

Semi-finished components

Production of rotors and stators for the industry of electric motors

by Gianandrea Mazzola

With over thirty years of expertise, OMM2, specialized in the manufacturing of premium semi-finished components, in 2019 started a complex process of digital transition on a business process setup that has made customization a clear highlight. The challenge is to succeed in standardizing and at the same time making the whole product development cycle flexible, redefining new process metrics that assure even higher competitive levels

OMM2 can manufacture a broad range of rotors (some examples)

The activity of OMM2 starts in 1990 with the production of rotors and stators for the specific use on submerged motors, manufactured in a range of sizes that was already quite important at that time, with sections from 6 to 14". Just few years go by and the application portfolio is enlarged by the production of asynchronous motors for automated machines, boiler circulators and so on, besides alternators. The manufacturing surface and the number of employees grow hand in hand with the range extension.

In 2014, they inaugurate the new property headquarters: over 1,500 sq.m. of factory located at Trissino (VI), where today about twelve specialized technicians are employed. Skilled staff who today is composed, besides the owner and founder, Giannantonio Peloso, assisted by his wife, also by the third generation, with the sons Nicola and Angela, respectively working in the R&D technical, commercial and accounting division.

«With the competences gained in thirty years of activity –Giannantonio Peloso in person proudly underlines– today we can satisfy not only the growing requirements in the world of submerged motors, which still today undoubtedly represent a benchmark for our activity, but also technological applications



PRODUCTION IN BRIEF

OMM2 can manufacture a broad range of rotors and stators that can satisfy the most different requirements, such as:

- Rotors alternators
- Rotors submerged motors (3" ÷ 8" without shaft)
- Rotors submerged motors (6" ÷ 14")
- Rotors circulators
- Rotors high-frequency electrospindles (Ø from 20 to 100 mm)
- Stators alternators (with 4, 8 TIG welds)
- Stators alternators (with 4, 8 TIG welds)
- Stators with 12 TIG welds (size up to 400 x 500 mm)
- Stators with MIG weld (size up to 460 x 650 mm)
- Stators with bent welds
- Stators submerged motors (6" ÷ 12" with MIG weld)
- Stators submerged motors (with 4 or more MIG welds, heights up to 900 mm)
- Stators submerged motors (6" ÷ 14" on welded and turned stainless steel tube)
- Stators submerged motors (6" ÷ 8" TIH welded and turned, heights up to 900 mm)



A broad range of OMM2 stators (some examples)



connected with the sectors of agriculture, of snowmaking systems and similar, just to mention some of them. Besides the more traditional production, we are trying focusing with higher and higher attention also on all developments connected with the electric motor world. Concerning, for instance, those aspects linked with the conformity with the rising minimum efficiency requisites, as imposed by the European regulation and by the American market. I am particularly referring to the replacement of copper motors that substitute, in the rotor part, those made of aluminium, with a consequent efficiency improvement». What differentiates OMM2 on the market is also the aspect more directly connected with the technology adopted. The company takes care of the manufacturing of the welded and turned stator, in addition to the rotor in copper cage. Not by die-casting but effective assembling of rotors in bar.

From the submerged motor to electrospindles

As already underlined, for OMM2 the part of production for the submerged motor sector represents, both as rotor and for stator, about 40% of its turnover, whereas the remaining part is subdivided between production of, so to speak, more traditional asynchronous motors, circulators, alternators (meant as stators and rotors) and also, more recently, electrospindles.

«Segment of electrospindles –Nicola Peloso points out– that we have assessed in constant growth for some years now, which we can satisfy with suitable technologies and innovative production systems that allow dealing with the most different requirements in the ambit, for both production variability and quality and control on the finished product».

In this case as well we are referring to components, that is to say premium semi-finished products, manufactured in batches that can vary from

“The challenge for manufacturers like us consists in succeeding in standardizing many operations that differ by volumes and product codes. In our turn, precisely to guarantee extreme flexibility, productivity and quality, we rely on an over twenty-years old filing of production monitoring and traceability. An amount of data whose analysis in time has allowed ameliorative interventions, which today can be adopted even more dynamically, automatically and rapidly, due to the innovative tools provided by the investments as per 4.0. This means also the possibility of minimizing, or even zeroing, eventual non-conformities, to full benefit of higher competitiveness».



Giannantonio Peloso, owner and founder of OMM2, Trissino (VI)



few dozens to some thousands, with a total 100% chain control, therefore as guarantee of the highest quality.

«Our target –Peloso adds – has always been to succeed in synergistically combining the craft care with innovative technologies that allow, in incremental manner, facing higher and higher manufacturing capacities, without neglecting qualitative aspects, in conformity with the standards demanded by our customers, besides internal ones».

In this vision is also framed the new challenge started by the company itself a couple of years ago, with a digital transformation process according to 4.0.

The added value of the digital transition

«In 2019 we started –Nicola Peloso in person confirms– a complex process of digital transition that conforms to a business process setup that has made customization a clear highlight. For that reason, the challenge consists in being able to standardize, and at the same time to make flexible, the whole product development cycle, redefining new process metrics that assure even higher competitive levels».

Therefore, Industry 4.0 becomes for the company the perfect tool to take this decisive growth step, to achieve a better in-house management and organization, as well as towards its customers, among which stand out relevant multinational realities that consider the company as a skilled development and production partner.



Along the chain, fundamental are the initial co-design and co-engineering activities, through which company technicians, wherever required, can establish and share with customers eventual strategies depending on the project, keeping the expected technical and quality requisites unchanged

«Concerning this –Giannantonio Peloso adds– we have made targeted investments that have allowed and will permit us to develop, at operational level, a whole set of innovative technologies, not only in terms of concept but also of management. More in detail, we have decided making all necessary ameliorative interventions division by division, precisely to organize the process logic at best.

The lean production management, as well as the definition of process controls for the “real-time” assessment of the production quality, represent the main targets to be accomplished in the short term».

A process that at OMM2 is developed by pursuing a model strictly oriented to the Engineer To Order, with a job order management according to the always available raw material. Along the chain, fundamental are the initial co-design and co-engineering activities, through which company technicians, wherever required, can establish and share with customers eventual strategies depending on the project, keeping the expected technical and quality requisites unchanged.

«This –Peloso highlights – to remedy any unwanted criticality that might then emerge in production phase. Criticalities dictated, for instance, by geometrical and/or shape tolerances, not unfrequently even too precautionary and stringent, not strictly necessary for functional and performance purposes, which might anyway slowdown some machining phases. At this stage, once the project is confirmed, the course goes on in the assembling, welding, turning, and then finishing departments, for both rotors and stators».

Concerning the stator, if not supplied raw, other accessory phases can be necessary, such as flanging, the turning of flanges with CNC machines, the jacketing and so on. In both cases, the company assures a process that for several years now, in each single phase, has started, has been monitored and traced at machine level, at operator level, although the operational variability is very high.

«The challenge for manufacturers like us – still Giannantonio Peloso adds –



The headquarters: over 1,500 sq.m. of factory located at Trissino (VI), where today about twelve specialized technicians are employed

From left: Giannantonio Peloso, with the daughter Angela working in accounting division

consists in fact in succeeding in standardizing many operations that differ by volumes and product codes. In our turn, precisely to guarantee extreme flexibility, productivity and quality, we rely on an over twenty-years old filing of production monitoring and traceability. An amount of data whose analysis in time has allowed ameliorative interventions, which today can be adopted even more dynamically, automatically and rapidly, due to the innovative tools provided by the investments as per 4.0. This means also the possibility of minimizing, or even zeroing, eventual non-conformities, to full benefit of higher competitiveness».

More competitiveness thanks to R&D and process innovation

Besides productivity, operational flexibility and product quality, also R&D activities represent a further distinguishing trait for OMM2.

«R&D activity –Nicola Peloso specifies– that in OMM2, as subcontracting supplier, converges more in process than in product innovation. Ambit that can so benefit from the whole expertise gained in many years of activity to create and to develop technologies, equipment, interfaces, management, handling and control logics. A research and development of solutions that pursue the target of utmost flexibility, to minimize for instance operators' effort and to increase quality, to suit better the fast changeable market requirements. This is the way traced and this is the way we are going to follow».

Maintaining a high-quality standard, to be able to provide its customers with a more and more cared, scrupulous and attentive service and support has allowed OMM2 to establish a fruitful partnership relationship, increasingly demanded also by big industrial Groups. Realities that, even more in the last decade, have confirmed they are no longer in search of fortuitous subcontractors to which entrusting productions, staking on the lowest price, but of subcontractors with which to be able to collaborate, aiming at the same quality and competitiveness target.

«A partnership –Giannantonio Peloso ends– that is not reached in improvised and superficial manner, but due to soundness, reliability and competences



keeping pace with innovation. Values, the latter, that together with the capacity and the will of conforming to market changes, have always been the foundations of our daily activity. A final reflection issue concerns then sustainability, scarcely cared aspect in our chain, responsibility of all manufacturers in general but sometimes advantage of the only sellers of finished products. Perhaps, today sustainability is not much felt in our sector, because it might represent a double-edged blade for many realities if estimated technically (LCA) and not only as "sustainable management».

However, what seems clear is that a high-quality made in Italy production has to strive for the enhancement of this aspect, too. OMM2 represents a niche and, coherently, refers to a market niche that is already submitting, even if at explorative level, doubts and solutions in the green context (not only meant as consumptions but rather as emissions, wastes and product end-of-life).

«OMM2 –Giannantonio Peloso ends– in its manufacturing process is already exploring solutions that will allow reducing specific impacts. The question we ask is then the following: when will we see the transition to an aware competent management who really succeeds in searching and enhancing in the market the right choices of technical-economic-environmental trade-off?».