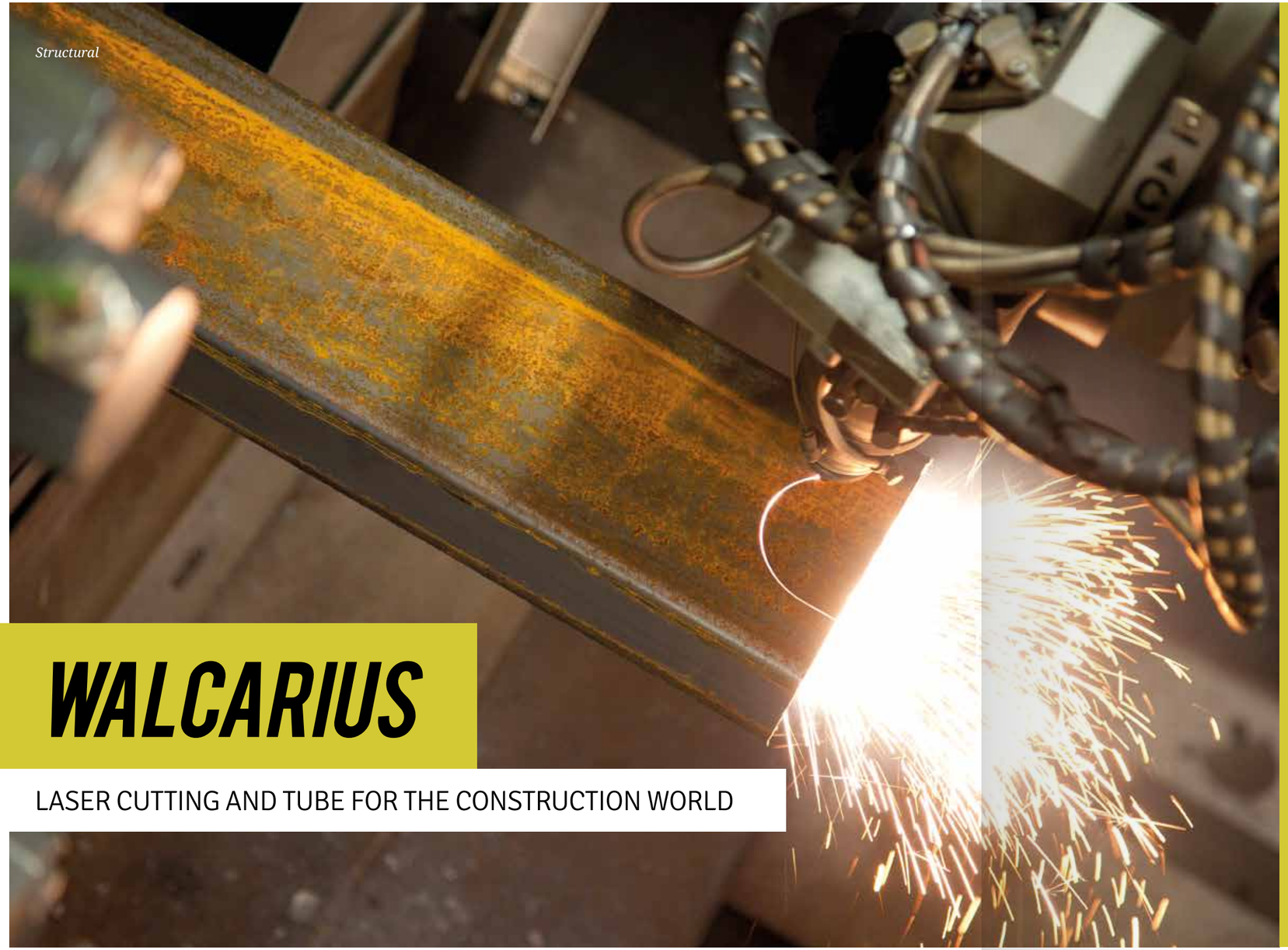
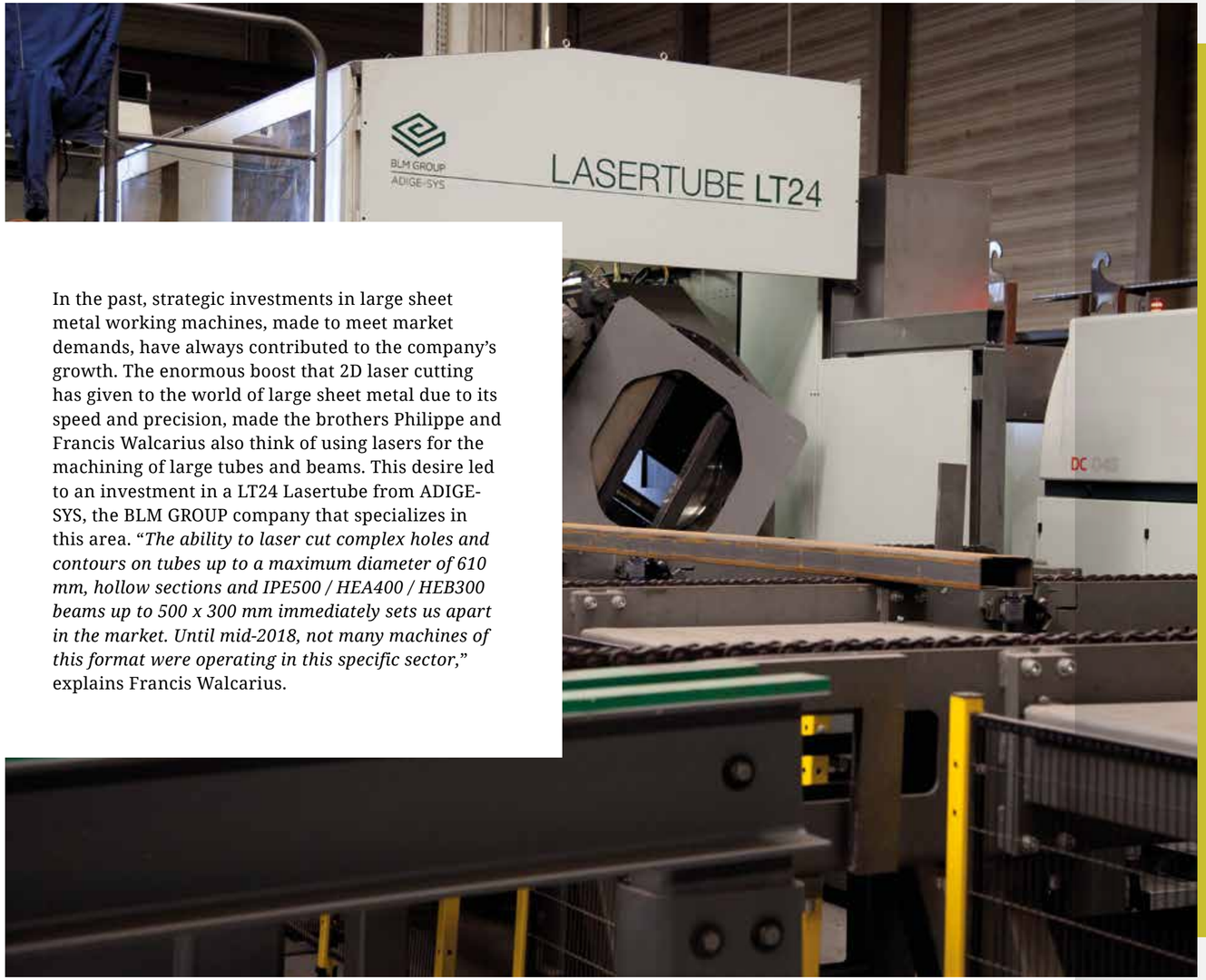


WALCARIUS

LASER CUTTING AND TUBE FOR THE CONSTRUCTION WORLD

Belgian metal fabrication company Walcarius SA wanted to distinguish itself in the world of steel construction by utilizing the processing and connection possibilities between tubes and beams offered by 3D laser cutting. For several years now, the company has been using the LT24, BLM GROUP's largest Lasertube system, to provide high-precision, 3D-cut profiles that allow structures to be assembled without welding. "*Our dream is to create a kind of building package for the steel construction market,*" say Philippe and Francis Walcarius, managers of the family business.



In the past, strategic investments in large sheet metal working machines, made to meet market demands, have always contributed to the company's growth. The enormous boost that 2D laser cutting has given to the world of large sheet metal due to its speed and precision, made the brothers Philippe and Francis Walcarius also think of using lasers for the machining of large tubes and beams. This desire led to an investment in a LT24 Lasertube from ADIGE-SYS, the BLM GROUP company that specializes in this area. "*The ability to laser cut complex holes and contours on tubes up to a maximum diameter of 610 mm, hollow sections and IPE500 / HEA400 / HEB300 beams up to 500 x 300 mm immediately sets us apart in the market. Until mid-2018, not many machines of this format were operating in this specific sector,*" explains Francis Walcarius.

"Our dream is to create a kind of building package for the steel construction market."

Innovative production in steel construction
In steel construction, mainly drills and saws are still used to drill and cut pipes, beams and profiles; the use of a 3D laser is an exception. These machining operations are generally limited in hole size and have a maximum sectioning angle of 45°. In addition, traditional tools are not useful for creating contours and slotted holes and require tooling changes for each hole size. Creating slotted holes and contours requires additional machining steps using different technologies such as plasma cutting and/or milling, resulting in additional time and reduced quality. Contour cutting with plasma is much less accurate than with a laser and cannot be integrated into the drilling/sawing process. Laser technology overcomes many of these limitations, cutting holes and contours at high speeds with reproducible accuracy in a single process. "*Whereas a hole with a drill takes several minutes, including changing the tool to the right diameter, the laser makes any hole in seconds,*" the manager points out. "*There is one tool for all holes and geometries, with the benefit of shorter production times. Multiple operations within a single system also eliminates the need to move and reposition large, heavy parts on the shop floor.*"

Processed steel

5000

tons/year

Pioneering Intelligent Joints
The facet that brothers Philippe and Francis Walcarius saw as even more promising, for the steel construction industry, was in the potential of 3D laser cutting for assembling structures. "*Where previously fastening tabs had to be welded to a column to attach beams, now a tongue-and-groove connection is made.*" In practice, the parts fit together exactly without welding with an accuracy that depends on laser processing and not on human skill for the job. This offers completely new connection possibilities for steel construction, to the point where we are now developing all kinds of structures ourselves, such as carport construction kits that customers can assemble themselves without welding and that are also lighter. Laser cutting also makes it possible to create highly articulated structures for public buildings, such as complex roofs, bridges, skylights, etc., that are perfectly adaptable and can be assembled quickly. "We will have to show these technologies to architects in particular."

Additional Marketing Opportunities
"*We showed the possibilities of joining pipes and beams to our customers and this created a demand for 3D laser cutting. In order to show more companies how 3D laser-cut structures can be built faster and are lighter, we have participated in construction trade shows, among other events. Although a real revolution has not yet been triggered, we have seen that, from a design perspective, it is mainly the younger generation of engineers who have grasped the opportunities of this way of building,*" Francis Walcarius notes. "*If, as a supplier, you're involved in the design phase, you can still get involved in production and show what's possible with 3D laser cutting, saving on welding preparation.*"

Transferring Cost Savings to the Customer
By investing in 2D and 3D laser cutting systems, the metal fabrication company can produce faster, shorten lead times and save costs while offering numerous benefits to the customer. "*The customer not only compares prices, but also delivery time, assembly time and sustainability. Other industries working with smaller pipe sizes, up to 200 mm in diameter, have previously recognized the advantages of fabrication and now rely on different suppliers for laser cutting work. In fact, OEM companies in the food processing industry are starting to come to us for tubular frame cutting.*"

New business
The investment in BLM GROUP's LT24 has brought more work for Walcarius, especially from new customers. "*The high productivity allows us to process more steel per day and the number of orders has increased up to 2,500 per year and we process 5,000 tons of sheet metal, tubes and profiles per year. For now we still manage to exhaust the work in one shift, but soon we should add one more shift,*" says the manager.