

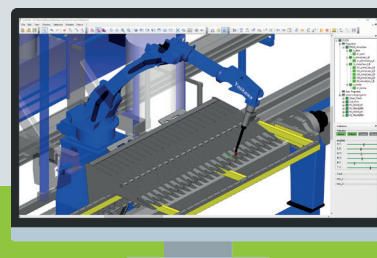
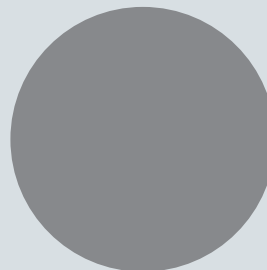
Offline programming software for arc-welding robots

Almacam Weld, dedicated to the offline programming of arc-welding robots, allows you to optimize the utilization rate of your welding robots resulting in increased flexibility and improved productivity. A precursor over the past 20 years, Almacam Weld is now the leading solution in the field of arc-welding robot offline programming.

Through a graphic interface, Almacam Weld allows you to program a robot from a virtual scene and simulate its movements. The assemblies to weld, together with the tooling, are imported from a 3D CAD system.

Almacam Weld combines welder know-how together with programming and simulation tools that allow you to create programs in optimal conditions, and even to validate the design of a tooling or to study a cell set-up. Thanks to Almacam Weld you can generate programs that will require no further touch-ups in the workshop.

A post-processor specifically adapted to the controller generates the programs prepared with Almacam Weld in all the robot languages. The cell calibration and customization of the post-processor make it possible to integrate all the robot self-correction functions (shifting of trajectories via sensing or joint follow-up, laser camera, etc.). Almacam Weld also manages multi-robot cells.



➔ Advantages and benefits

- ✓ Improved productivity thanks to offline programming.
- ✓ Much faster than programming by teaching.
- ✓ Possibility to immediately start programming after creating the virtual models of assemblies to weld.
- ✓ Automatic research of the robot trajectories for collision avoidance.
- ✓ Complete simulation with the whole cell to ensure the feasibility in terms of design and production.
- ✓ Improved welding quality thanks to the integration and repeatability of all the welding parameters (torch angles, stick out, etc.)
- ✓ Reduction of programming cycle for similar parts thanks to the duplication and the automatic transfer of welding programs.
- ✓ Management of shifting of trajectories via sensing of wire and nozzle, joint follow-up, laser camera, etc.
- ✓ Improved working conditions and increased safety.

→ Welding task definition

- Selection of welding trajectories with automatic recognition of the geometry from part or assembly edges.
- Torch angles, wire length and welding speed at characteristic points.
- Welding parameters (current and weaving) at characteristic points.
- Multi-pass seams.
- Stitch welding.
- Sequencing of weld beads.
- Copy of welding parameters (reproducing welding parameters specification: WPS).

→ Welding program creation

- Generation of a program based on the defined welding task.
- Generation of sensing sequences to reposition the seams.
- Automatic selection of the robot cell configuration in order to find a valid robot position with no risk of collision nor singularity (analyzes & identifies path characteristics analyzed to automatically determine & configure an ideal external axis solution to make the part reachable with an automatic resolution of singularity, collision, joint and reach limit issues).
- Copy and symmetry of a welding program within a same part.
- Automatic transfer of a welding program from a template part to a similar part with different dimensions.
- Program transfer between several stations.
- Moving the program points using a "3D mover" tool.
- Detection of collisions on the complete model of the installation (part, tooling and machine).
- Realistic program simulation integrating the robot features (speed, acceleration and specific points) and calculation of the cycle time.
- Multi-robot programming (continuous synchronization between the movements of several robots and external axes).
- Automatic generation of collision-free trajectories to the seams.
- Management of tool grasp and ungrasp (for example: change of torch or ungrasp of a camera).
- Sub-program calls (wire-cutting, torch cleaning and other customized programs).
- Program updating between the controller and the software (limited to some robot brands).

→ Calibration

- Repositioning the part according to the robot requirements.
- Robot cell calibration task to be completed by Alma during on-site software installation and launching (the virtual cell characteristics are updated according to the actual cell ones).

→ 3D-CAD model import and modeling

- Import of parts and tooling in IGES, Parasolid and STEP formats.
- Import of native 3D models in option (Catia® v4/v5/v6, Inventor®, Solid Edge, SOLIDWORKS®, Creo®, SAT/ACIS®).
- Complete modelling of the cell and its environment
- Taking into account the cell cinematics (speed, acceleration, singular points).
- Object positionning with constraints.
- 3D object library (robots, positionners, torchs, etc.)

→ Miscellaneous

- Generation of a workshop document containing all the information related to the welding program (bead length, cycle time, etc.)
- Operation with single or floating licences.
- Integrated Visual Basic® programming language for specific macro development.

