Case Study

Innoptus Solar Team

Highlights

- Installed and trained remotely within two days
- Second machine installed and configured remotely within 2 days
- Can import CAD files and generate highly optimised nest within 3 minutes
- Plies can be mirrored or rotated easily
- Easy bi-directional ply identification
- JETCAM University provides online video library support

The Innoptus Solar Team, originally founded as Umicore Solar Team in 2003, operates as a non-profit student initiative comprised of 20 full-time volunteers, all engineering students at KU Leuven. Every two years they apply their skills by building a solar-powered vehicle to participate in the Bridgestone World Solar Challenge, a formidable race stretching across 3022 km of the Australian outback. Outside this competition, the team competes in other races located in Abu Dhabi, Chile, and South Africa.

The Challenge

The Innoptus Solar Team uses cutting machines at their production partners: Indupol and Sabca, cutting carbon fibre prepreg and foam core material with CNC knife cutters, as well as kevlar honeycomb board on a waterjet.

The previous nesting software was difficult and slow to use, so they decided to search for a quicker and more efficient solution. The aim was to simplify the process of importing DXFs from their AutoCAD design software, and then creating nests optimised for material efficiency that could be used on cutters at either facility, each of which had different configuration settings such as cutting table size.

The Solution

The team selected JETCAM Expert along with JETCAM Orders Controller (JOC). JETCAM Expert allowed for in-depth editing of plies or nests if required, while JETCAM Orders Controller delivered automation via a simple drag and drop interface. This allowed the team to move from CAD files to a highly optimised nest file in a matter of minutes. A spokesperson for the team said, "For our low volume prototype production, it was a major advantage that we could quickly adjust the size of the material to utilize scraps for cutting smaller components."

Installation and training were provided remotely and took just a couple of days,

JETCAM FOR TOTAL AUTOMATION

Software: JETCAM Expert Premium
Free Form High Performance Nesting
JETCAM Orders Controller Lite

Machines: Gerber GT CNC Knife Cutter
Gerber DCS CNC Knife Cutter
CNC Waterjet (brand unspecified)

Evaluation

Following the switch, the team noticed several benefits immediately. The transformation from a collection of single DXF files to a fully nested composite part, with output either in DXF or G-code for the relevant cutting machine, took less than three minutes. The software also provided on-screen bi-directional ply identification, and automatically generated a PDF with ply locations on the cutting beds. This allowed the operator to easily identify and select the correct ply for kitting.

With JETCAM Orders Controller in place, they enjoyed a much easier interface for processing large quantities of DXF files for nesting, saving considerable time and effort. Plies could also be quickly mirrored or rotated if required, a task that was much faster in JOC than performing it manually, ply per ply, in AutoCAD.

The Innoptus Solar Team were delighted with the support from JETCAM during the initial installation and during the 2023 car build project. They were able to quickly connect with JETCAM support

engineers for assistance. During the project, another postprocessor was required to drive a different CNC knife cutter, which was installed remotely and fully configured within a couple of days.

The team also benefited from the JETCAM University – an online free resource for all customers with over 600 tutorial videos – to find and learn specific features of both products, making the learning process smooth and efficient.

JETCAM exceeded expectations in its ease of use, making prototype production a more streamlined process. The Innoptus Solar Team highlighted the remarkable ease of use, material efficiency and top-notch support as key benefits of selecting JETCAM. They believe that the decision to choose JETCAM has led to phenomenal benefits for their operations and will continue to do so for future car builds.