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THE LASER SOLUTION

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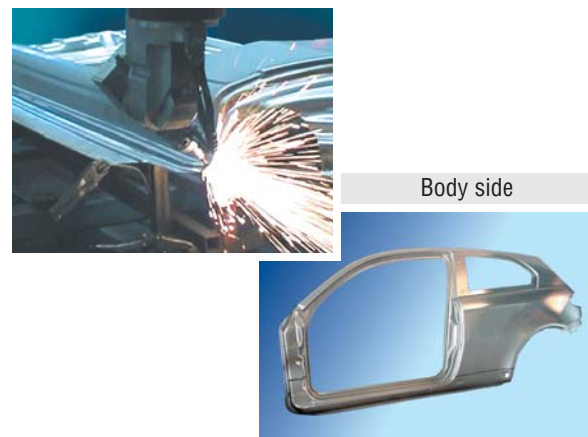


RELIABILITY AND PRODUCTIVITY

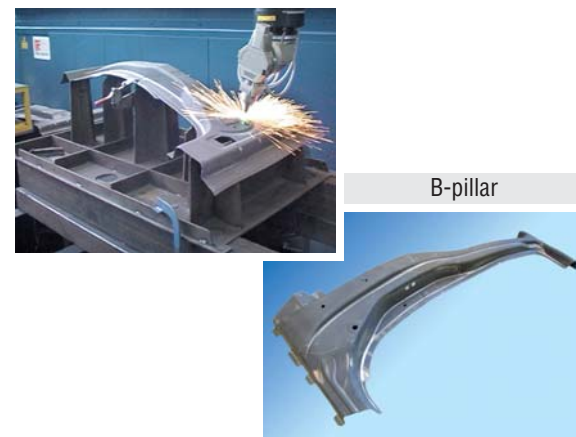
For many years the ideal tool for prototyping and low volume production, RAPIDO, in its latest renewed and enhanced version, has today become the perfect solution for mass production as well. RAPIDO machines are now being used all around the world 7 days a week, 24 hours a day to manufacture series parts in the harshest industrial environment with the highest reliability and quality standards. All parts shown in these pages are currently being processed by first class manufacturers, OEMs and job shops with astonishing cycle times, sometimes in fractions of a minute.



Mass production of hot formed steel parts



Body side



B-pillar

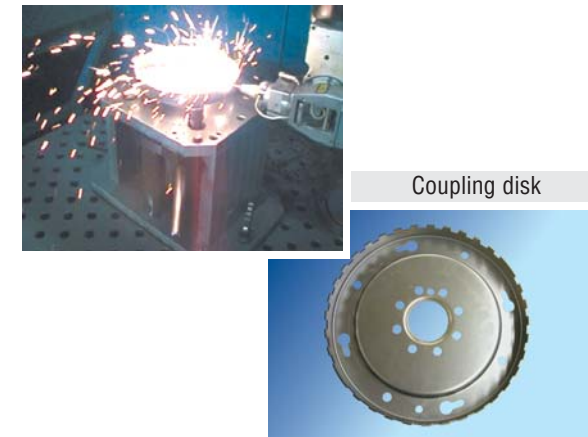


Roof reinforcement

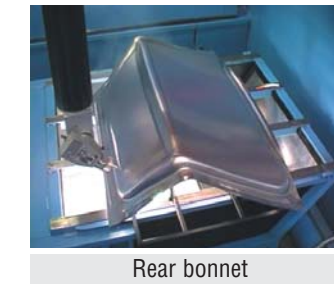


Bumper

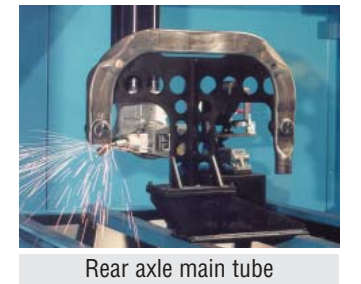
IN A WORLD OF APPLICATION



Coupling disk



Rear bonnet



Rear axle main tube



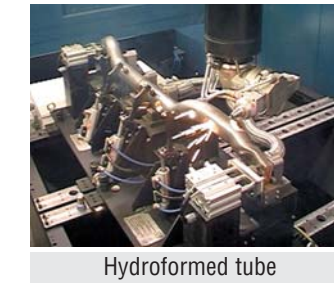
Bonnet frame



A-pillar



Water pump



Hydroformed tube



Side door



Food industry component



Gas turbine transition duct



Reflector



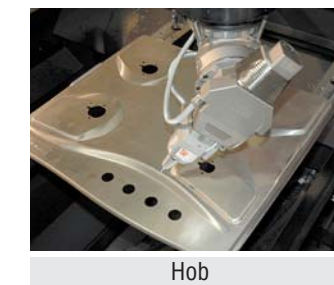
Front fender



Tonneau



Engine protection



Hob



Fitness equipment

SPEED AND ACCESSIBILITY



So many good reasons to choose RAPIDO

- > Designed for the production environment: high productivity, great reliability, user-friendliness, low and easy maintenance
- > Direct drive motors and transducers: best precision and dynamics available on the market
- > Large work volume with reduced footprint
- > Transport with no need of disassembly and simple and quick installation (no foundations)
- > Structure and carriages of the machine with very high rigidity
- > Great accessibility and maximum freedom of configuration
- > Application flexibility: from cutting to welding in an easy and immediate way
- > Long-lasting experience in the widest range of applications
- > Highly efficient after sales: application studies, personalized training courses, Teleservice and Customer assistance, preventive maintenance contracts and spares delivery

IN A COMPACT MACHINE

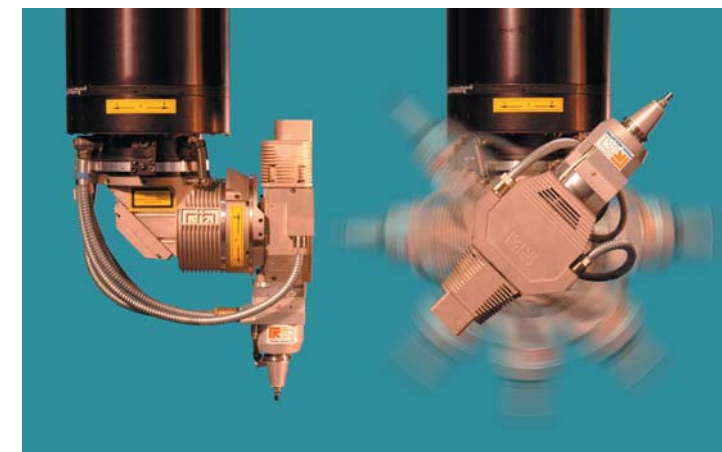


MACHINE

- Mobile optics: accuracy and speed are independent of the weight and size of components to be worked.
- Monolithic structure: laser, CNC and electromechanics in a compact single unit.
- Overhead retractable arm, cantilever, no sagging.

NUMERICAL CONTROL

- Developed and produced by PRIMA ELECTRONICS.
- Windows™ operating system, simple and intuitive interface, flat touch screen.
- High performances, advanced control algorithms, technological tables on board.



FOCUSING HEAD

- Direct motors without gears: high dynamics, great accuracy, no backlash.
- Minimum encumbrance and excellent penetrability.
- Two rotations, A: 360° continuous and indefinite rotations, B $\pm 135^\circ$.
- C axis (± 10 mm) with very high dynamics (4 g) maintains workpiece surface stand off distance.
- Double safety joint: in case of collision the nozzle and/or the whole head collapse. Quick and simple repositioning.
- Quick tool change with high repositioning accuracy.
- Fully metallic capacitive sensor.



CABIN AND SAFETIES

- "Standard cabin": with big automatic doors and large windows giving total accessibility for programming, handling of workpieces or fixtures and still allowing visibility of the process with doors closed.
- "Mass production cabin": with minimum floor encumbrance, automatic load/unload systems, video monitor process control, optimized scrap collection and fumes exhaust.

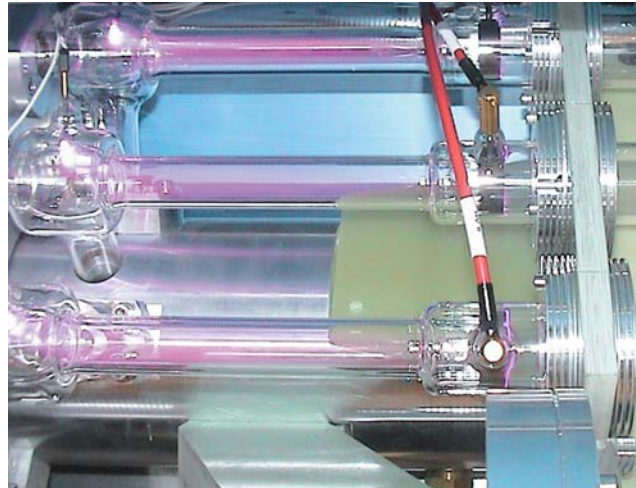
FLEXIBILITY AND USER-FRIENDLINESS

HIGH QUALITY AND VERSATILE LASERS

Depending on the application, RAPIDO can be supplied with fast axial flow or slab CO₂ lasers, with different power levels and characteristics (from 2500 W to 5000 W).

Laser generators are fitted within the machine frame, as a stable part of its structure.

All of them feature high versatility and efficiency and low running costs.



NO-IDLE-TIME PRODUCTION

With the Split Cabin option the machine volume and the cabin are split into two halves, so as the machine works in one half, the pieces may be handled in the other one: it really makes the difference in mass production.

The partition wall can be slid to one side to recover the whole working volume.



FLEXIBILITY WITH NO OPTICS SET UP

The Focal Position Control (FPC) grants the highest quality and flexibility in production.

It automatically manages the focus position according to the specific application and controls the process in the whole working volume.

- No changes of set up necessary to alternate materials and thickness.
- High and uniform cutting quality.

FROM CUTTING TO WELDING

Thanks to the rapid tool change system, the standard 5" cutting head can be easily reconfigured for the required applications:

- 7.5" cutting kit;
- Hands-Off-Welding (HOW) or Gas-Assisted-Welding (with nozzle) tools: 200 or 300 mm parabolic mirrors;
- wire feeder.



IN A WIDE RANGE OF OPTIONS

EFFICIENT WORKPIECE SUPPORT AND EXCHANGE

- Twin tables for three-dimensional components with scrap collecting drawers.
- Automatic turntable for a fast workpiece exchange during production.
- Automatic fixtures predisposition.



SPEED UP THE PROCESS

- The Fast Approach function allows the machine to get close to the workpiece at the maximum speed (15-20% cycle time reduction);
- the (optional) Laser Piercing Monitor (LPM) device allows a further cycle time reduction. Analysing the reflected radiation, the LPM:
 - automatically calculates the best parameters to be used for the piercing process;
 - immediately starts cutting when the material has been pierced.



EFFECTIVE SELF-TEACH PROGRAMMING

The self-teach programming is made by means of an easy and ergonomic handbox with graphic interface. The complete programming can be carried out through keys and a joystick in a game console style.

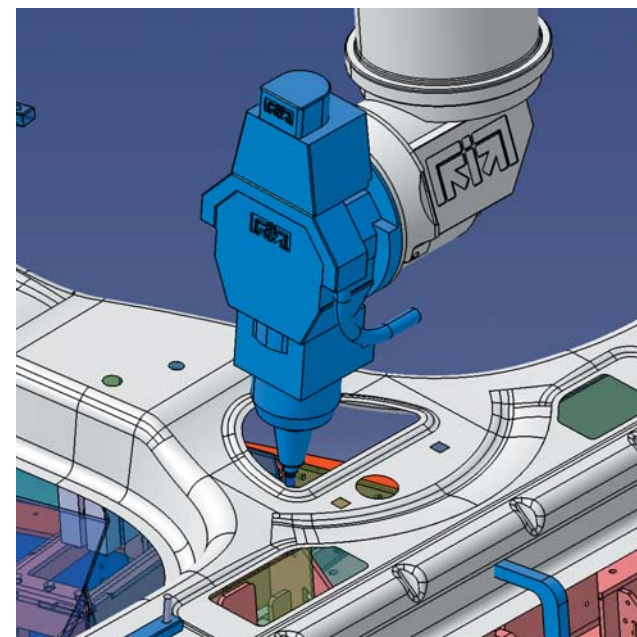
PRIMA INDUSTRIE's 3D machines feature further functions which make the programming faster, easier and more accurate: Autosquare, Skating, Fulltracking and Shapestoring are activated through the simple, ergonomic and portable handbox provided with all RAPIDO machines.

SMART OFF-LINE PROGRAMMING

More and more often RAPIDO is programmed off-line with the most advanced and powerful 3D and 2D software packages (FasTRIM CENIT, for example).

They allow an easy and quick generation of the entire cutting program starting from the mathematic model of the workpiece.

The main characteristics are: automatic management of laser parameters, realistic cutting path simulation, collision check and correction, reverse engineering, post processing and automatic jig design.



PROFITABLE SOLUTIONS

For the maximum flexibility



“Basic solution”: ample standard cabin and two fixed tables ideal for top quality subcontract work. An optional mobile partition allows to split the working volume and to alternate processing and handling flexibility safely.



“Monofrontal solution”: all the advantages of the basic solution and, instead of fixed tables, two motorized and independent shuttles (500 kg capacity each), for easier handling of workpieces and fixtures.



“Aerospace solution”: for the typical needs of the aerospace industry; with high precision CNC controlled rotary table and large 2D cutting area with automatic pallet changer.

FOR EVERY PRODUCTION NEEDS

For the maximum productivity



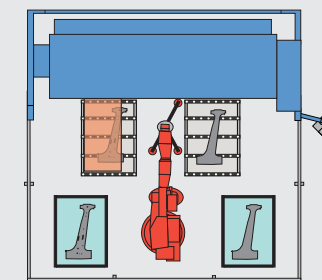
“Split cabin solution”: a partition wall splits in two the working volume. While on one side the machine is producing on the other side, the operator loads and unloads the workpiece. The cabin has a reduced floor encumbrance and is designed for maximum productivity and reliability.



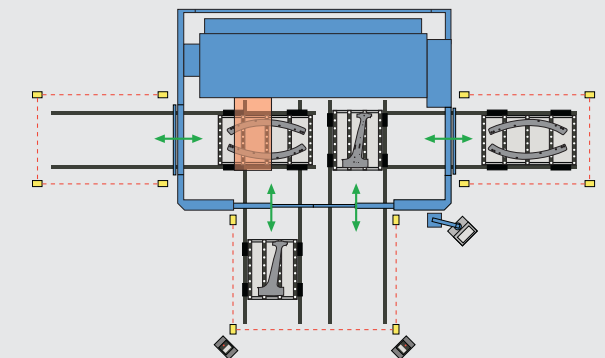
“Turntable solution”: a turntable placed in front of the machine exchanges the pieces allowing the no idle time loading/unloading. A partition divides the table area in two halves, so that while the machine is working inside the cabin, the operator may unload and reload the pieces on the external portion of the turntable. The automatic scraps conveyor is available as an option.

Customizable solutions

The large working volume and high accessibility mean that there is virtually no limit to the workpiece handling configurations. The following are a few examples:



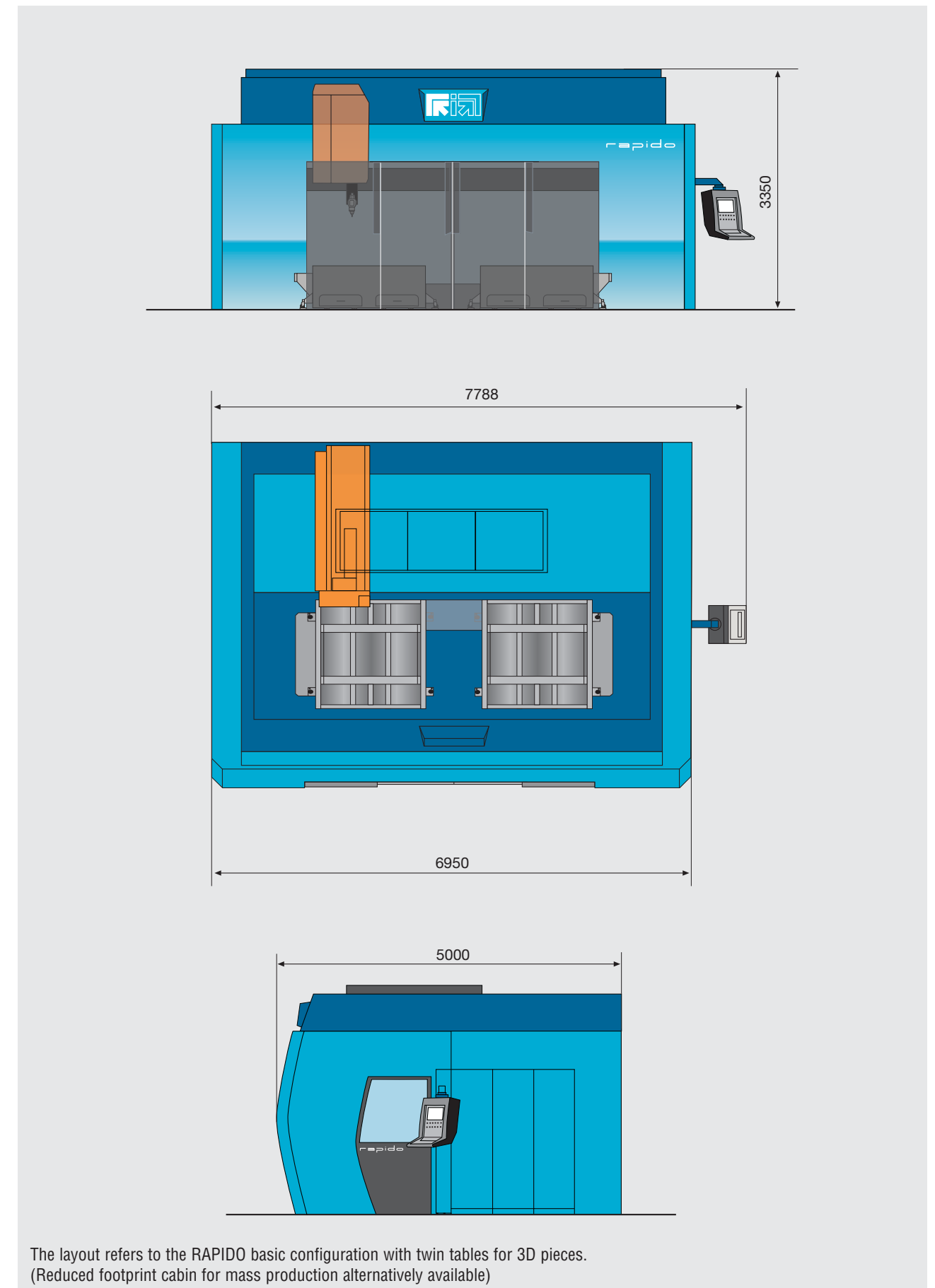
Robotized loading/unloading cell



Double frontal and side shuttles

TECHNICAL SPECIFICATIONS

Axis strokes	X mm 4080	Y mm 1530	Z mm 600/765
Rotary axes A B	360° continuous (without limitation) ± 135° continuous (with respect to the vertical)		
Adaptive axis (cutting head) C	± 10 mm		
Speed	X, Y, Z A, B	80 m/min (max. combined axes speed: 140 m/min) 1.5 rev/s	
Acceleration	X, Y, Z A, B C	0.8 g (maximum combined axes acceleration: 1.4 g) 60 rad/s ² (9.5 rev/s ²) 4 g	
Resolution	X, Y, Z A, B	0.001 mm 0.00006°	
Accuracy (*)	X, Y, Z A, B	Positioning accuracy (Pa): 0.03 mm 0.005°	Repeatability (Ps): 0.03 mm 0.005°
<small>(*) the accuracy of the piece depends on its type, size and pre-treatment, and on the conditions of application</small>			
Maximum overall dimensions <small>(excluding removable CNC and ancillaries)</small>	Length mm 6950	Width mm 5000	Height mm 3350
Weight (basic machine)	~15,000 kg		
Standard CO ₂ laser power	2500 - 5000 W		
Colours	Fixed parts: RAL 5012 - RAL 5001 Moving parts: RAL 2008		



The layout refers to the RAPIDO basic configuration with twin tables for 3D pieces.
(Reduced footprint cabin for mass production alternatively available)