



# CATIA PLM Express

## CATIA - Machine Tool Simulation

**Unique integrated environment for realistic machine and material removal simulation during machining operation definition**

It is essential to verify the machining process prior to beginning production in order to protect the costly machining tool investment and to maximize their use. Realistic simulation helps companies to reduce machine set-up and idle times, while ensuring the implementation of chosen machining strategies.

### Overview

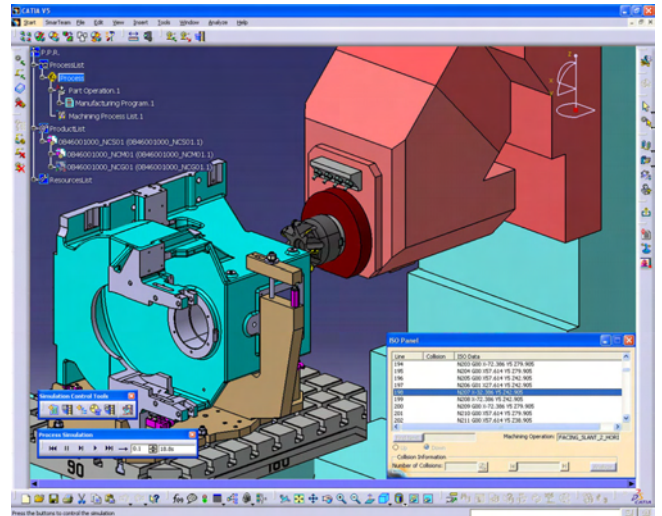
The CATIA - Machine Tool Simulation option enables NC machine ISO code-validation at an early stage to validate that the part will be machined correctly the first time. Fully integrated NC machine simulation enables the NC programmer to easily switch between tool path definition and tool path validation without losing time in data transfer or preparation, thereby reducing lead-time from programming to production.

### Customer Benefits

- Reduction of lead-time from programming to production
- Unequalled tools and machine protection investments thanks to realistic simulation
- Tool path validation during NC programming to avoid problem and modification loops, and increase process quality
- Elimination of interface issues

## Key Capabilities

- Automatic mounting of workpiece and machine setup validation
- **Integrated simulation of NC machine motions and material removal based on tool paths or ISO code**
- **Synchronized display of ISO code during ISO based simulation**
- Validation of a manufacturing program, a single machining operation or a zone of a machining operation
- Easy collision queue setup and detection
- Interactive modification of tool path or Machining Operation for collision avoidance
- Checking of travel limits of the machine tool
- Distance and Band Analysis
- Accurate cycle time calculation
- Use of NC code created outside of CATIA V5



Screen capture of CATIA - Machine Tool Simulation

The NC programmer can check for tool interference and collisions. He can then use Machine Tool Simulation to validate part setup and check for collisions between the tools, fixtures, machine parts, and the workpiece. Machine Tool Simulation enables modification of the erroneous machining operations in the context of the NC machine to eliminate errors in tool paths.

NC programmers can then choose to simulate machine motion and material removal based on ISO code, identify and eliminate errors in ISO code, if any, and ensure error-free ISO code generation to be loaded onto the real NC machine. This process reduces the debugging time, thereby reducing the overall lead time required to create a correct ISO program.

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