

ACT/CUT FOR YARDS

The CAM solution for cutting in the offshore and ship industries







WORLD- CLASS NESTING SOLUTION

As part of our SmartMarine® Enterprise and the SmartPlant® Alliance program, Intergraph® offers a tight integration between the world-class nesting solution of Alma, called act/cut, and our SmartMarine 3D solution. This solution optimizes material usage within the offshore and shipbuilding industries from design to production by offering advanced automatic nesting capabilities, as well as user-friendly interfaces.

Sheet metal cutting is a key link in the yard's manufacturing process. It can become either a bottleneck hampering the whole production, or a huge productivity and profit booster.

To be really efficient, the programming system for sheet metal cutting machines must perfectly answer yard necessities. It must:

- Manage the plasma cutting and oxy-cutting technologies as well as all the specific processes used in the marine industry.
- Fit in a continuous workflow from product design (CAD-PLM systems), to the production management and ERPs and to the manufacturing process (machines).
- Reduce to a minimum the necessary preparation and production kickoff time as well as the machine's cycle time.
- Contribute to maximizing material use by optimizing nesting.

Thanks to its unequalled expertise of sheet metal CAM and to its 30-year shipbuilding industrial experience, Alma is fully equipped to deal with these criteria. The act/cut for yards solution is an unrivaled source of productivity for all yards integrating sheet metal cutting and marking.

A SOLUTION PERFECTLY ADAPTED TO PLASMA CUTTING AND OXY-CUTTING WITHIN YARDS

- Strong performance of automatic nesting for a single torch, thanks to the six powerful computation algorithms which work in combination to calculate the best result.
- Multi-torch nesting available either in automatic or interactive mode (with the calculation of the smallest possible gap between the torches, smaller than the height of parts which may be embedded with themselves), including numerous multi-torch nesting strategies according to machine capacities and to production needs.

- Management of symmetrical dual sheet cutting.
- Management of programmable bevel heads, automatically preparing the program: computing the pass sequence and offsets, automatically generating the reconfiguration loops and overall profile to take into account the maximum bulk of the part in the nesting, assigning cutting conditions according to the material, thickness, and bevel angle combination.
- Sheet thermal deformations are taken into account thanks to various features: parts cut out in several passes, specific sequences destined to spread the heat on the sheet ...
- The number of piercings can be limited in several ways: continuous cutting, chain cutting, common cut between two parts.
- Skeleton cutting to facilitate the evacuation of the remnant.
- Optimized management of remnant sheets and off-cuts of any shape.
- Management of all the processes that can be combined with oxy-cutting and plasma cutting: piercing systems, marking systems (zinc powder, needle, stylus, alphanumeric marking by ink jet or plasma, etc.), sanding systems ...
- Management of the tags required to hold cut out doors to the sheet.
- Height control management during cutting (beveled or straight).
- Lower face machining, if any, such as markings.
- Piloting specific machines (Esab plane panels, Messer ...), pseudo parallel cut ...
- NC files automatic generation (post-processing) according to the machine's capabilities (maximum thickness, bevels availability, etc.).

BENEFITS AND KEY FEATURES

- A complete, craft-oriented solution for cutting machine programming (plasma, oxy-cutting ...).
- Integration of all shipbuilding-specific functions: bevel cutting management, symmetrical dual sheet cutting, management of the various marking and sanding processes, marking of alphanumeric texts, etc.
- Integrated powerful optimization tools (nesting, tool path calculation).
- A peerless, highly capable, nesting module (flexible, fast, efficient).
- Full management of off-cut and remnant sheets.
- Full automation capabilities.
- Integration with CAD-PLM systems and more specifically with SmartMarine 3D. It fully manages geometrical file extraction and part preparation before machining: removal of lower face markings, automatic marking of the chamfers along the edges, automatic marking of part reference, repositioning of misplaced texts ...
- Integration with ERP: management of parts to produce, sheet and remnant sheet management, automatic creation of launching orders according to the machines' characteristics, forwarding of management data regarding cutting operations.
- Software organization similar to yard organization (working block by block, management of identical ships, naming conventions of NC files ...).
- Pre-nesting option to optimize sheet purchase according to nesting results.
- An open and customizable system (data import/export, workshop documents ...).
- Possible integration of other cutting or machining processes (bar cutting, robotized welding ...).



AN INTEGRATED PROCESS BETWEEN CAD, PRODUCTION MANAGEMENT, AND SHEET METAL CUTTING

act/cut for shipyards

INTERGRAPH SmartMarine Enterprise

3D models

2D file:
DXF, DWG

3D Interface

2D Interface

DPR files



Operations at the part level
(tooling assignment...) if required
or if the part properties are not
transferred through the neutral file

Production Mgt System

Stock list

Production
data list

act/manager

Import & mapping
functions

Manufacturing
orders

Automatic generation of launching orders



Nesting



Marking/cutting sequence

Closing - Order & stock updating
(produced parts, used plates and
generated remnants)

Feedback:
produced parts, used
plates and remnants
generated

NC code



NC code generation & workshop document edition

Transfer to the machines & cutting







WHY CHOOSE ALMA'S SOLUTION FOR YARDS?

The most productive CAM cutting solution:

- Optimizing the machines' technological potential.
- Reducing preparation and programming times.
- Saving material.
- Reducing cycle times and increasing the machines' productivity.
- Reducing costs related to machine consumables.
- Increasing the quality of produced parts.
- Improving workshop organization.
- Improving production response time.

Alma, an alliance of craft expertise and close partnership with its clients:

- Unrivalled expertise of CAM for cutting, in-depth knowledge of the cutting craft and of all technological processes used in yards.
- Nearly 30 years of experience within the marine industry.
- Established partnerships with strategic yard suppliers (CAD-PLM software developers, ERP solutions integrators, design and studies subcontractor service machine manufacturers ...).
- Quality-driven technical partnership built to last, from draft specifications to post-installation support.
- Close ties with clients thanks to a strong international presence (subsidiaries and dedicated distributors, such as Intergraph).





ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data to make processes and infrastructure better, safer, and smarter. The company's software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph PP&M provides enterprise engineering software for the design, construction, operation, and data management of plants, ships, and offshore facilities. Intergraph SG&I provides geospatially powered solutions to the public safety and security, defense and intelligence, government, transportation, photogrammetry, and utilities and communications industries. Intergraph Government Solutions (IGS) is an independent subsidiary for SG&I's U.S. federal and classified business.

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