



The production chain of printed sheets identifies the weak link in the pieces cutting, as it represents the slowest processing phase. Nuova Stame has found a solution to this problem by using Rapido, the CO₂ laser cutting machine by Prima Power.

CO₂ LASER

Rapido Cut

by Andrea Pagani and Davide Davò

The aesthetic value is one of the most important aspects in the automotive world, and in particular in the automobile sector. Technological innovations are a key element on which to rely, but the body lines and aesthetic details are the features that mainly influence the choice of customers. Therefore green light for designers, free to have fun creating profiles sharp as blades, or rounded and less "aggressive" shapes, ending up to optical groups that at night draw a human face on the car ahead of us. All very nice for the customer who walks into a dealership, all very complicated for those who must obtain those shapes from sheet metal.

40 years of dies

In fact, in most cases the imagination of designers clashes with the limits of the materials which will form the bodywork or other parts of the vehicle. «If it comes to creating the plastic model problems are relatively low, as it easily fits the die. Sheet metal instead does not allow this freedom, because beyond a certain angle of bending the piece may break. - explains Giorgio Fumagalli, chairman of Nuova Stame - We know the problem very well and we acquired great experience on this issue since we are building dies for over forty years».

In fact, the company was founded in 1971 under the name of Stame, and has always been committed to this activity. Initially the work consisted in producing dies for components assembled on motorcycles and small tractors starting from the design provided by the customer. Today, with the expansion of the activities and with the support of new technologies such as Cad/Cam programs and simulations, the technicians of Nuova Stame do not just manufacture dies but they are also involved in their design starting from the mathematics of the part required. Currently the company covers an area of 10,000 m², has about 140 employees and is able to produce dies ranging from small to large size, in order to meet the demands of automobile manufacturers to which is dedicated most of the production.

«We work for the entire Fiat Group, for Mercedes-Daimler, Peugeot, Citroën, BMW and others. In practice we cooperate with most of the manufacturers, not only of automobiles but also of trucks, such as Volvo and Iveco. - says Fumagalli - Having global customers means to be present in all areas of this market: we are installing our products in countries such as Italy, France, Germany, Serbia, India, China and America. Also we do not limit ourselves to supply the dies, but we support the various manufacturers making pre-production of any part



Rapido CO₂ by Prima Power installed in Nuova Stame

of the bodywork: sides, roofs, floors, bonnets and boots are all part of our production, as well as exhaust silencers».

The construction of dies and the pre-production of components, therefore, benefits from a deep know-how, which if necessary can also be enriched by the experience gained from other companies in the group to which Nuova Stame belongs. In the province of Teramo in fact there is the Susta plant, which can be considered the twin of the company in Lecco, because the two activities are structured in the same way and carry



Some of the automotive parts made with dies of Nuova Stame



out the same type of work: both manufacture dies and pre-production parts and both, in case greater amounts are required, rely on companies always related to the group but committed to production. The main differences concern the size of the company (Susta covers an area of 5,000 m² and has about 100 employees), and the machine inventory: the company in Abruzzo installed two Prima Power laser cutting machines with different technologies, a fiber laser and a CO₂ laser, while Nuova Stame laser uses two CO₂ lasers, one of which arrived in January this year.

«The choice of Rapido was guided by the suggestions of Prima Power, that listened to our requests and accordingly assessed the best solution. - says Fumagalli - Everything was born from the need to speed up production to complete an order that we accepted, together with the possibility to continue working on different materials without having problems».

Productivity without problems

The contract in question concerned the construction of sides for a two-door Maserati model.

Therefore a large part, quickly realized from the press but whose laser cutting took about 12 minutes, actually slowing the entire production chain. The solution proposed by Prima Power instead allowed to complete the work in just three and a half minutes; this performance convinced Nuova Stame to complete the purchase. The choice of the second Rapido occurred to face a new problem: in fact the company has recently initiated the production of a component that covers the exhaust silencer assembled on the Touareg model, which in the processing stage is covered with a protective film for the purpose to prevent the piece from getting scratched or ruined. The desire to further reduce the machining time convinced the company headquartered in Lombardia to turn again to Prima Power to finalize the purchase of a

new model: after listening to the request, Prima Power has highlighted the greater effectiveness of CO₂ compared to fiber sources in cutting parts coated with a plastic film. For this reason, the final choice fell again on a laser cutting machine of Rapido series, updated with the latest developments and dynamically even faster, equipped with CO₂ technology and therefore suitable to various types of materials.

«Even if fiber laser in appropriate conditions is better, in this application time saving is minimal and for our pace it is not necessary to exaggerate the production process. - continued Fumagalli - We prefer to machine fewer pieces every hour, avoiding to have problems associated with the removal or burning of the protective film. Being an aesthetic piece, in fact, these minor flaws make it less pleasing to the eye of the customer, which could classify it as "waste" even if it is not damaged».

Technique



The cutting head is able to follow the pieces profile in the best way thanks to the dedicated axis



The working range is 4,080x1,530x765 mm



Using the portable handbox allows to simplify the self-learning operations

Cutting-edge solutions

Rapido can therefore boast versatility and speed that are the result of a mix of technological expedients and structural choices. An example of this is the synthetic granite frame obtained with particularly advanced topological optimization techniques. This element represents an innovative solution to improve the rigidity of the machine, the damping of vibrations and the fluidity of movements even in heavy dynamic conditions. The P30L numerical control of Prima Electro is able to better manage the movements of the cutting head thanks to the predictive trajectory control, to the dedicated axis with high dynamics for the adaptive tracking of the workpiece surface and to the automatic adjustment of the feeding speed optimized according to the level of precision required. What has been said so far allows the head to move at 175 m/min on the designated trajectory with maximum acceleration of 1.4 g rising to 4 g when the C axis is taken into consideration. All with an accuracy on the X, Y and Z axes in the order of hundredths

of millimeter. The versatility of the machine instead is reflected in the ability to process pieces of 4,080x1,530x765 mm, in the quick change system of the head, that allows to switch quickly and easily from a cutting head to a welding head, and the possibility of equipping the machine with different automation solutions depending on the production process. In addition Prima Power has provided a wide variety of configurations depending on the amount and size of the parts to be processed and the duration of the production process to demonstrate how the company is attentive to the customers' needs. «We are very satisfied with the treatment received by Prima Power. - concludes Fumagalli - In the past we have never had any problems, the machines have always worked well and proved to be reliable. In addition, when we needed assistance they always operated quickly solving the problem in one or at the most a couple of days, thus demonstrating great reliability and professionalism».

