

SmartPATH™

... automatic toolpath optimization

ICAM SmartPATH is unique software designed to dynamically & automatically optimize machine tool motions and positions based on standard toolpaths generated by CAD / CAM systems.



SmartPATH generates safe & efficient toolpaths...

Rapid and high-feed positioning motions generated by CAM systems for multi-axis machining can be unsafe and inefficient. This is mainly because CAM systems ignore the machine tool kinematics, workpiece setup and travel limitations when generating positioning toolpaths. NC programmers can then spend considerable time, using trial and error, to develop and verify positioning paths to achieve desirable safe motions for a specific machine configuration. Should shop conditions later require that the manufacturing program be moved to a different CNC machine, then the non-cutting positioning paths must be redeveloped and the entire trial and error process repeated.

ICAM SmartPATH automatically generates safe and minimized non-cutting motions within the machine working envelope. SmartPATH ignores non-optimized unsafe positioning motions generated by CAM systems and instead automatically replaces them with minimized safe motions based on the machine tool kinematics, physical travel limitations and axes positioning rates.

SmartPATH ensures the generated multi-axis motions do not cause collisions with dynamically changing in-process stock and all other surroundings such as the fixtures and moving / non-moving components of the machine.

SmartPATH does not require clearance planes or geometric safety zones to be defined by the NC programmer.

SmartPATH automatically finds the optimal path to move the tool from one pose to another, respecting the specific machine kinematics, travel limits and physical constraints. This enables NC programmers to easily and safely move a part program developed for one CNC machine to another, by simply reposting the program.



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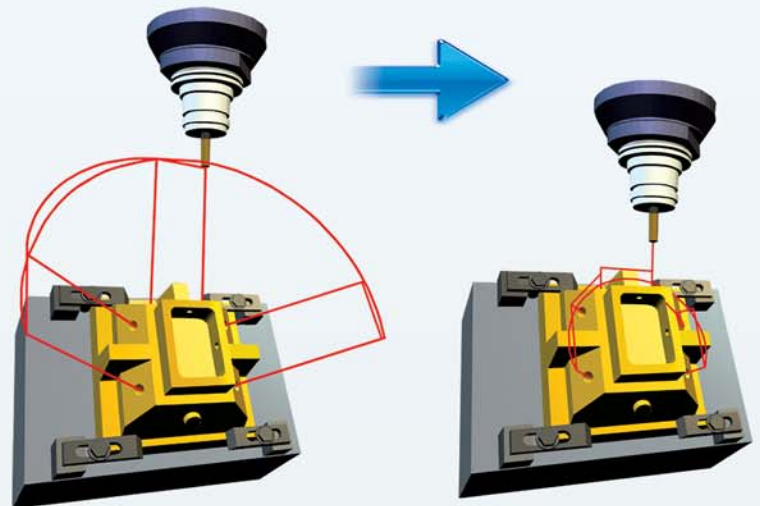
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SmartPATH™ Benefit Highlights

- SmartPATH reduces manufacturing cycle time by eliminating the process of trial and error to adjust and verify multi-axis positioning motions in the CAM environment and minimizing the unproductive time of the positioning operation.
- SmartPATH ensures safe multi-axis positioning paths, which are collision-free based on the actual machine tool kinematics, dynamically changing in-process stock, workpiece, fixtures and machining environment.
- SmartPATH maximizes part accessibility by taking full advantage of the machine's work envelope. As a result, parts having a large size with respect to the machine work envelope can be accommodated, with no violation of the machine joints' limit, even during multi-axis positioning motions.
- SmartPATH makes it possible to quickly and easily move a part program from one CNC machine with a specific machine kinematics to another with completely different kinematics. This can be done at the shop floor as scheduling needs and CNC availability dictates.

Optimize with SmartPATH!



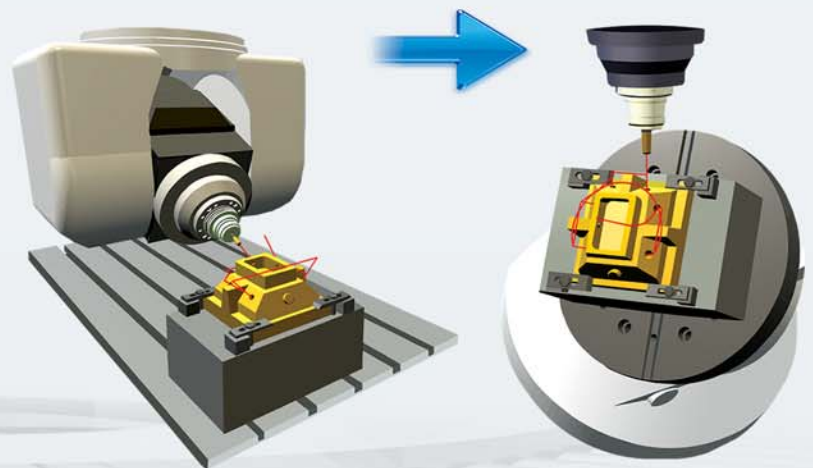
CAD / CAM Toolpath

SmartPATH™

Features

- Automatic planning for non-cutting and positioning motions that generate optimal collision-free paths while minimizing non-cutting time and respecting machine kinematics and travel limits.
- SmartPATH supports controller tool-tip programming (TCP) and coordinate frames (LCS).
- SmartPATH supports positioning between controller canned cycles.
- SmartPATH does not require clearance planes or geometric safety zones to be defined.

Migrate with SmartPATH!



Head / Head

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