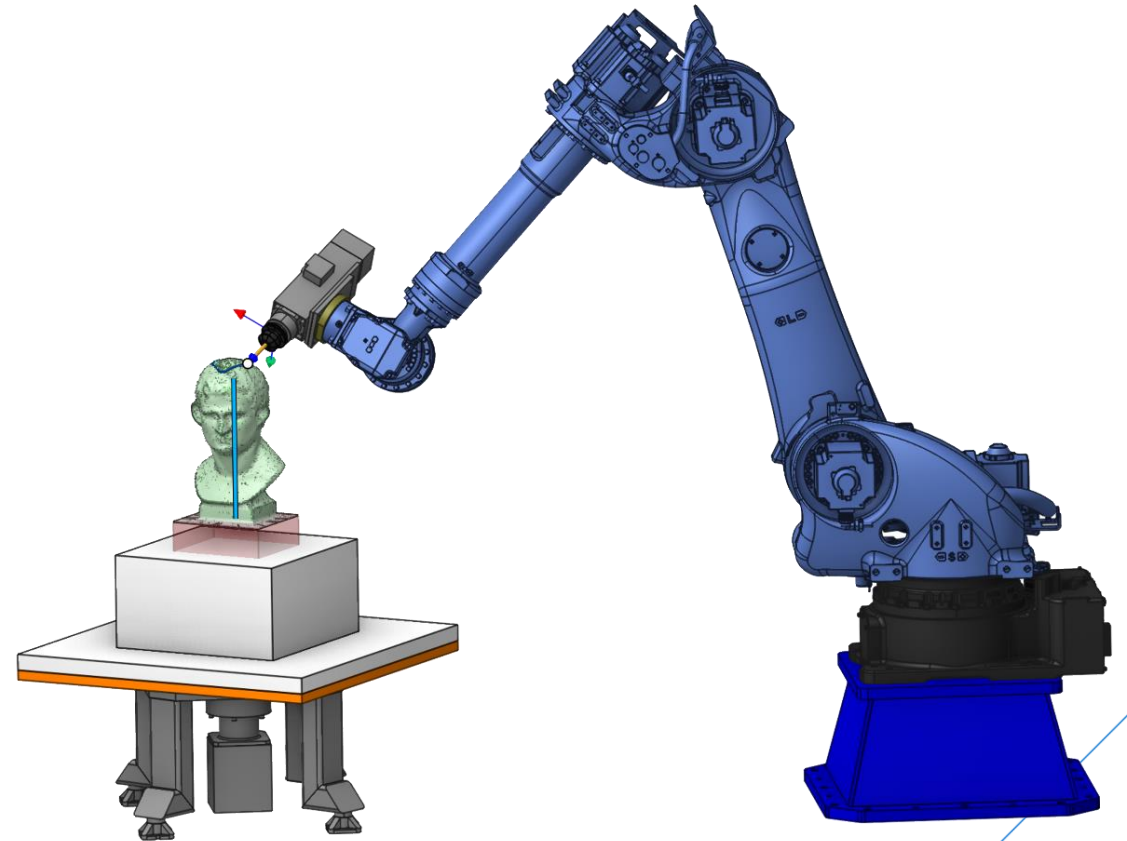
ENCY

Disc Tool machining

ENCY supports disk tools for sawing and machining materials
such as wood, stone, etc.

Features

- Supported tools: Saw blade, Milling tool

- Control of the orientation of the tool axis on any part of the path

- Simulation of machining with a disc tool

- The Disc Roughing operation aims to prepare stone material. It begins by
  making cuts in the material with a disc tool to create a remove area.
  Strategies available: By layers, Adaptive

- Disc Cutting 2D operation for sawing sheet materials, machining flat
  furniture facades, plates

- Disc Cutting 6D operation for sawing both flat and 3D parts
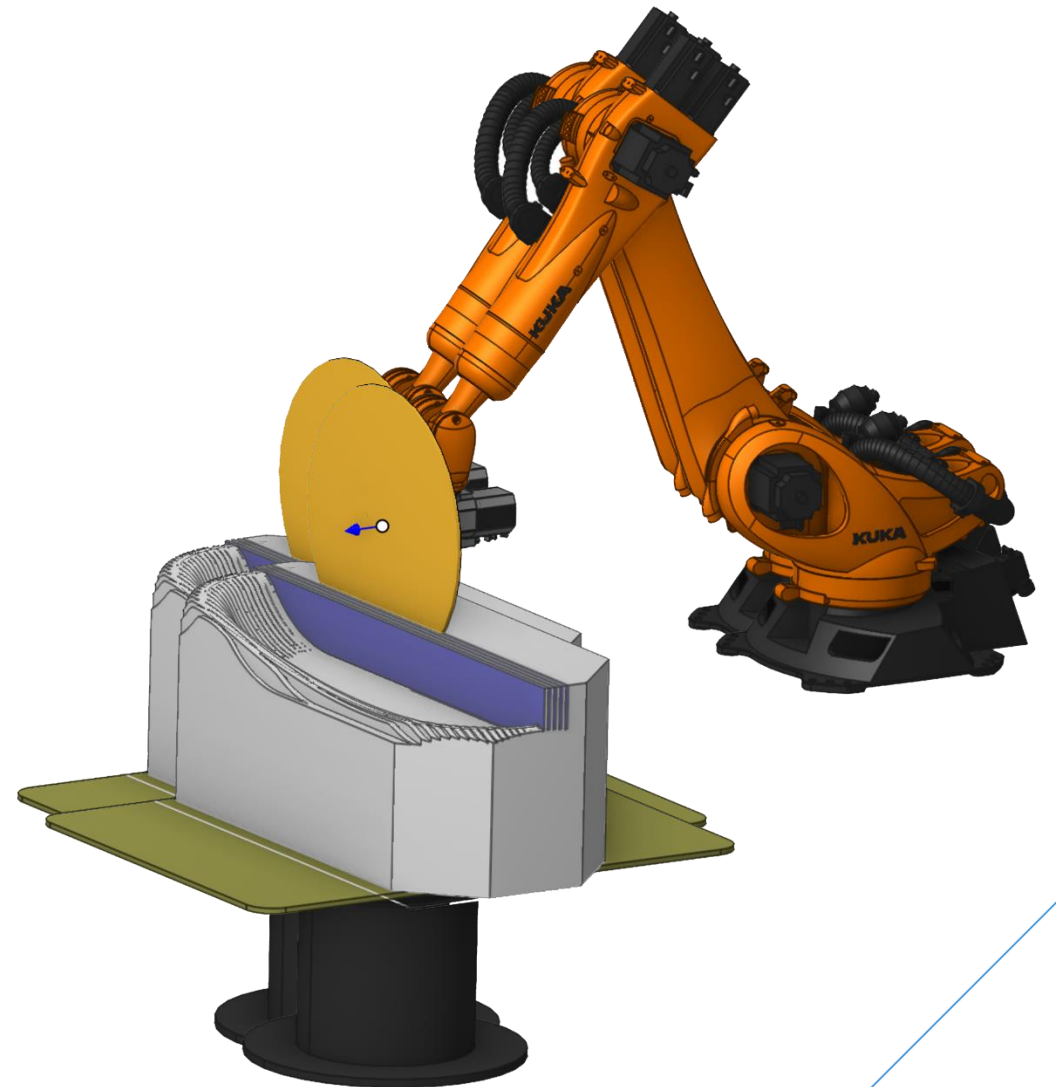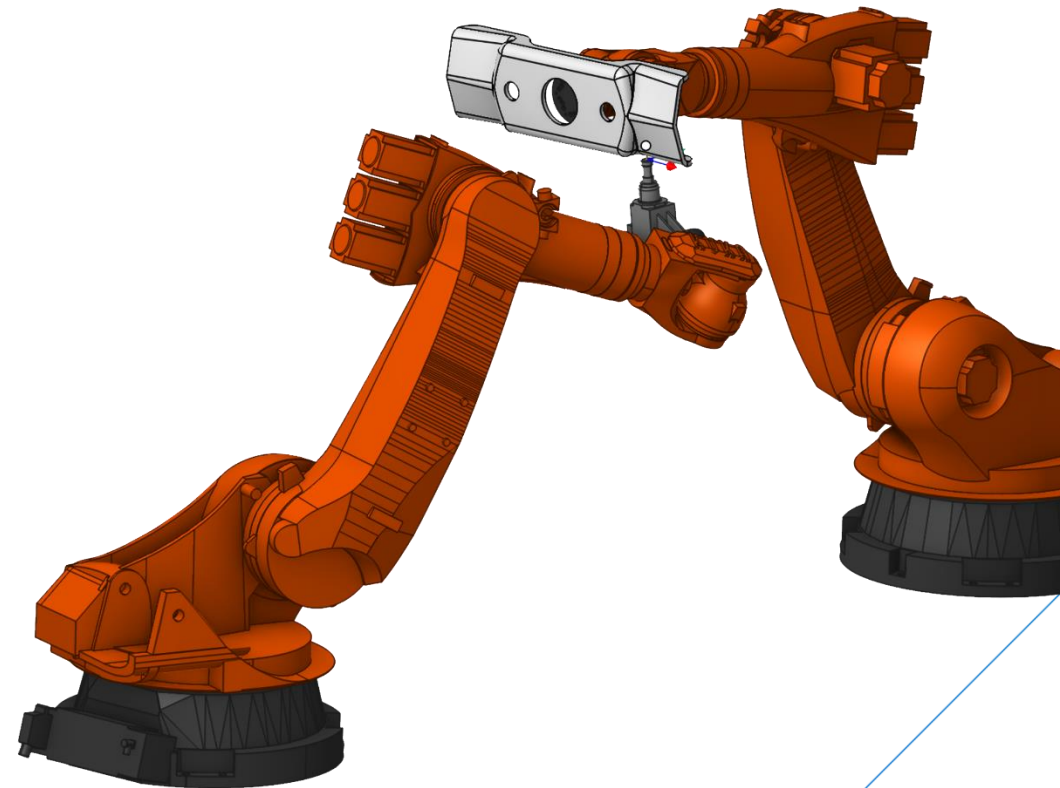
ency

Cutting & Trimming

ENCY Robot streamlines the setup for multiple cutting methods, such as milling, laser, plasma, water-jet, gas, hot-wire, ultrasonic, and knife.

Features

- Wide range of proprietary machining strategies and options for cutting and trimming

- Intelligent 6-axis tool path control

- Tool orientations can be managed automatically to optimize the program for minimal wrist rotation and maximize robot reach

- Special operating parameters for specific cutting technology

- Support knife, circular saw, hot wire, etc.

Hot Wire

- Automatic toolpath calculation regardless of form complexity

- Full control over toolpath via extensive parameters set

ency

Welding

Robotic welding with ENCY Robot boosts workshop efficiency and weld quality, countering the global welder shortage.

Features

- Calculating Toolpaths of Varied Complexity
- Automated Torch Alignment and Collision Detection
- Multipass, stitch, tack, point welding
- Onscreen Toolpath Editing
- Customizable seam sorting for thermal expansion control
- Tailored Technological Parameters
- Welding simulation with welding light imitation
- Seam Detection Using Touch Sensing
- Collision avoidance and robot kinematics control
- Managing Multi-Robot Workstations
- Multiple external axes support
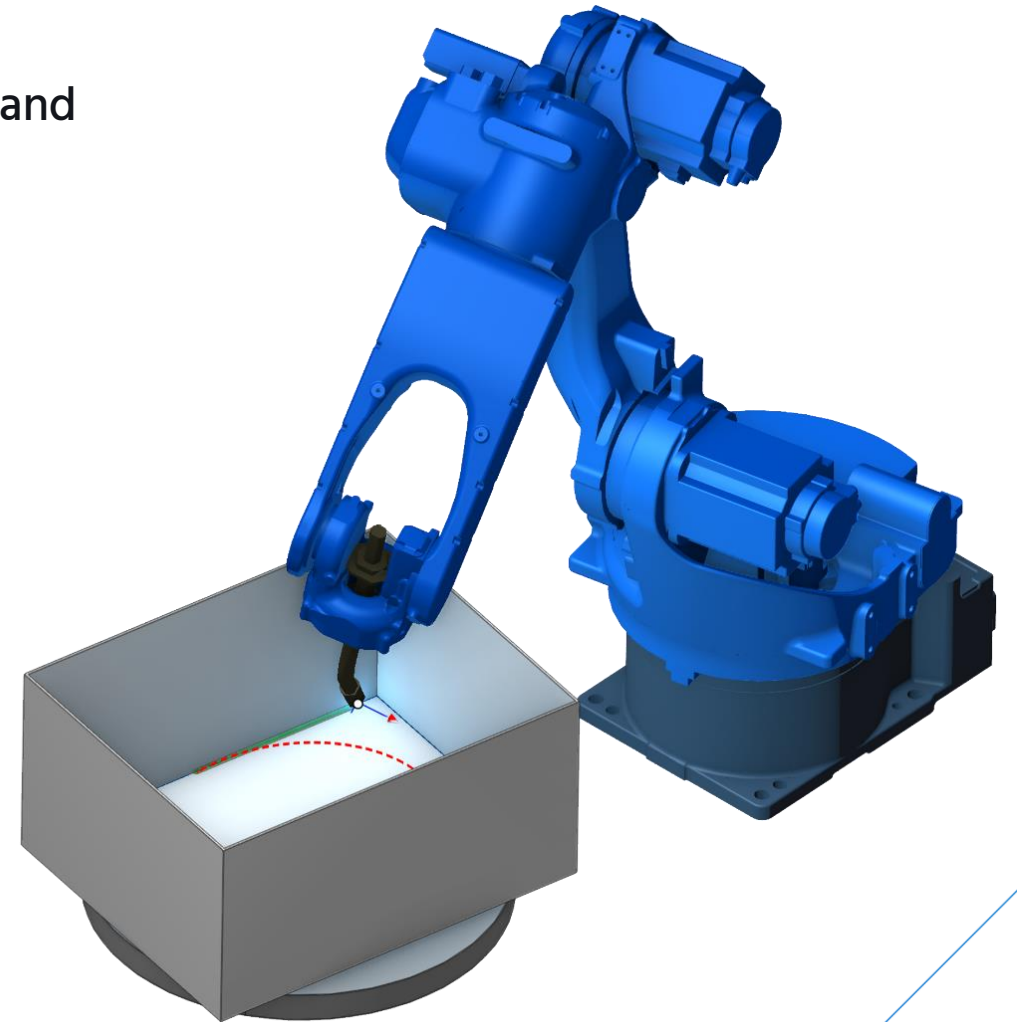
ency

Additive

ENCY supports additive and subtractive processes in one natural workflow.

Features

- Powerful set of additive operations

- Planar and Non-planar slicing

- Wide range of strategies and patterns

- Support for various additive manufacturing technologies:
Direct Energy Deposition (DED), Laser cladding, Material extrusion

- Side-by-side additive and full-spectrum subtractive programming

- Full simulation of both additive and subtractive operations

- Ability to import data from an external slicer

- A member of Meltio Engine Software Partners ecosystem
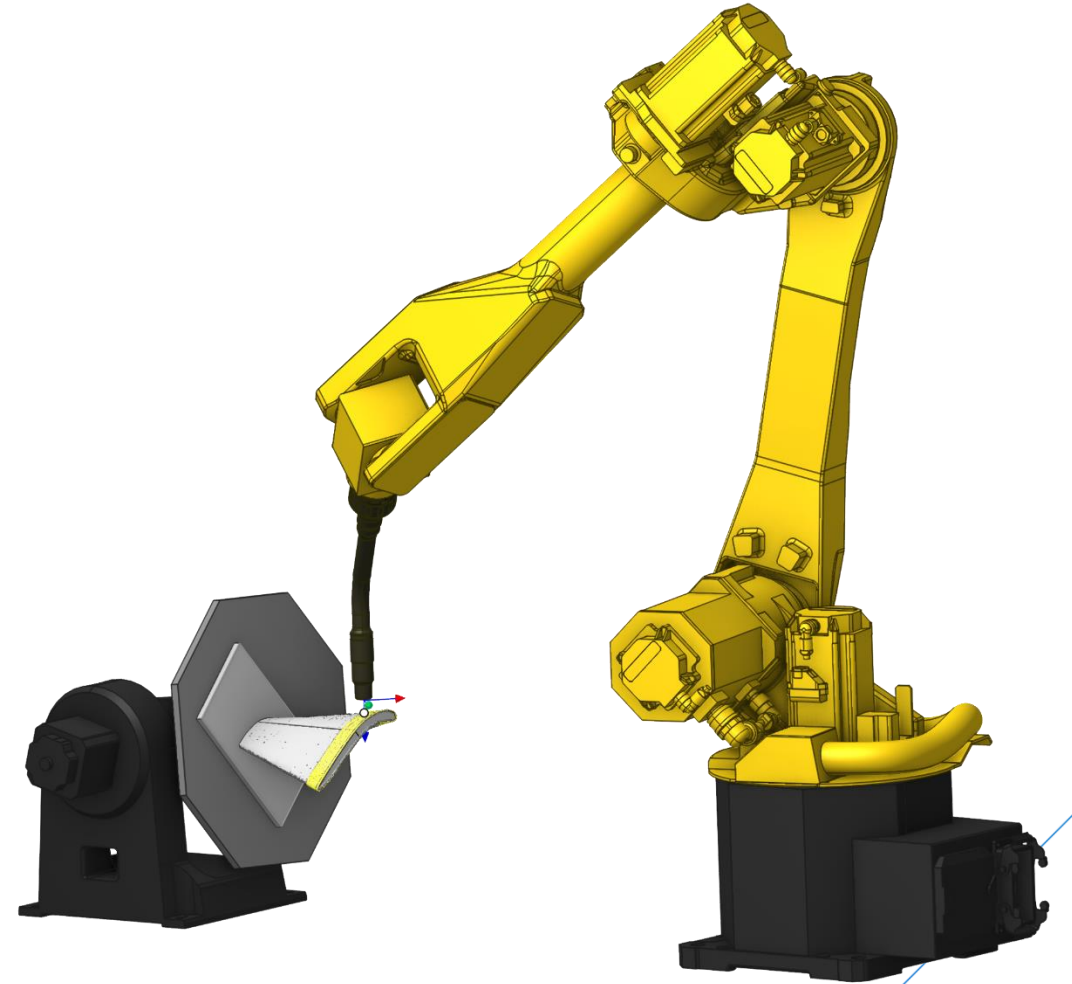
ency

Pick-and-place

Pick and place is likely the most widespread application in robotics currently.
ENCY Robot offers precise control and collision avoidance for accurate and
safe object handling using industrial robots and cobots.

Features

- Easy definition of trajectory nodal points: Start point,
  Pick point, Move point (relative to Pick point), Move
  point (relative to Place point), Place point, End point

- Automatic collision avoidance

- Full operation simulation

- Managing Multi-Robot Workstations

- Combination with machining and assembly operations
  in one project

- Programming machine tending tasks
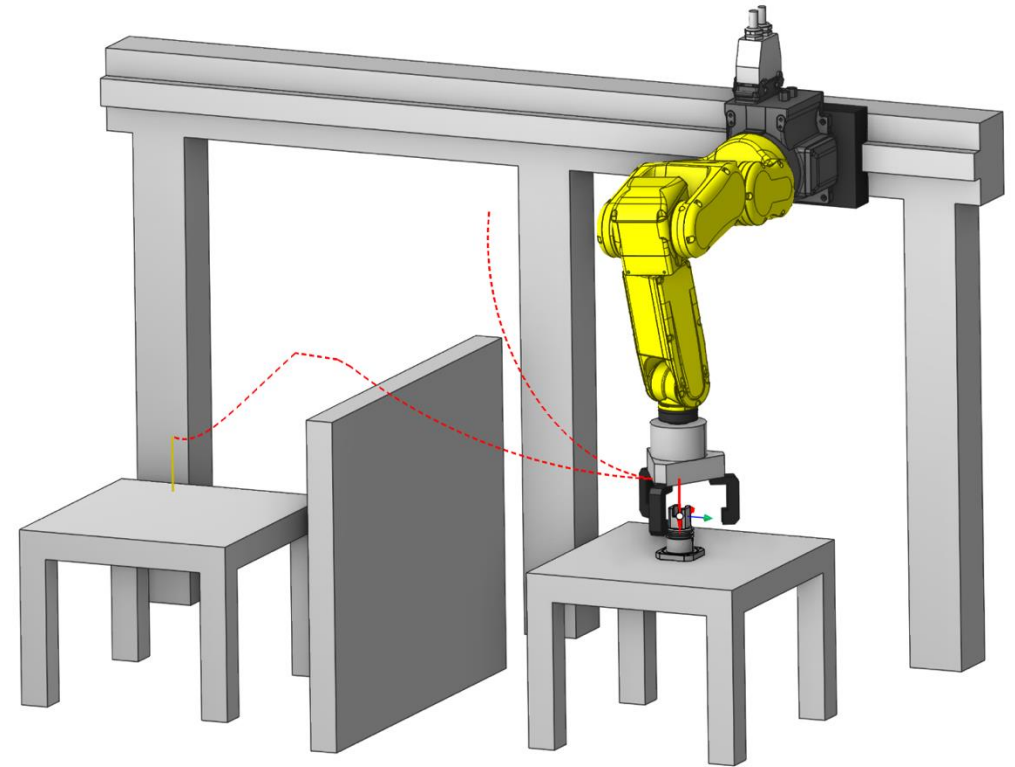
ency

Spraying

ENCY Robot streamlines programming and simulation of spray coverage with automatic path creation for accurate, even surface coverage, reducing manual effort.

Features

- Powerful set of spraying operations: Contour, Surface, Morph, Rotary

- Flexible tool orientation control: normal to surface, flank, fixed, to rotary axis, through point, through curve

- Simulate and analyze spray deposition thickness

- Visibly show part coverage including overspray and under spray

- Spray tools supported: Full cone, Hollow cone, Elliptic flat fan, Elliptic linear fan, Rectangular flat fan
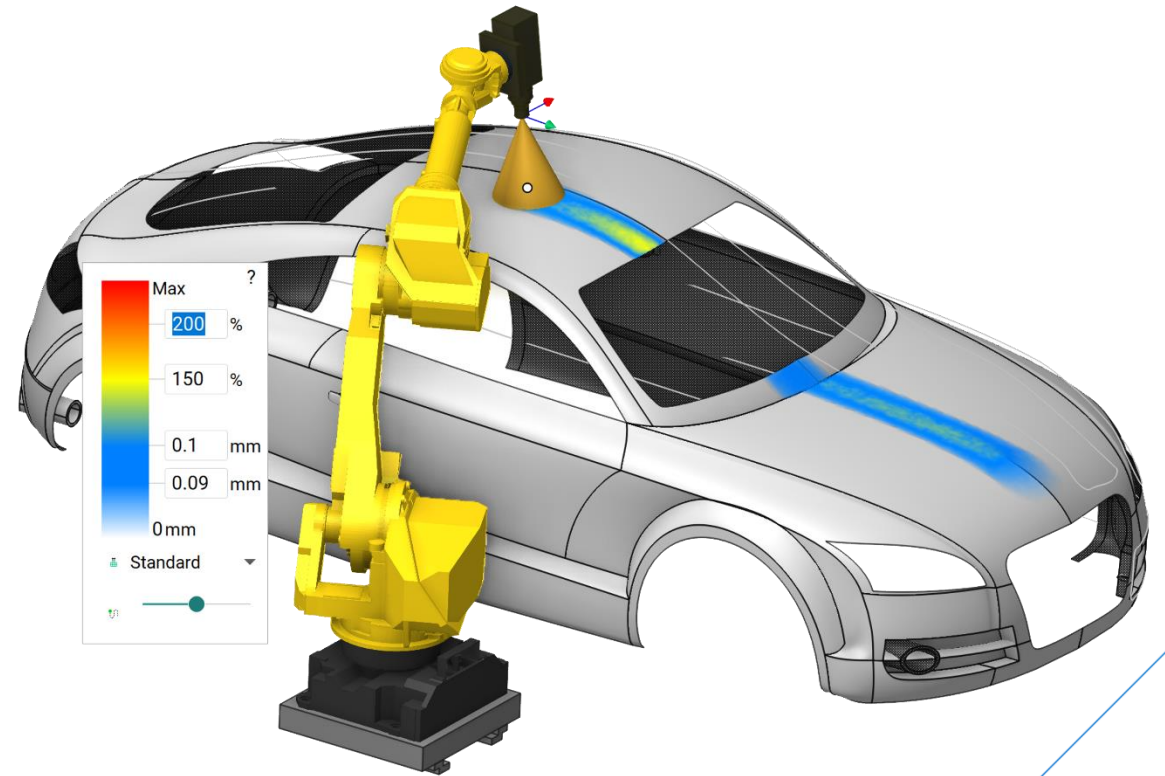
Robot Axis Map

Singularities, collisions, reach limitations, and motion granularity pose unique complexities to robotic systems, often making programming a challenging task. ENCY Robot offers a practical solution to these issues with its feature, The Robot Axis Map.

Features

- Manual and automatic path optimization

- Collision map: out of reach, out of limits, singularities, collisions, etc.

- Fast calculation and map creation speed

- Ability to analyze and optimize long paths

- Optimization of redundant axes and parameters

- Lead/Lean angle control

- Rotary axes overturns detection and avoidance

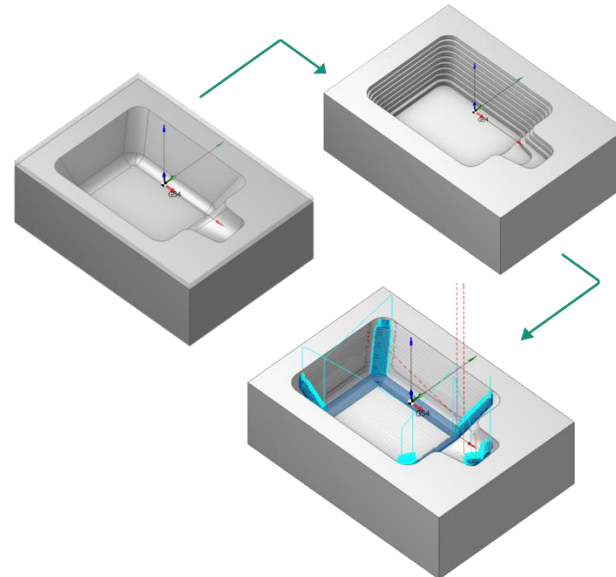- Arbitrary technology parameter control
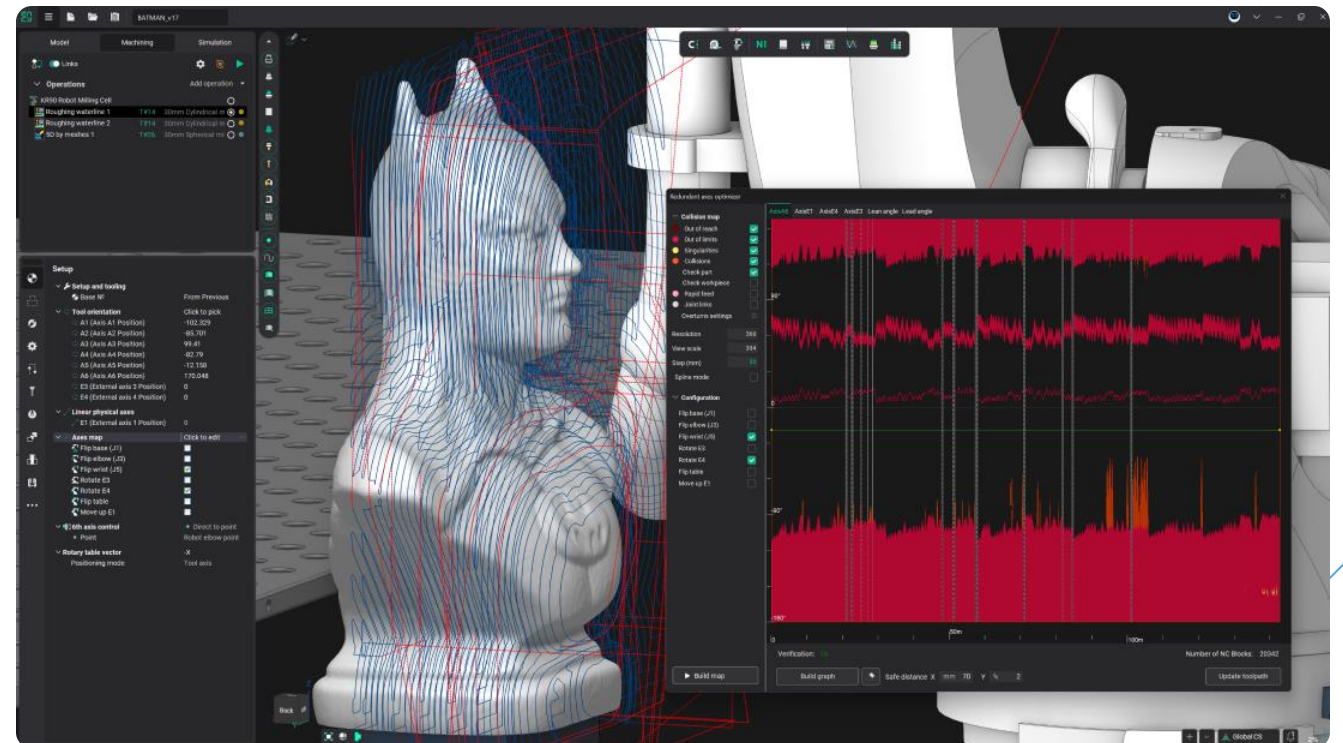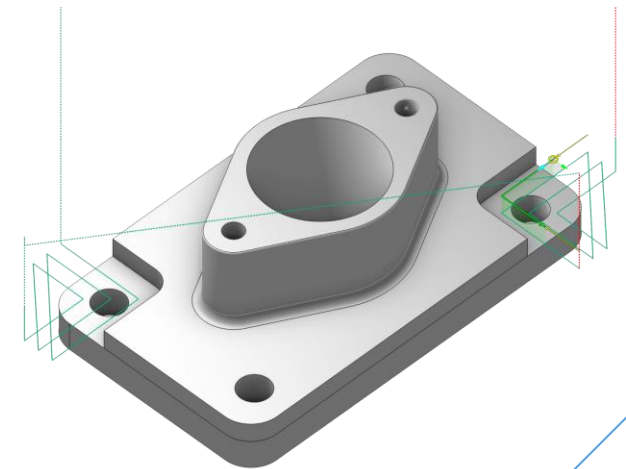

ency

Interactivity, Efficiency, Safety

Seamlessly modify pass counts, directions, and depths, and easily update your machining strategy using intuitive drag-and-drop actions.
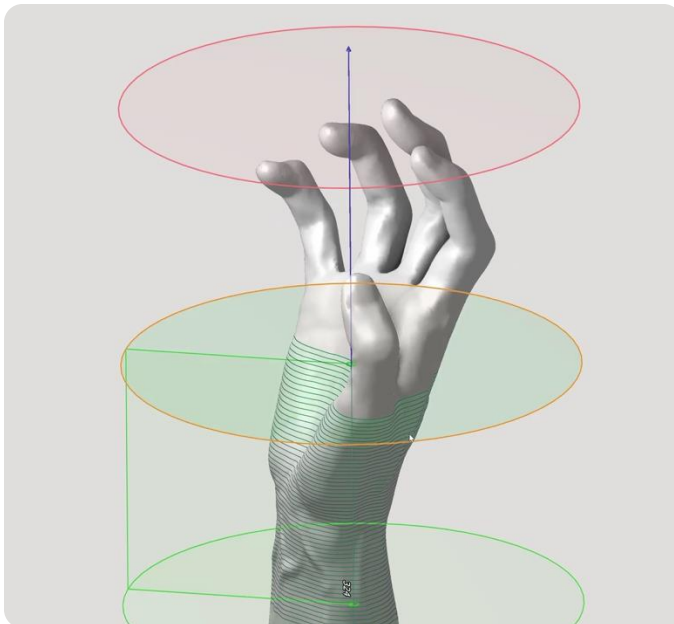
ENCY optimizes toolpaths by adapting to material changes, minimizing excess motion and reducing cut times for peak efficiency.

The platform's engine automatically generates safe rapid positioning between cutting cycles, optimized for the specific machine, tools, and setup being used.
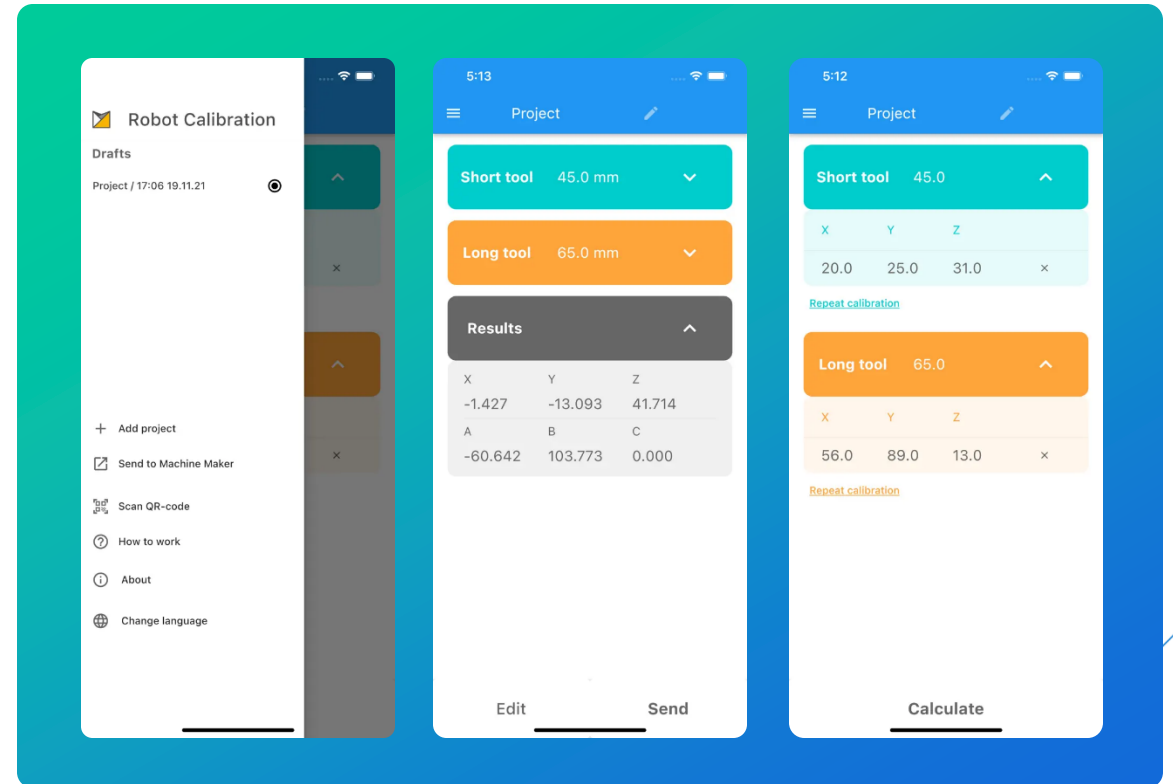

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Robot Calibration App

ENCY Robot users have access to a free application for smartphones that allows them to automate the TCP calibration process and transfer data to the system.

Features

- Accurate calibration of the tool center point (TCP)
- Double-spike method
- Automatic data transfer to MachineMaker and ENCY

Benefits

- Elimination of errors caused by manual data entry
- Reduced robot debugging time
- Elimination of costly calibration tools or services
- Ever-growing list of supported robots and mechanisms
- The engineer interacts with the robot using a smartphone

Robot Simulation

ENCY Robot offers more than just potent offline programming capabilities for industrial robots; it's also a superior robotic cell simulator. It accommodates all robot models, diverse machining technologies, and is adept at handling control programs from alternative CAD/CAM systems.

Features

- Complete robotic cell simulation

- Import and simulation robot control programs from third-party CAD/CAM software

- Simulation of subtractive and additive processes, support for G-code verification

- Two modes of simulation are available: «Voxel» for rapid machining simulation and «Solid» for enhanced graphic quality

- Color map of remaining stock

- Avoid of potential collisions, axes overtravel, etc.

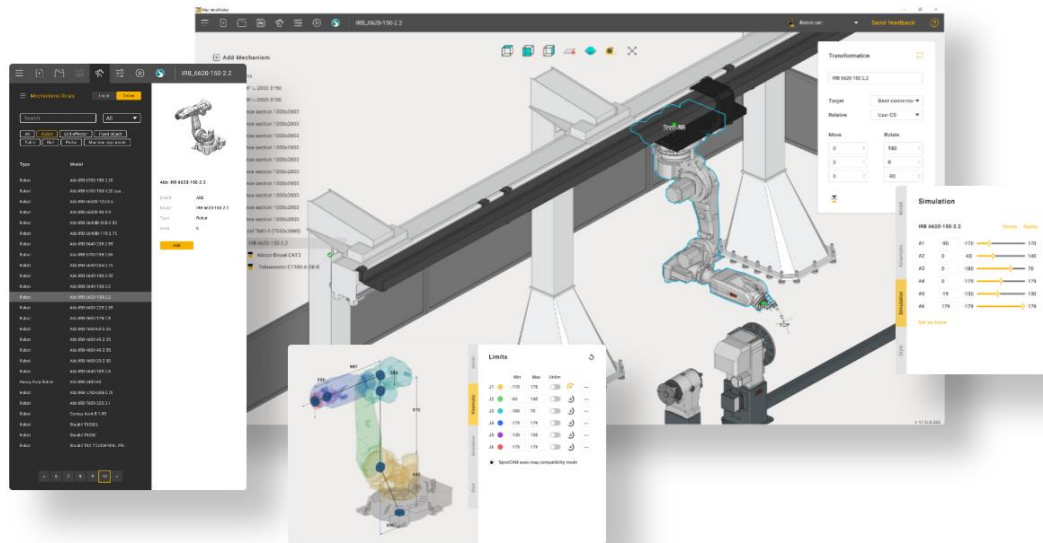- Robot control panel and Axial parameters graph
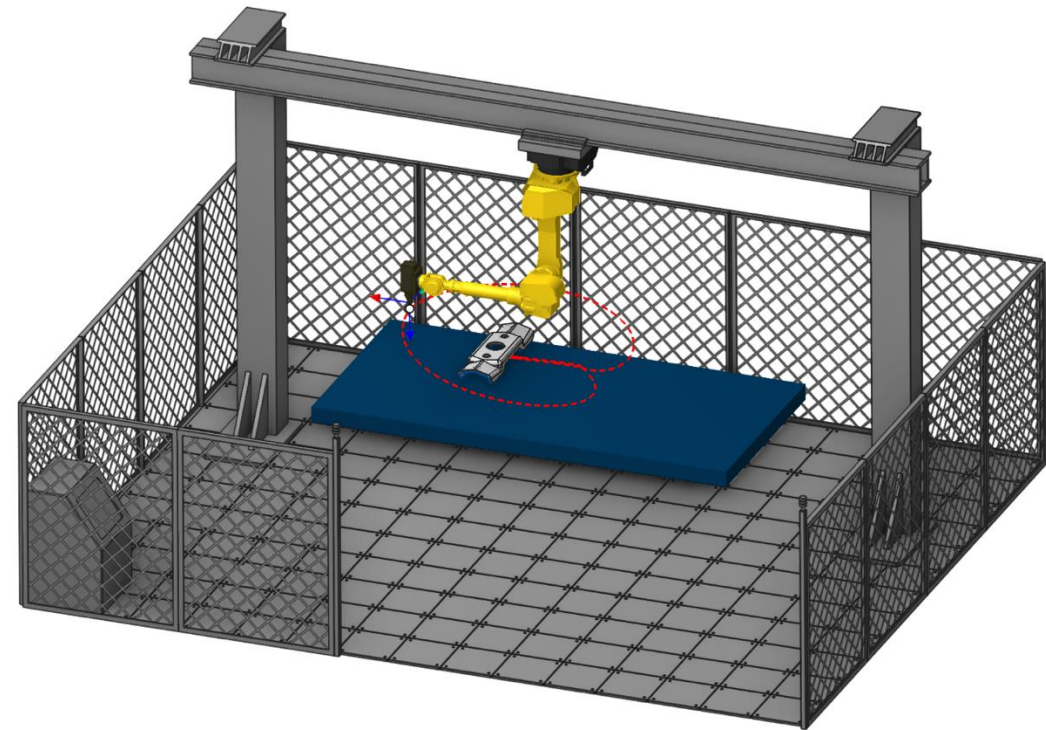
ency

Digital Twin & Cloud Technologies

MachineMaker App

One of the most innovative digital tools for accurately moving your production equipment from the real world to the virtual world

Robot components library

ENCY Robot provides you with valuable data resources such as online libraries of postprocessors and robot components

Project Library

ENCY Project Library serves as a collaborative platform, enabling dealers to share their expertise and allowing users to swiftly sift through an expansive database of project examples, filtered by specific criteria.

- Thousands of projects

- Flexible Search

- Access Settings

- Export to ENCY
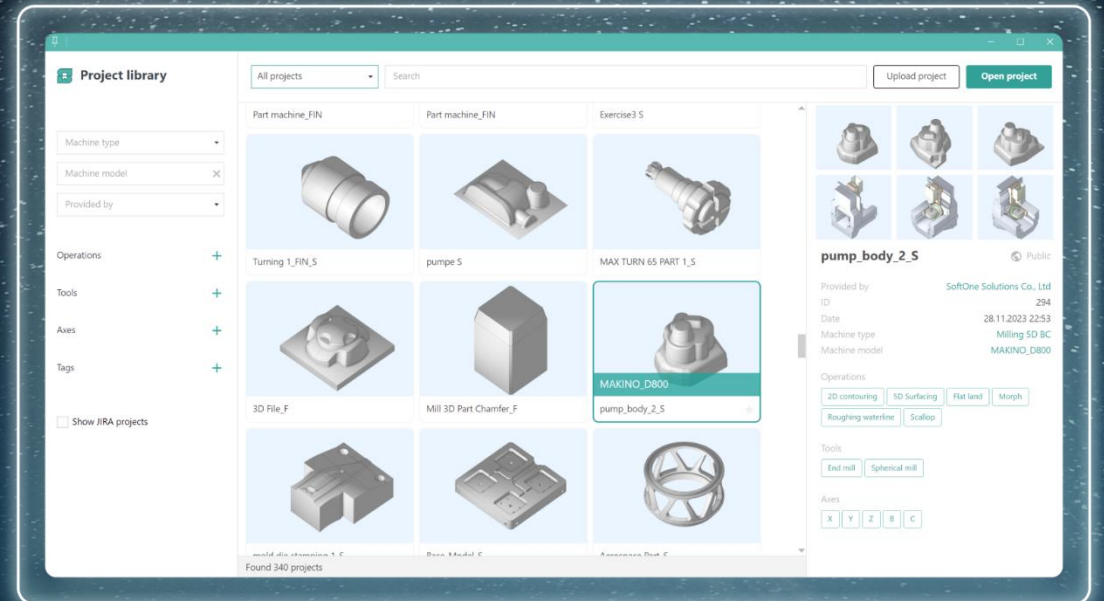
Supported Robots and Post Processors

ENCY Robot supports 6- and 7-axis industrial robots of all known brands, including heavy-duty robots and cobots. Our cloud-based libraries contains hundreds of post processors and high-quality 3D models of robots from top brands such as ABB, Comau, Doosan, Epson, Fanuc, Hiwin, Hyundai, Kawasaki, Kuka, Mitsubishi, Motoman, Nachi, Panasonic, Staubli, Toshiba, Universal Robots, etc.

Solutions overview

- Support for robots with any kinematics, incl. ceiling mounted robots

- The software package includes over 20 pre-configured post processors

- Availability of more than 400 industrial robot digital twins

- Extensive online resources of robotic cell components:

End effectors: magnetic, finger, vacuum grippers, pinch welder, welding torch, paint gun of various shapes, additive manufacturing equipment, spindles, grinders, disk tool, knife, hot-wire cutter

Static objects: fences, fixed tables, or any other fixed object for collision detection or part placement

Positioners, rotary tables, single or multiple rails
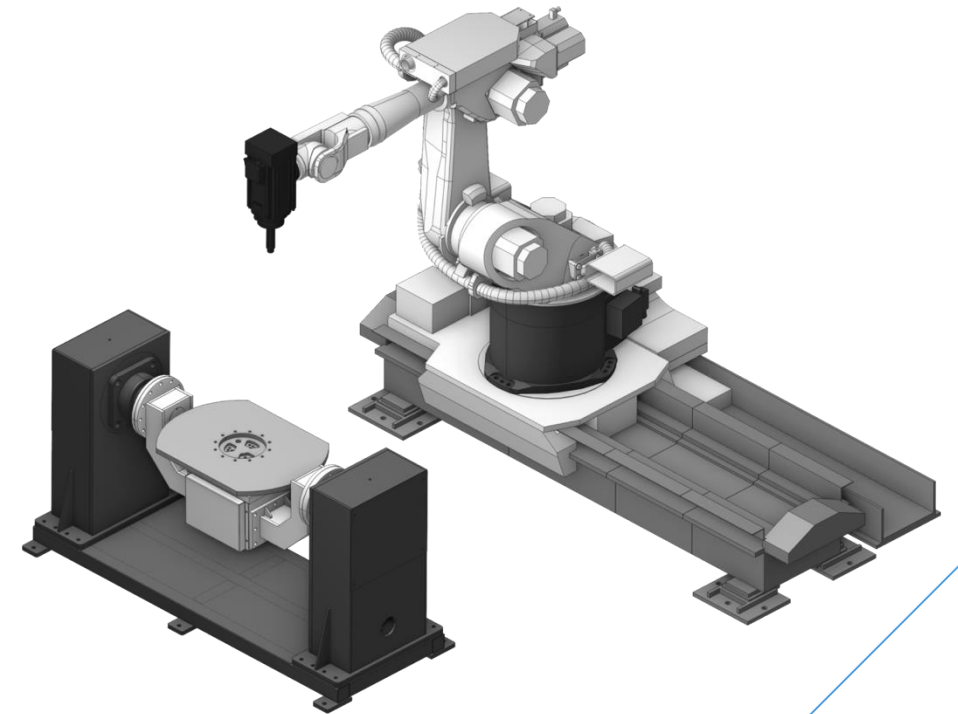
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ency X

ENCY X is our innovative approach to connecting specialists who program and operate CNC machines and industrial robots, along with those who assist with software implementation and technical support.

ENCY X offers a new user experience designed to dramatically reduce downtime with CAD/CAM software.

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ENCY X

A game changer for beginners and professionals seeking to use CAD/CAM for CNC machine and industrial robot programming.
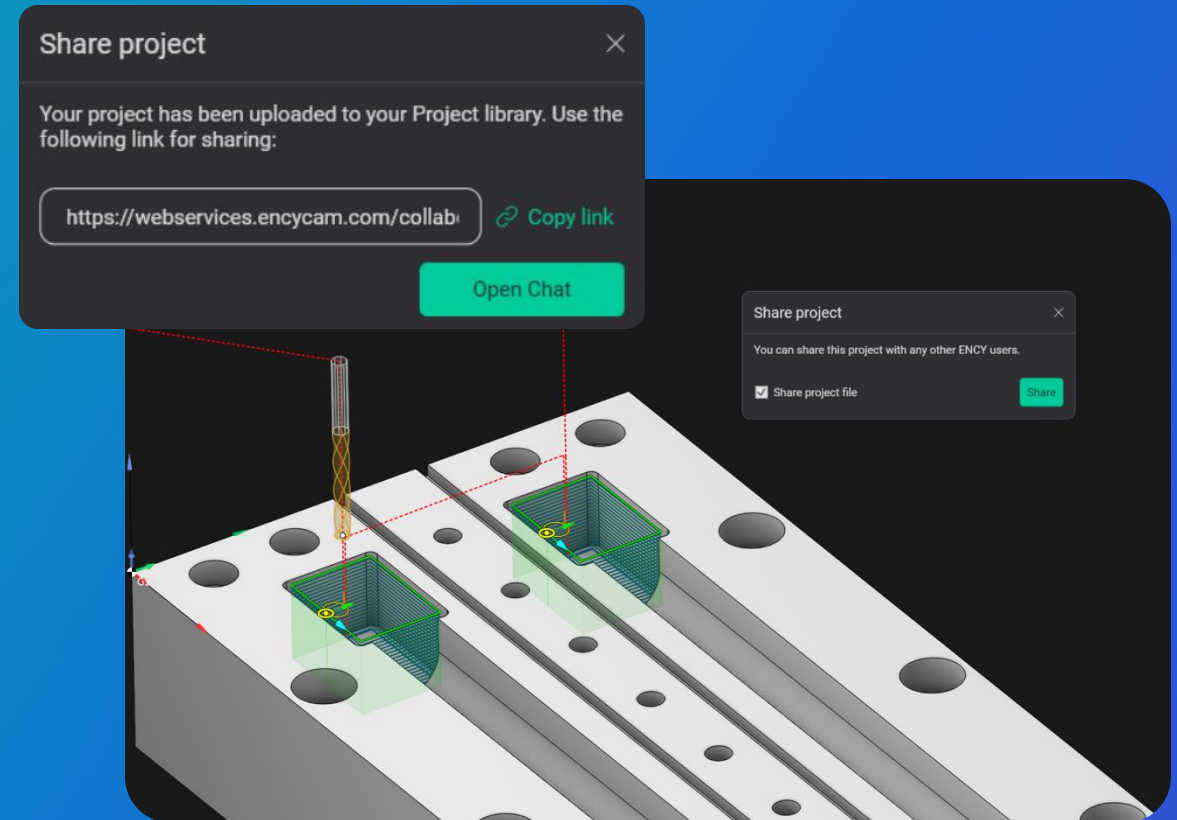
- Simplify and speed up the implementation of CAD/CAM software with built-in digital communication tools

- Connect machine operators and CAD/CAM programmers through online chat

- Invite software engineers for top-notch technical support

- Collaborate with independent CAD/CAM experts

- For CAD/CAM specialists: a chance to effectively utilize their expertise

- For machine shops: an opportunity to outsource CAD/CAM programming when facing staffing shortages or tight deadline

- The AI assistant is included (option) as a participant in the online collaboration session
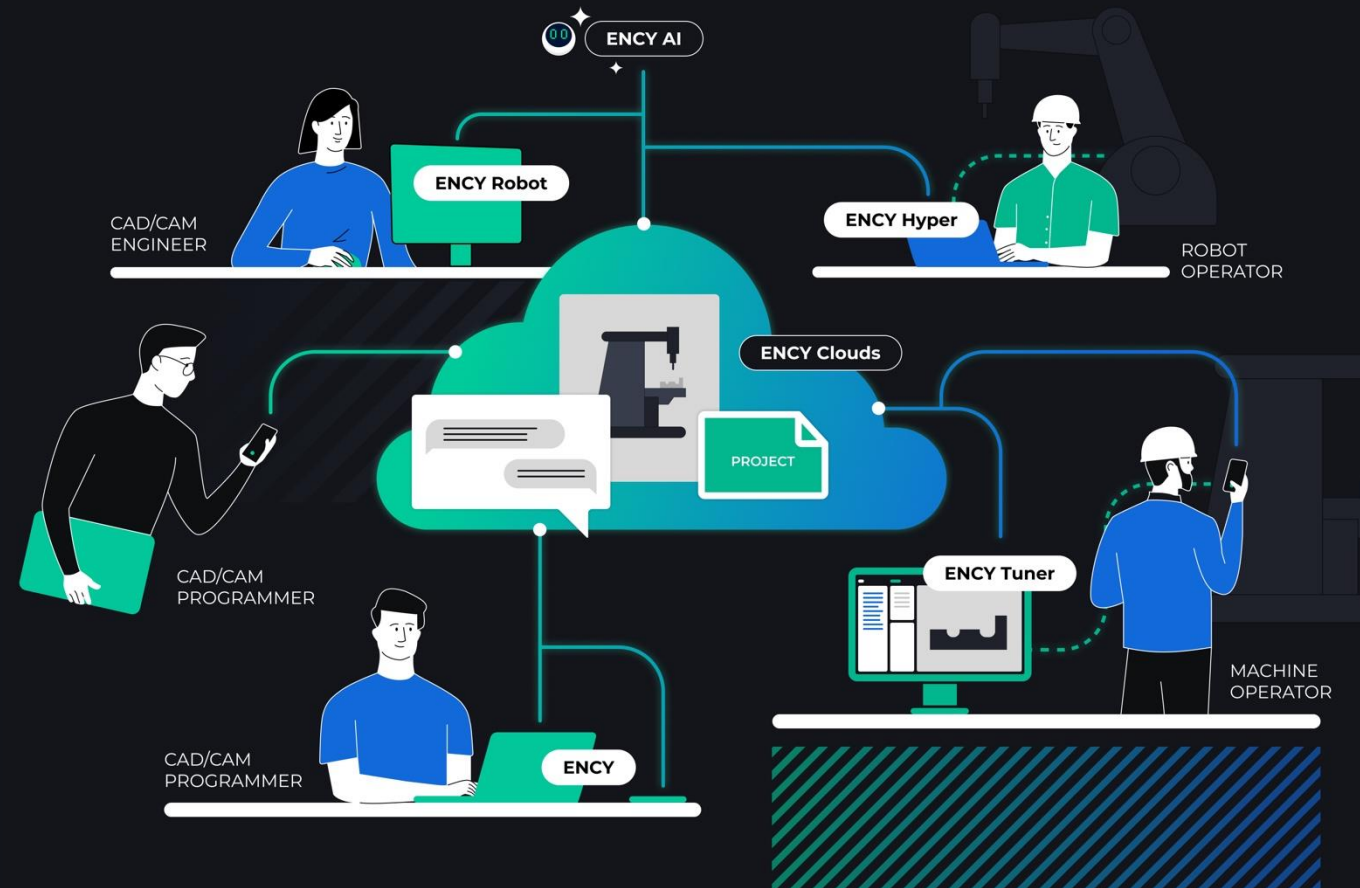
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ENCY Clouds

Cloud technologies for collaboration and access to machining projects

- Naturally integrated into ENCY's CAD/CAM workflow

- Exchange projects via Cloud with your collaborators (CNC programmers, robot integrators, suppliers, experts)

- One click push/pull for project share and update

- Online chat with support for videos, screenshots, screencasts, photos, and documents

- Mobile app with push notifications and the ability to upload photo and video media directly to the project chat

- Private cloud storage for user projects

- Available in ENCY flagship products and supports interaction with ENCY Tuner, ENCY Hyper, and ENCY AI
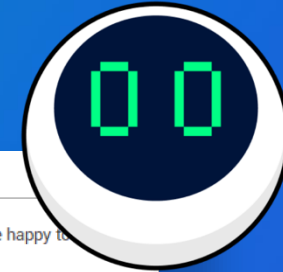
*Not all described features are available at the launch of sales. Available in select regions only.

Share project
×
Your project has been uploaded to your Project library. Use the following link for sharing:

https://webservices.encycam.com/collab
🔗 Copy link

Open Chat

Share project
×
You can share this project with any other ENCY users.
☑ Share project file
Share

ency

ENCY AI

The magic of artificial intelligence for real manufacturing

- An industry-leading support AI integrated into the ENCY software suite

- Unlike other systems, ENCY AI does not need text prompts or queries – it analyses the 3D model and provides appropriate workflow recommendations, along with predictions of progress and outcomes of the machining project

- ENCY AI is targeted at supporting all skill levels, ranging from explanation of commands and canned cycles through to offering advanced optimization suggestions for experienced users

- Automagic generation of usable NC code from user text descriptions of the desired operations

- Write code in Python to create .dxf or .stl files

Not all described features are available at the launch of sales. Available in select regions only.

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Cyprus