

Redefining
**Robotic
Laser Cutting**

Original Laser by Shape



Shape Process
Automation

SHAPE TECHNOLOGIES GROUP®

Solutions

We have developed unique automated 3D laser cutting solutions with standard industrial robots for cutting and trimming metal and plastic parts. Our machines are equipped with one, two, three or more robots depending on the required cycle time, each with a cutting head, and operate simultaneously with extreme speed and path accuracy.

Multiple sources of laser power offers balanced loading and unloading times during the laser processing cycle and reduces the floor space requirements and the number of fixtures.

We partner with industry-leading suppliers for laser heads and robots to meet your manufacturing needs.

Original Laser T-series

The Turntable series (T-series) includes three different solutions:

- Single wall, indexing table, 2 workstations
- Single wall, indexing table, 3 workstations
- Dual wall, 2 indexing tables, 2 workstations each

Standard T-series solutions have one indexing table with two workstations. Parts are loaded and unloaded manually or automatically at the first station, with the second station dedicated to laser cutting with one, two or three robots equipped with laser cutting heads. This all takes place in a space roughly the size of a conventional CNC laser machine.

The 3-workstation design use the same method but with one 3-winged wall and three workstations that rotate the part into the laser cell with three positions at 120-degree intervals on each table.

Dual wall laser solutions have two indexing tables with two workstations on each offering zero downtime fixture changes. This system guarantees continuous operation by allowing tool changes to be scheduled on one side while production continues on the other side.

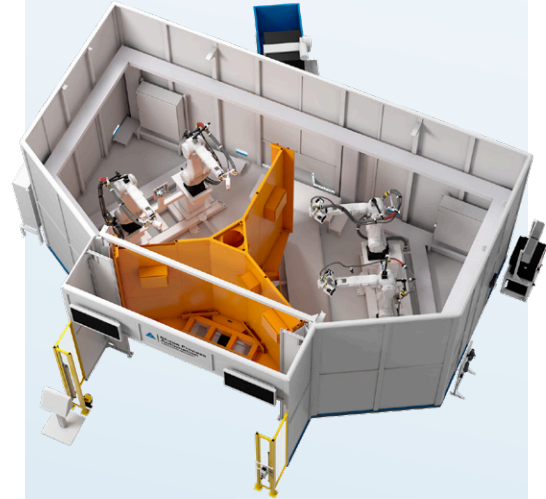
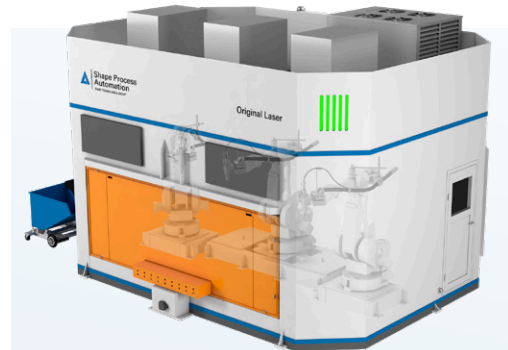
All our robotic laser cutting systems are equipped with laser heads, laser source, fume exhaust and scrap removal systems.

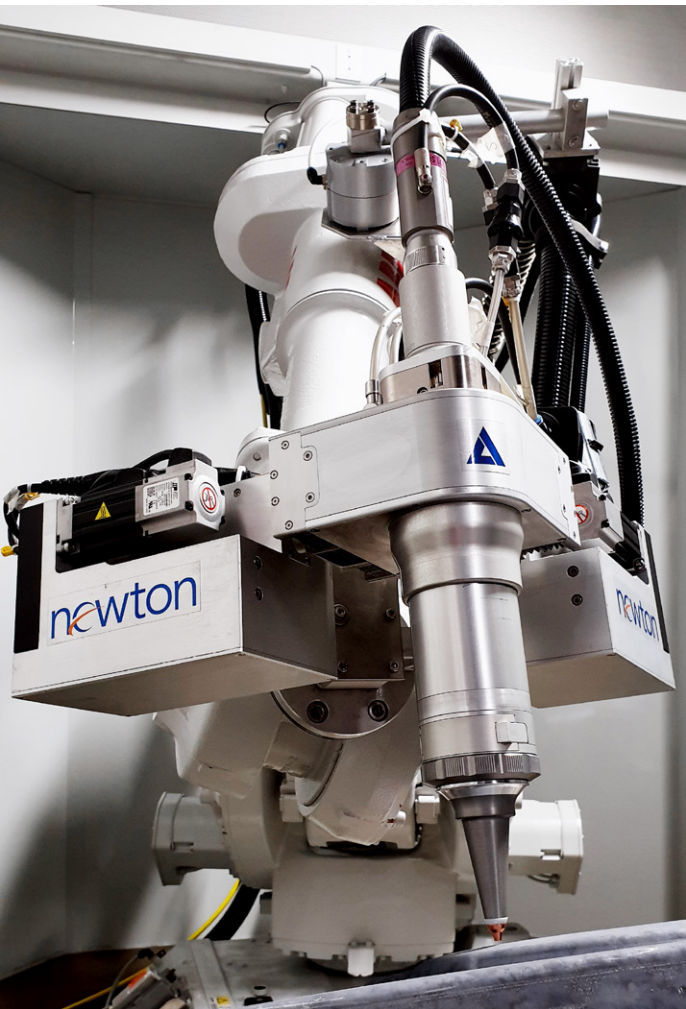
Original Laser L-series

The Line series (L-series) is a line concept developed for high-volume and/or large parts. It is ideal for integration in an automated production line, offering high throughput and a single part path.

The system can also operate as standalone with manual handling.

A quality control system can be added to the L-series, in addition to handling robots.



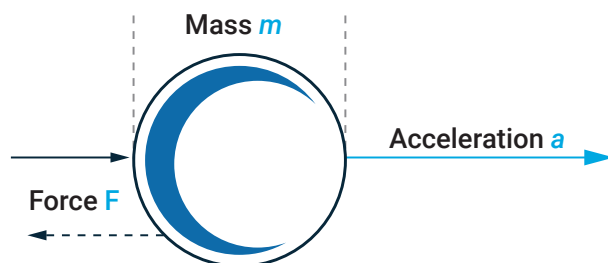


NEWTON® laser cutting head

NEWTON® is the latest step in Shape Process Automation's journey to the next generation of robotic laser cutting. This breakthrough technology solves decades-old robotic laser cutting issues and allows the Body in White automotive industry to cut costs while improving quality. The NEWTON® head is a robot-mounted, 2-axis shape-cutting device that offers path accuracy down to ± 0.05 mm within a 30×30 mm square operating range.

The device is also capable of fast laser hole cutting in 0.3 sec. for standard sized features.

This technology enables fibre laser 6-axis robotics to achieve unprecedented cutting speeds and dimensional accuracy on metal, including press-hardened and hydroformed steel, aluminium, and plastic parts. NEWTON® technology reduces capital costs and increases part throughput and dimensional quality compared to traditional robotic laser cutting processes. Its capabilities outstrip the benefits of CNC laser machines compared to robotic cells for cutting 3D automotive components. The cycle time reduction compared to a typical 6-axis cutting robot is nearly 70 percent.



$$F = m \times a$$

newton

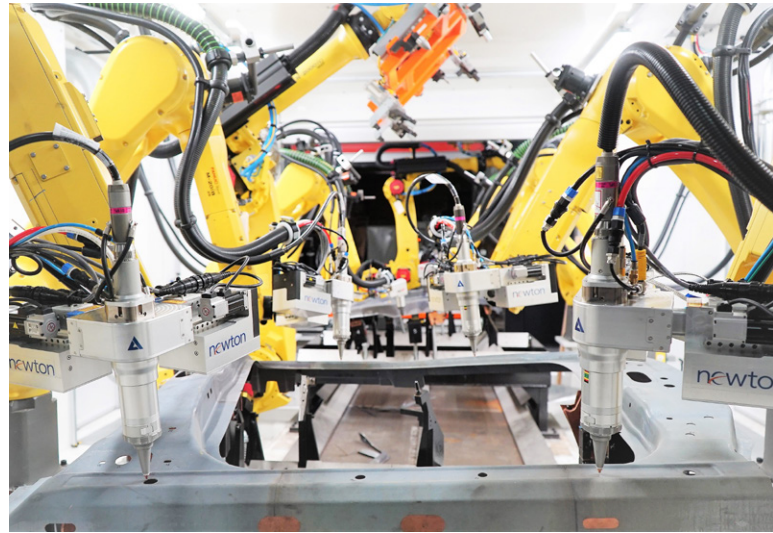
- Decreases capital
- Decreases floor space
- Increases OEE
- Increases Cpk
- Intuitive process tools

NEWTON® vs Robot Articulation

FEATURE	CUTTING TIME REDUCTION
Circle	60%
Slot	75%
Rectangle	69%
Hex	72%

Advanced software package

Our integrated laser solutions are designed to take the complexity out of your manufacturing – and that includes programming your system. Our comprehensive software suite reduces cycle times without impacting quality, decreases heat affected zones and dross, reduces restart times, performs quality inspections and even adjusts individual features or part sections. Programming is easy for all robot users. Technicians no longer need to make touch-ups; automatic TCP calibration tools ensure accurate, repeatable robot calibration with a touch of a button.



Original Laser L-series



Custom and turnkey solutions

We understand the unique complexity of the manufacturing industry and the need to quickly deliver precision parts. Our team of experts will supply the optimal laser cutting solution to integrate into your operations.

We start by analysing your parts' shape, material, thickness and expected variation to select the right laser processing equipment. By also analysing your broader manufacturing needs, such as floor space, operator utilisation and quality control, we ensure that the SPA solution offers overall program cost savings compared to competitor systems.

Our cost model offers savings across the entire industry, a fact already demonstrated for some of the biggest players in the automotive industry.

Customer Solution Centre

We can laser cut your parts at our Customer Solution Centre, which enables us to qualify cycle times, confirm cut quality and even perform short production runs.

General technical specification* – Standard laser cells

Available laser sources	Fiber 1–4kW; CO ₂ 100W–3000W Trumpf, other brands	Fixture interface	SPA standard or “CNC” standard
Cutting heads	NEWTON®, Laser Mech FiberCut®	Loading and unloading	Manually, automatically, semi automatically
Number of cutting heads per machine	1 to 6	Scrap removal	Magnetic and non-magnetic conveyor or scrap box
Number of robots per machine	1 to 6	Control system	Siemens, Allen-Bradley, Rockwell
Robot type	6-axis standard ABB or Fanuc	Programming	Offline programming
Cutting speed	up 400 mm/s	Safety	Light Guards, Safety Fences
Positioning accuracy	0.03 mm	Available technologies	Cutting, welding, small assemblies
Turn table Dia.	4000 mm	Footprint	Approx. size for laser cell with: 3 IRB + 3 Laser sources is 9400 × 7700 mm
Max. Payload of turn table	300 kg per table station		
No of stations on turn table	2; 3		

* General technical specification is subject to change

Flexibility

One robotic laser cell can easily replace a few CNC machines, while an inline series of robots offers high throughput capacities and a single part path. Robotic laser cell architecture allows for a higher degree of automation, e.g. loading and unloading, combining follow-on processes such as simple assembly, e.g. rivets, nuts, etc. or direct supply of welding lines.

Who we are

With over 30 years of experience Shape Process Automation (SPA) has been helping manufacturers around the world improve their operations through automation, technology and process developments. From industry giants to groundbreaking pioneers, we drive performance, process and profits to new levels, improving production before your part hits the workshop, right on through to final delivery.

Inspired by challenges. Passionate about solutions.

We have decades of experience in designing new technology, building the most efficient manufacturing lines, processing a wide variety of materials using diverse technologies and solving customer

challenges. We pursue every challenge with the same commitment to excellence, whether it originates from our business or yours.

We push the limits of robotics thanks to our highly experienced, motivated and innovative teams. They are on hand to solve your challenges by developing robotic cutting solutions that are fast, precise, efficient and easy to apply and operate 24/7.

But what really makes us stand out is our genuine, unwavering commitment to you throughout the life cycle of your equipment and technology needs. We build strong, lasting partnerships, working together to determine the best upstream and downstream operational solutions to guarantee your long-term success.

Worldwide reach

Our global sites are strategically placed in the world's most prominent manufacturing locations. Our vertically integrated teams are focused on delivering unparalleled customer experiences. From design and engineering to equipment manufacture, installation and service, our team is here whenever, wherever you need us.

- Ronneby, Sweden
- Auburn Hills, Michigan, USA
- Burlington, Canada
- Lille, France
- Gimhae, South Korea
- Wetzlar, Germany
- Etain, France
- Preston, UK



6,000+

ACTIVE ROBOTIC SOLUTIONS WORLDWIDE

400+

ROBOTS INTEGRATED PER YEAR ON AVERAGE

450+

EMPLOYEES WORLDWIDE

37,000 m²

OF MANUFACTURING EXCELLENCE

SHAPE
TECHNOLOGIES GROUP

Shape Process Automation is proud to be a Shape Technologies Group Company

Shape Technologies Group, Inc. (SHAPE) delivers innovative manufacturing process solutions to customers in 100 countries and across a broad array of industries. As the inventor and world's leading supplier of waterjet, SHAPE has become a strategic network of companies offering material processing and surface preparation, automated assembly, robotic motion systems, material handling, software, process control, aftermarket parts and comprehensive support services to our customers.