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by ANTONIO VENDRAMINI

'SHEET METAL' FOR SHIPS

MBM, near Treviso, is a centre of excellence in the working of sheet metal, producing parts for the naval industry, as well as high quality steel structural work. The success of the Nervesa della Battaglia company, the strategies, the production means and the philosophy that guide it, are recounted by Maurizio Bigolin, one of the two brothers who own the company





On our visit to the national centres for subcontracting sheet metal components, for the first time we came across an activity almost exclusively dedicated to the naval market. While great fame that the Republic of Venice enjoyed in the construction of ships is a well-known fact, we did not imagine that a small centre of Marca Trevigiana could carry out an important role in the dressing of any type of ship, from passenger ships, very familiar to cruise enthusiasts, to those more modestly called "work ships", dedicated to the transport of goods, right up to the "offshore structures". In the MBM S.r.l. centre in Nervesa della Battaglia, in the province of Treviso, we met Maurizio Bigolin, one of the two brothers who own the company, and who verified everything that we had heard.

WE GO INSIDE THE COMPANY

"MBM was founded by our father in 1989 and like many companies of the zone, operated for several years as a workshop specialising in the production of metallic equipment for the nearby mechanical industries," Bigolin explained. "Some years later, almost by chance, we became suppliers of metallic panelling for kitchens aboard cruise ships. This allowed us to prove ourselves capable of meeting the rigorous American USPHS - United States Public Health Services requirements that regulate the naval sector, not only for the American users, but for every part of the world at this stage". When asked for some examples of these requirements, Bigolin added: "In practice, it entails safety regulations that are today par for the course all over the



The Zaphiro laser system, produced by Prima Industrie, was recently installed in the Trevisana company MBM

The opportunity for unsupervised working with the Zaphiro laser system was ensured by the automatic metal plate loading and unloading unit Compact Server

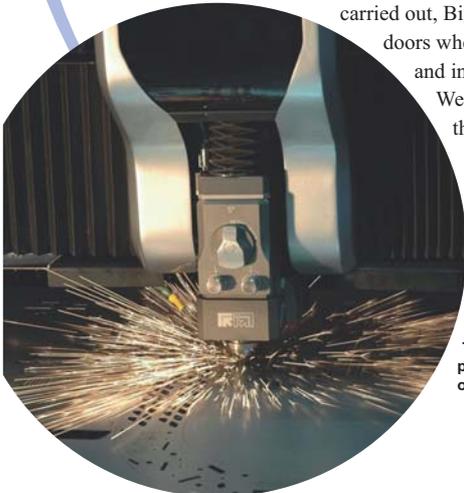
world, but which were satisfied only by a few specialised centres 15 years ago: some examples are the creation of items that can be dismantled and cleaned easily or workings on rounded edges. We then became manufacturers of metallic products for the naval sector: doors, ceilings, dividing panels, prefabricated bathrooms, without overlooking a ceiling/wall system for kitchens, in stainless steel, the only one of its kind and approved by the USPHS. In the beginning, production was aimed primarily at cruise ships but over time we turned our attention to the so-called "work ships" and, for several years, also to the offshore structures".

DIVERSIFIED OFFER

When asked if this evolution represented a reassessment of quality, the response from Bigolin was definite: "The metallic structures that we make for the cargo ships or the offshore ships are essentially the same as we produce for the large class cruise ships. What distinguishes the two different classes of user is the dressing: the furniture and accessories are very different, but are not components that we supply. I feel obliged to point out that the market for cargo ships and the market for offshore ships are much larger than the cruise ship market, although important and defining. Moreover, I am extremely proud to be able to note that seven people in the company are dedicated to designing the products, thanks to the aid of the CAD/CAM stations with 3D software. Our aim is to grant our clients foremost consideration, satisfying their every requirement". As an example of work carried out, Bigolin then showed us some

doors where the precision of the bending and inserts were highly evident".

We then asked if the creations for the naval sector represented the complete MBM production range.



The Zaphiro laser cutting system, produced by Prima Industrie, enables on-line quality checks of the cut piece



"The original tradition of metal sheet transformer mechanical structural work has never been overlooked", Bigolin emphasised. "Even today our production, essentially, includes goods in metal for the nearby industries, a complementary work that requires use with almost daily deadlines. For the naval sector, however, each order is scheduled over time: today we make items for contracts signed one or two years ago. This duplicate 'role' also allows us to cope well with the current crisis, so much so that the turnover in 2009 was slightly higher than the previous year, although it will be difficult to repeat for 2010. Keeping a good level of flexibility is fundamental in order to act as a buffer for any reduction in orders coming from the naval sector, responding with more work in the structural work setting: we have also decided to adapt our system for laser cutting".

METAL PLATE PROCESSING

"To carry out works on the doors, over time, MBM acquired cutting, bending and welding systems", Bigolin tells us. "Up to today, the company was equipped with a Bystronic BySprint 3015 system for cutting, acquired in 2000, with a slitting machine and a drilling machine. The bending is carried out by four units, one of which was recently fitted with a loading and handling robot for unsupervised night time shifts.



Colgar Bending machine, with a robotised plate metal handling system, installed at MBM premises



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Lighting ceiling created by MBM in laser-cut metal plate and then welded manually. This component is mounted at the centre of a ferry boat lounge

The welding operations are finally performed by six manual work stations, unable to automate operations due to the individual nature of the configurations of the products. However, the idea of offering our clients standard components is recent”.

On the visit to the workshop we actually caught a glimpse of metal furniture prototypes already decorated, with riveted components without any welding, useful for the cargo ships or for military ships on which wooden, flammable products are not permitted. Next to the furniture, we also saw metal pullman beds produced in moulded metal plate. This is certainly a major evolution aimed at reducing the occurrences of *custom* products, increasing the percentage of automatic works to perform on unsupervised shifts.



Examples of doors with relative frames produced by MBM. Note the precise bending work on the metal sheet previously cut with the laser



CHOOSING LASER

“In an attempt to increase the workings of unsupervised shifts we have recently decided to replace the old laser system with a new, improved drilling system, complete with an automatic loading/unloading device”, Bigolin affirmed. “After carefully researching the main suppliers, we decided to opt for the Zaphiro unit by Prima Industrie, which had impressed us when we observed it in operation during the 2009 EMO in Milan. This machine met our needs on all fronts. First of all, we noticed that, thanks to the power of the CO₂ source used – the 4 kW CP 4000 laser – and the high dynamic of the axes – with a speed of 240 m/min and an acceleration of 21 m/s² in the combined axes – resulted in large productivity, decidedly higher than was possible with the previously mentioned Platino model. Also to be taken into consideration is the fact that, due to the power of the laser, the best use can be made of the dynamic performances for cutting our mild and stainless steels which are generally no thicker than 2 mm (90% of the production). Furthermore, we have learned that, thanks to the controlled movement of the lenses and the use of the BSC-Beam Size Control device, which automatically adapts



Structure in fibreglass enclosed by cut and folded metal plate that constitutes the base of shower compartments: MBM also produces all of the discharge tubes in-house



the diameter of the beam to the material to cut and its thickness, the envisioned work system was extremely flexible and would have been able to guarantee efficient operation also in unsupervised operation, an operation facilitated by the use of the CompactServer unit for automatically loading and unloading the metal plates. A final but no less important consideration is the very impressive programming facility of the P30L control in Windows XP that was loaded onto the machine". In answer to the question of whether the unit acquired was also fitted with the Perfect Cut option, a full demonstration of which we had at the 2009 EMO in Milan, Bigolin commented: "This function is one of the most interesting characteristics of Zaphiro, as by controlling the quality of the cut performed in real time, it allows constant results to be achieved, which is a fundamental factor for us when it comes to obtaining high quality components even during unsupervised processing. We tested the performances of this option directly and noted that, through the same option, the system is able to recognise a deterioration in relation to the quality of cutting set previously in the CNC,

A new cabinet in metal, with riveted components without any welding, proposed by MBM for freight or military ship where flammable wooden products are not permitted



Pullman beds in metal produced in moulded metal plate by MBM

automatically correcting the parameters used, in order to re-establish the quality desired. On the basis of the elements described above, the addition of this option contributed substantially to the decision to acquire the Zaphiro system that has been operating with complete success for several months".

FUTURE DEVELOPMENTS

At the end of the visit we asked Bigolin to take a look into the company's future: and this is what he told us: "On a level of commitment, we would like to propose a fair at the next SMM 2010 event, scheduled for Hamburg, Germany, from September 7th – 10th, which will be dedicated to the naval industry and the relative components, objects in metallic plate produced by us and which we have described in brief. From a technological viewpoint, we would like to further improve the quality of our products, adapting them to suit what is now possible to achieve thanks to laser cutting: with this in mind we plan on acquiring a new drilling machine soon which will be suitably equipped for taking on the hoped-for return of the naval industry subcontracting market, and more besides".

Very clear ideas laid on a very solid foundation.