

rapido



THE LASER SOLUTION



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



Rear axle main tube



Front cross member



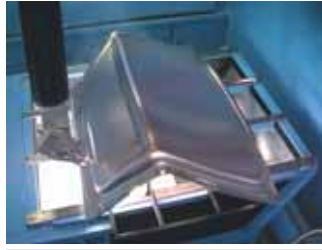
Bumper



IN A WORLD OF APPLICATION



Coupling disk



Rear bonnet



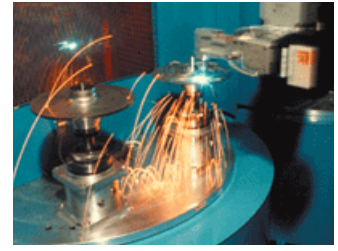
B-pillar



Bonnet frame



A-pillar



Water pump



Hydroformed tube



Side door



Food industry component



Gas turbine transition duct



Reflector



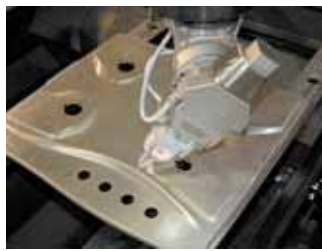
Front fender



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
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IN A COMPACT MACHINE

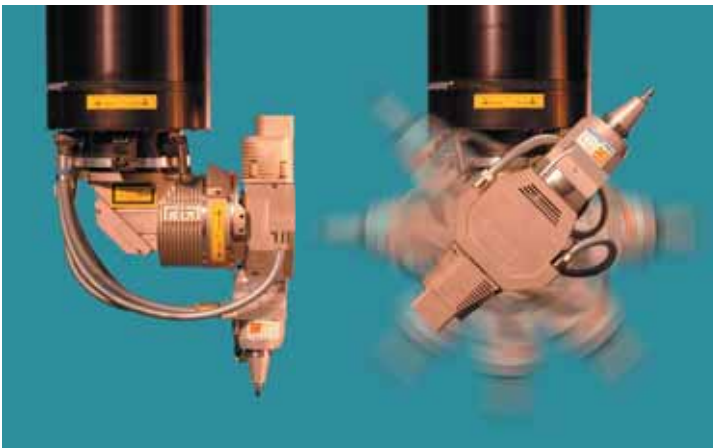


MACHINE

- 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 SAFETY

- Fully secured for maximum safety and efficient fumes extraction.
- Large, automatic, telescopic doors for optimal accessibility, programmable for the optimization of workpiece exchange times.
- Large windows with integral interlocks: excellent visibility and complete safety.

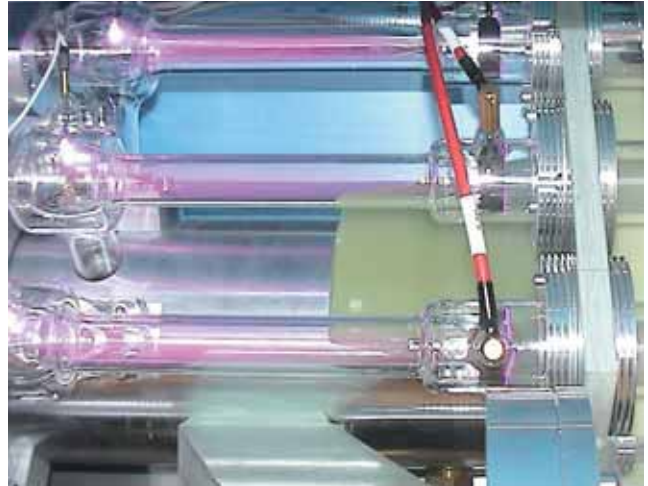
FLEXIBILITY AND USER-FRIENDLINESS

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.

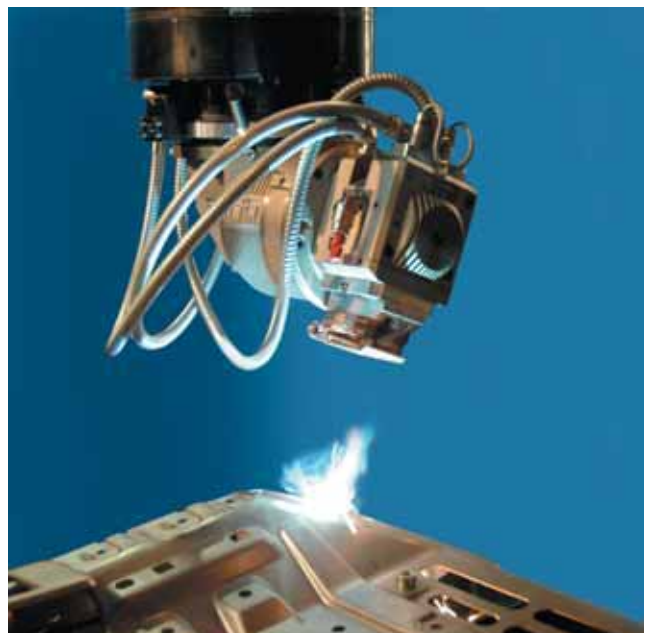
It automatically manages the focus position according to the specific application and controls the process in the whole working volume.

- 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.

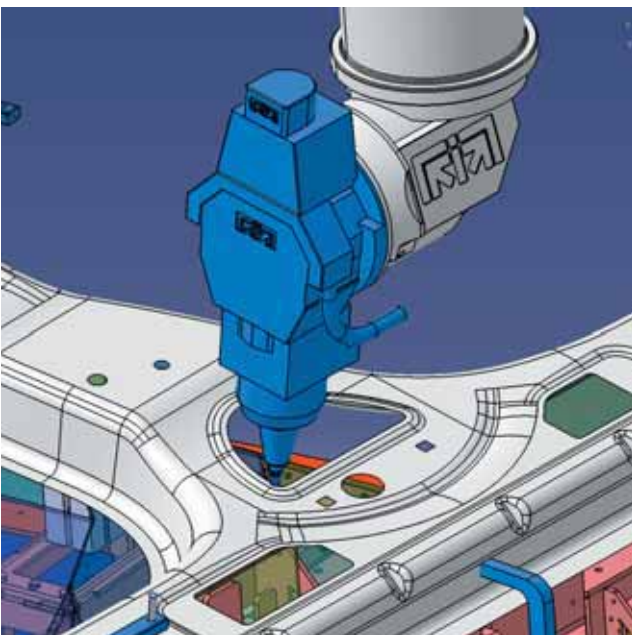
PRIMA INDUSTRIE's 3D machines feature further functions which make the programming faster, easier and more accurate: Autosquare, Skating, Fulltracking and Shapestoring are activated through the simple, ergonomic and portable handbox provided with all RAPIDO machines.

SMART OFF-LINE PROGRAMMING

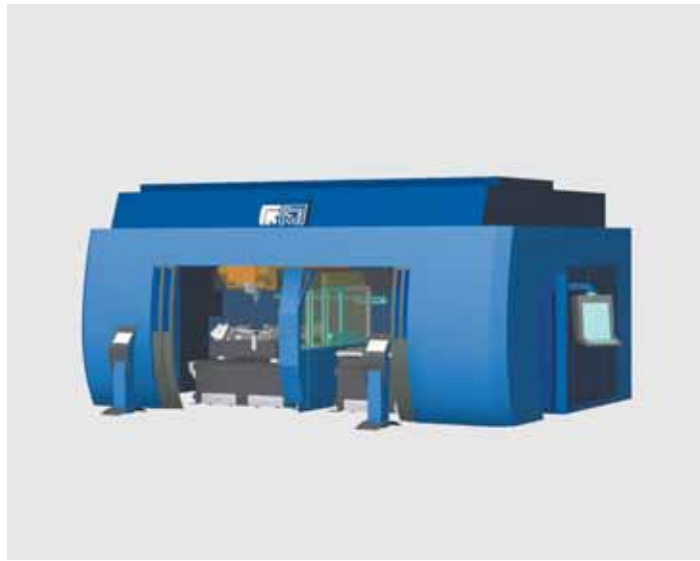
More and more often RAPIDO is programmed off-line with the most advanced and powerful 3D and 2D software packages (FasTRIM CENIT, for example).

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.



Standard solutions



Solution with Split Cabin

Two work areas, divided by a removable partition, used alternatively

Two independent automatic cabin doors

No idle time workpiece substitution

Working area:
1530 x 1725 mm each side



Solution with Turntable

Two turntable sides used alternatively

One protection baffle rotating with the table

No idle time workpiece substitution

Exchange piece timing: < 5 s



Solution with Frontal Shuttles

Two motorized independent shuttles (1500 x 1500 mm), moving along Y direction, with high position accuracy

500 kg per shuttle

Automatic cabin with two independent doors

No idle time workpiece substitution



Solution with Side Shuttles

Two motorized independent shuttles (1500 x 4000 mm), moving along X direction, with high position accuracy

1200 kg per shuttle

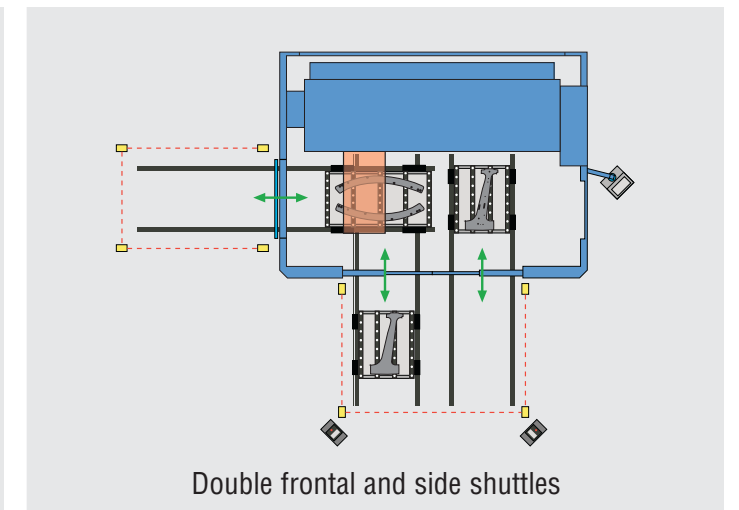
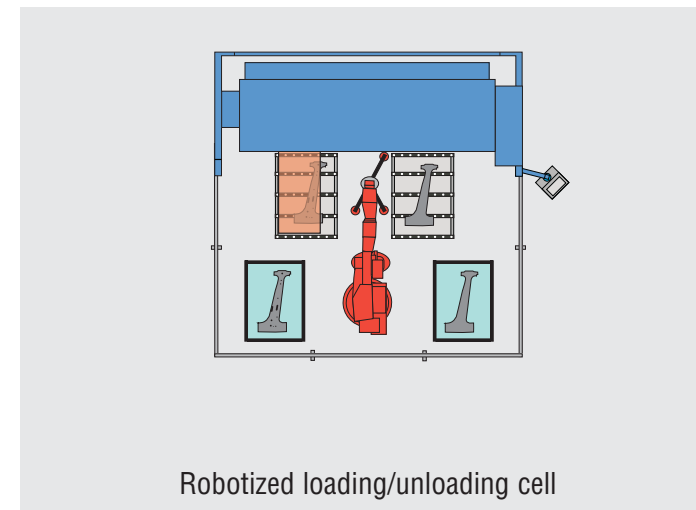
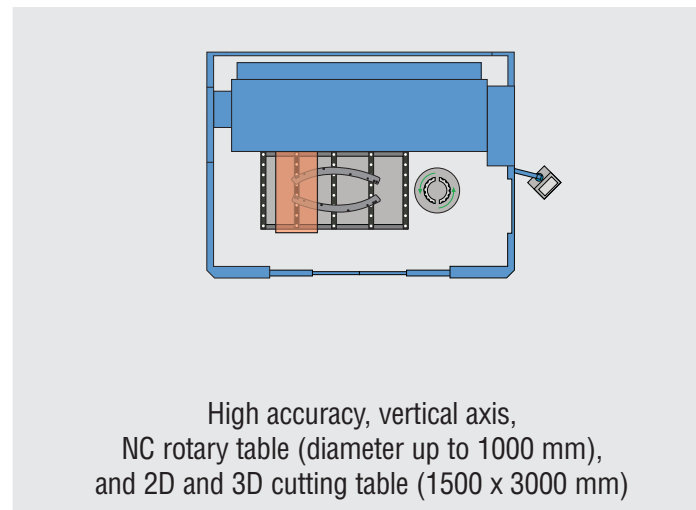
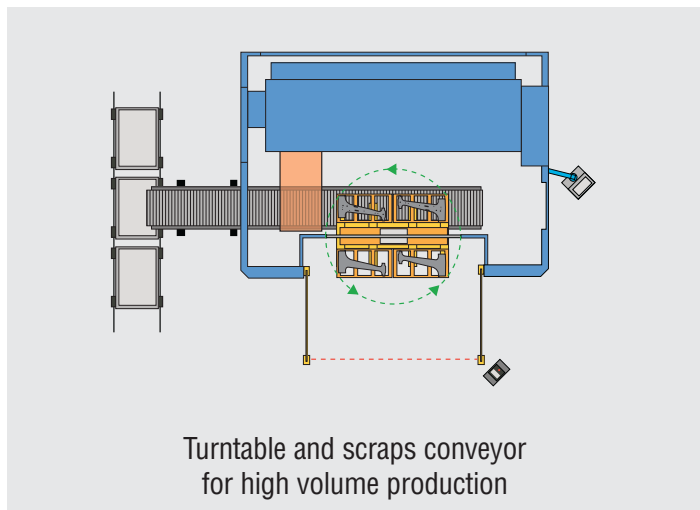
Automatic cabin with frontal and side doors

No idle time workpiece substitution

Customizable solutions

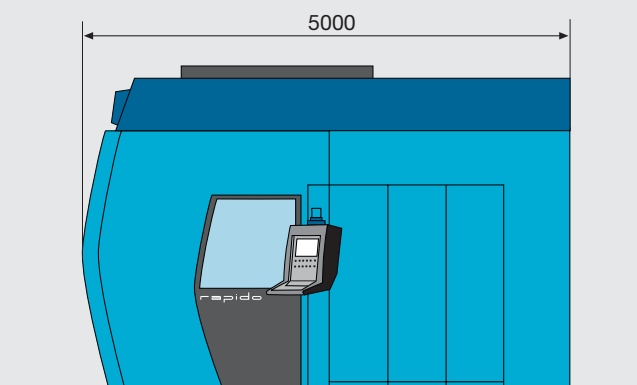
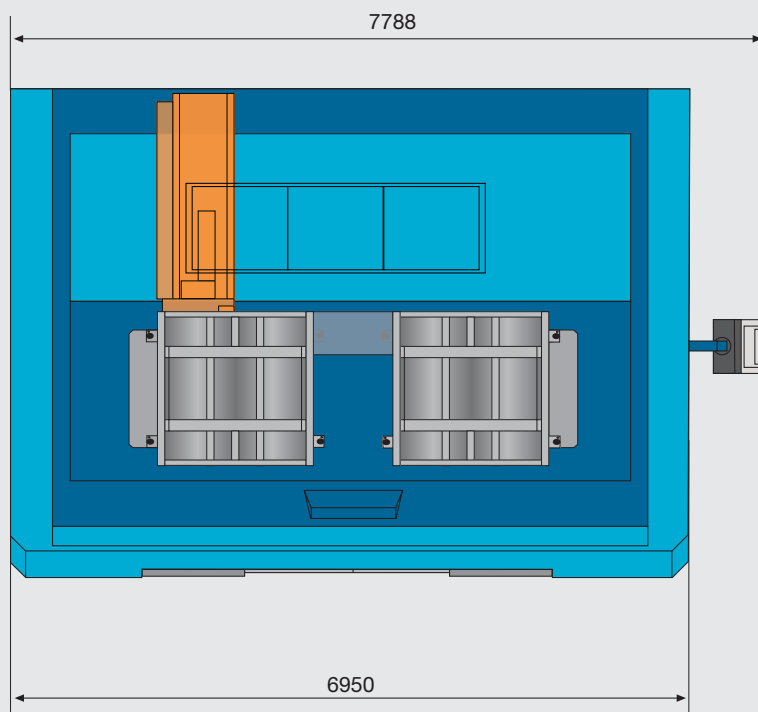
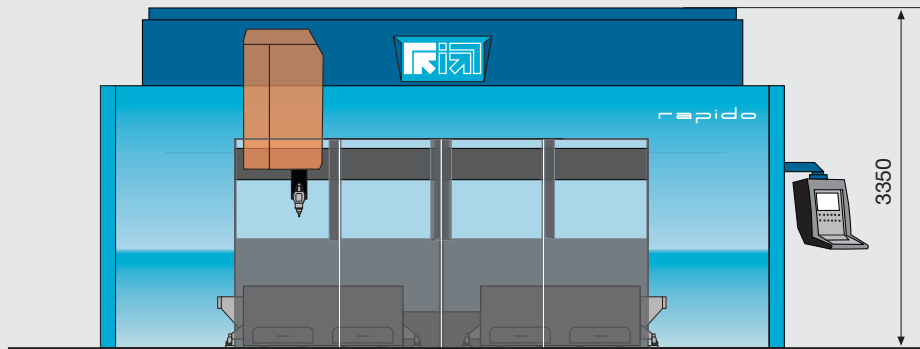
The large working volume and high accessibility mean that there is virtually

no limit to the workpiece handling configurations. The following are a few examples:



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 (*): • according to VDI/DGQ 3441 standards • measurement length: complete stroke X, Y, Z A, B (* the accuracy of the piece depends on its type, size and pre-treatment, and on the conditions of application	Positioning accuracy (Pa): 0.03 mm 0.005°		Repeatability (Ps): 0.03 mm 0.005°
Maximum overall dimensions (excluding removable CNC and ancillaries)	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.



Italy

PRIMA INDUSTRIE S.p.A. Via Antonelli, 32 - 10097 Collegno (To) ITALIA
Tel. +39.011.4103.1 - Fax +39.011.411.28.27 - www.primaindustrie.com

PRIMA ELECTRONICS S.p.A. Strada Carignano, 48/2 - 10024 Moncalieri (To) ITALIA
Tel. +39.011.682.72.11 - Fax +39.011.640.42.77 - www.primaelectronics.com

Europe

PRIMA INDUSTRIE ESPAÑA Calle Elisa 31/33 - 08023 Barcelona ESPAÑA
Tel. +34 932 531 777 - Fax +34 932 531 778

PRIMA INDUSTRIE FRANCE Parc de Courcerin - C1 Rue Lech Walésa - 77185 Lognes FRANCE
Tel. +33.(0)1.60.17.11.11 - Fax +33.(0)1.60.17.38.74

PRIMA INDUSTRIE GmbH Lise-Meitner-Straße 5
63128 Dietzenbach DEUTSCHLAND
Tel. +49 (0)6074 4070-0 - Fax +49 (0)6074 4070-111

PRIMA INDUSTRIE POLSKA Sp. z o.o. ul. Przemysłowa 25 32-083 Balice
NIP 513-014-44-09 REGON 120507826
Tel. +48 12 2577933 / 012 2577956 - Fax +48 12 2577955

PRIMA INDUSTRIE SCHWEIZ Seuzachstrasse, 42 - CH 8413 Neftenbach SCHWEIZ
Tel. +41 (0)52 315 17 21 - Fax +41 (0)52 315 24 29

PRIMA INDUSTRIE UK Ltd. Unit 1, Phoenix Park - Bayton Road
Coventry CV7 9QN UNITED KINGDOM
Tel. +44 (0)2476 645588 - Fax +44 (0)2476 645115

PRIMA SCANDINAVIA AB Mölndalsvägen, 30c - SE 412 63 Göteborg SVERIGE
Tel. +46-31 83 44 70 - Fax +46-31 83 14 75

Overseas

PRIMA North America, Inc. CONVERGENT LASERS - PRIMA SYSTEMS
711, East Main Street - Chicopee MA 01020 U.S.A.
Tel. +1/413-598-5200 - Fax +1/413-598-5201 - www.prima-na.com

PRIMA North America, Inc. LASERDYNE SYSTEMS
8600, 109th Avenue North - Champlin MN 55316 U.S.A.
Tel. +1/763-433-3700 - Fax +1/763-433-3701 - www.prima-na.com

PRIMA INDUSTRIE BEIJING COMPANY Ltd. - GUOMEN Building Rm 1M - No.1 Zuoqia Zhuang Cheoyang District
Beijing 100028 PEOPLE'S REPUBLIC OF CHINA
Tel. +86-10-64603085 - Fax +86-10-64641975

SHANGHAI UNITY PRIMA LASER MACHINERY COMPANY Ltd. 2019 Kunyang Road - Minhang District
Shanghai 201111 PEOPLE'S REPUBLIC OF CHINA
Tel. +86 21 64099321 - Fax +86 21 64093347

SHENYANG-PRIMA LASER MACHINE COMPANY Ltd. No. 17 Jia-1 Kaifa Dalu
Shenyang Economy and Technology Development Zone
Shenyang City, Lianoning Province 110041 PEOPLE'S REPUBLIC OF CHINA
Tel. +86-24-25191211 - Fax +86-24-25191212

OVL CONVERGENT LASERS Ltd. Building No. 1 Tower B, Changcheng Innovative Sci. & Tech. Park
Wuhan East Lake High Tech Development Zone
Wuhan, 430223, Hubei Province PEOPLE'S REPUBLIC OF CHINA
Tel. +86-27-87923927 8007 - Fax +86-27-87923368

SNK-PRIMA COMPANY Ltd. c/o SNK - Misaki Works 3513-1 Fuke Misaki-Cho, Sennan-Gun, Osaka JAPAN
Tel. +81-3-32720371 - Fax +81-3-32788077



PRIMA INDUSTRIE S.p.A.



ISO 9001 - Cert. n° 0758/2