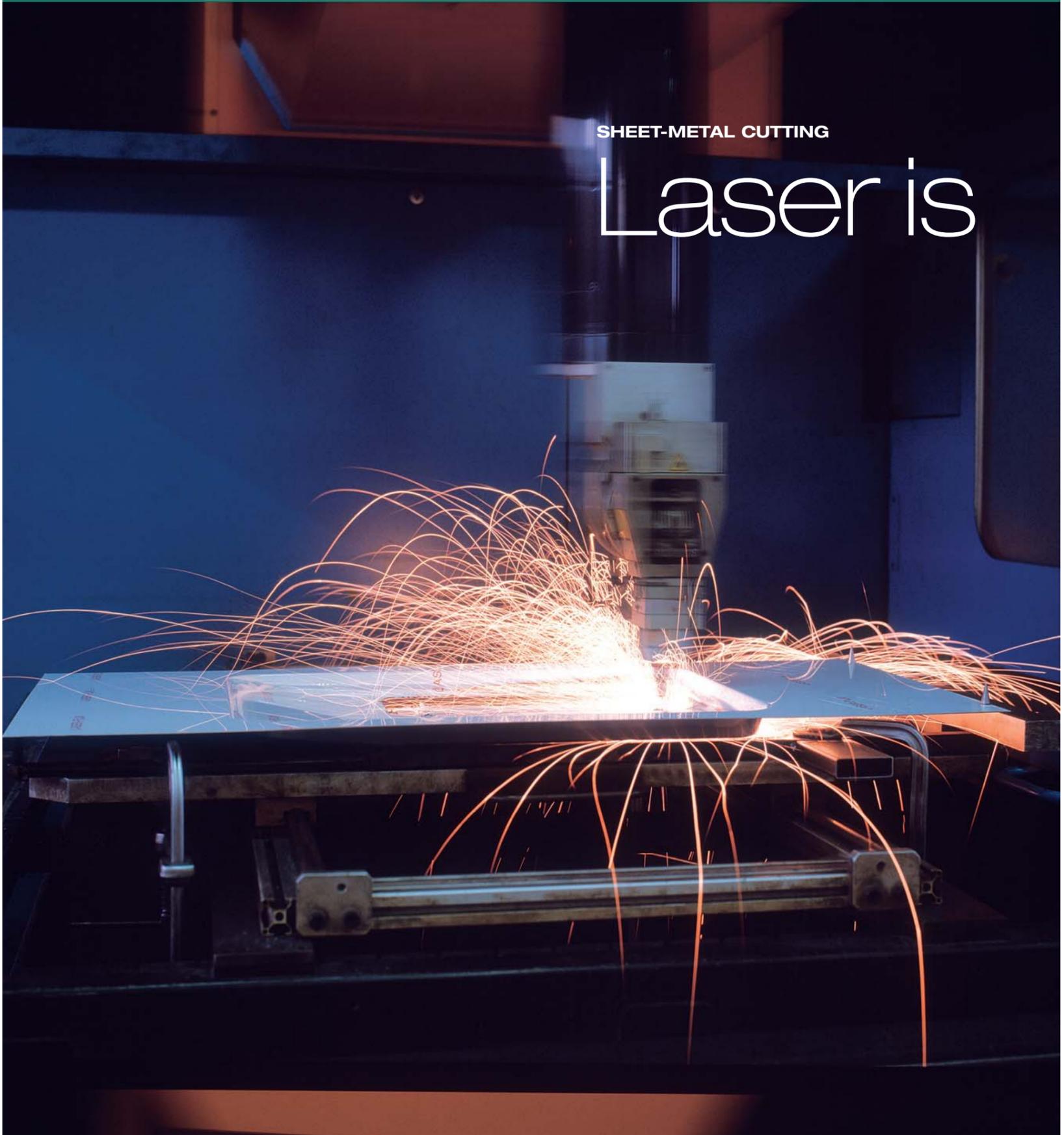


SHEET-METAL CUTTING

Laser is



the answer

Working with automotive giants is a privilege for few: the short timelines, tight tolerances and low costs

put a strain on the ability of companies. The Veneta Stampi Group found an answer to all these needs in the Rapido laser cutting machines of Prima Power.

by Andrea Martinello

When you are working for clients such as Audi, Volkswagen and BMW, errors are not allowed and significant efforts are required to gain their trust. The total quality of the finished product is a basic prerequisite, since the strict specifications required by Vehicle manufacturers must be totally respected. All this must necessarily be accompanied by timely deliveries, without considering the numerous tests and checks to which suppliers and sub-suppliers are constantly submitted to. Win the trust of a Vehicle manufacturer is not so simple, but when you do it, important opportunities can open up.

Veneta Stampi Group of Ceggia (VE), which since 1971 is specialized in the sheet-metal cold-forming field, experienced this. The company has direct relationships with the Volkswagen Group, for which it produces dies for various parts and for which in several cases it also carries out the die forming process. Drawing dies, blanking dies, progressive dies and transfer dies are designed and manufactured, while the die forming is carried out in the department. The com-

pany also operates in the appliance, large plants and gardening sectors but in recent years most of the production is involved in the automotive, which is currently the leading sector. Parts such as supports, reinforced doors and seats, side members, floor pans, tunnels, masks, interior panels and other bodywork parts are die printed. The strength of the Veneta Stampi Group is to be a comprehensive company, able to manage the entire production process, from design to engineering in the technical department, including the metrological control. All this with a high degree of quality, a factor that made possible collaborations with Car manufacturers such as Lamborghini, McLaren and Porsche. In addition to designing and building the dies, providing its own know-how to customers and suggesting the most appropriate solution, the company is also structured for die forming. In the two production sites of Ceggia and Conegliano - that have a total covered area of 13,000 square meters and in which work a hundred people - are concentrated 3 and 5-axis workstations for die forming up to 6,000 mm, mechanical and



The Rapido machine of Prima Power for three-dimensional laser cutting

hydraulic presses from 50 to 2,000 tons, robotic welding systems, in addition to the assembling and finishing department and the metrology lab for the parts dimensional inspection. Of crucial importance is also the laser cutting department, where there are three Rapido machines of Prima Power for three-dimensional laser cutting. Laser



A view of Veneta Stampi workshop



Laser cut car parts

cutting became over the years a strategic resource for the company, and today the cases for which this technology is chosen are increasing.

Laser cutting increasingly strategic

The first Rapido was purchased a decade ago, when the company, realizing the great potential of laser cutting, decided to introduce this technology. The excellent results have convinced the company to buy two more in quick succession, setting up a department entirely dedicated to laser cutting, with the possibility of operating on three shifts. This technology has in fact led to a small revolution in the company production processes, allowing to accurately cut the parts without resorting to blanking dies. This possibility proved to be extremely useful for "small amounts", such as prototype or pre-series cases, but also for limited productions.

«Laser cutting is essential in prototyping and in the intermediate development stages to obtain the final die - explains Michele Furlan, technical director of Veneta Stampi - in fact before defining the blanking dies we carry out the laser cutting, in order to test the accuracy of the "theoretical" section. Another advantage is the ability to provide the pre-series in advance: in fact laser cutting allows to realize the first samples and pre-series without having to first

manufacture the blanking dies, which as known requires a certain time; once developed the drawing and bending die and carried out the die forming, it is possible to cut the piece directly with the laser and deliver it to the customer».

The advantages of laser cutting in terms of production time and costs are therefore obvious. In addition to prototyping, even in cases of limited production, laser cutting can be an "alternative" strategic choice to blanking dies.

«Blanking dies are expensive and if the amounts are not significant, as in the case of limited editions, it may be more convenient to directly carry out laser cutting - continues Furlan - this is also true for car models such as Audi A6, where we have carried out the pre-series using laser cutting; also the actual manufacturing is performed with laser cutting. We are noting that the automotive world is going more and more in this direction: car versions remain on the market for few years compared to the past and, in some cases, the numbers are relatively small and likely to make laser cutting more advisable».

Prototyping: an interesting business

In this period, the Veneta Stampi Group is pressing hard with prototyping, since the demand is increasing and margins are better than those generated by dies:

laser is the most suitable technology for the precise cutting of a limited number of pieces without using blanking dies.

«Prototyping is increasingly in demand and allows us to come full circle, giving the Vehicle manufacturer a complete service from the master die design to the finished product die forming. - says Furlan - Vehicle manufacturers rely more and more on companies like ours for prototyping, since almost all the bodywork parts are now being prototyped, in order to manufacture the car in quick times and to simultaneously carry out all the necessary checks. For us it is convenient to have control of the entire process, because once made the master die for the prototype, we are in advantage for the production of the definitive die, knowing exactly what to correct. In prototyping the margins are also much more interesting, and this is another reason why we are pressing it; consequently laser cutting is becoming increasingly strategic for us and we are considering new investments».

Tangible benefits

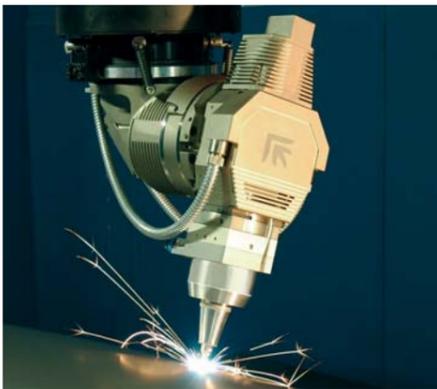
The company chose to take the step towards laser cutting again a decade ago, with the creation of a dashboard for Alfa 159 and Brera and BMW 3 Series, both in aluminium and completed with special fi-



The Veneta Stampi Group is pushing hard on prototyping, making it even more advantageous to use laser



The headquarters of Veneta Stampi in Ceggia (VE)



The first Rapido was purchased a decade ago, to exploit the great potential of laser cutting

nishes. In both cases the laser cutting was decisive, as a matter of production costs and for the quality of the cut.

«These parts were featured by some cuts that hardly could have been achieved with the dies, without considering that the costs would have been higher if blanking dies were used. - Furlan said - Laser cutting has appeared to us the most suitable solution and at that time Prima Power seemed the manufacturer with more experience on the market. The results obtained with the Rapido machines confirmed that the choice was right, and the initial expectations in terms of accuracy and quality of the cut have all

been observed».

The three Rapido machines in the company are equipped with CO₂ laser with 2.5 kW power. CO₂ lasers are characterized by high application and reliability flexibility, in addition to low operating costs, proving to be particularly suitable in the case of frequent production changes, as it occurs for Veneta Stampi. The transition from one application to another is therefore immediate and this also makes it possible to manage families of parts: in some cases, such as hobs, the same drawn part is "customized" through different laser cuts to create different versions and codes starting from the same piece. The working range of the Rapido machines installed at Veneta Stampi is 3.200x1.500 mm and a height of 600 mm, with a split cabin for loading/unloading during machining. The base, made of synthetic granite, is characterized by a special shape and achieved by topology optimization software that ensures excellent rigidity and damping capacity. The direct-drive head is excellent for its high dynamics, precision and quality of movement, while the cantilever arm, fully retractable, is free from bending and ensures maximum accessibility.

«The strength of the machine is the precision of all the 5-axis combinations, in addition to its fluidity and cut quality. - Furlan concludes - This allows us to be sure of the

final result and to maintain the tolerances set; the machine has proved to be reliable on any material included in the thickness range that we process, which is never more than 4 mm, from aluminium to stainless steel. Another advantage is certainly the flexibility and the ease of setting, which allows the immediate transition from one application to another. Compared to the new Rapido version (Rapid Evoluzione), ours is less efficient from the cutting speed point of view, but since it has to cut relatively short sections, for which the head is changed repeatedly, this factor does not particularly affect the processing».

The company is satisfied also in terms of service and support provided by Prima Power, which has proved to be increasingly collaborative and ready to intervene, even if they have not been many cases where the company has had the need considering the excellent reliability of the machine and the ability to maintain performance over time.

