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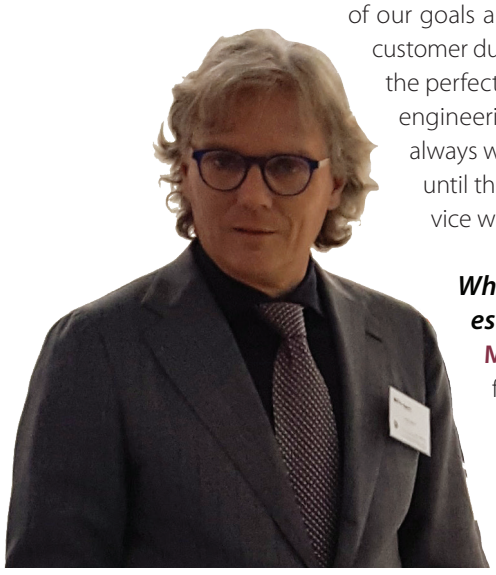
"A forward-looking policy must be established in every industry"

Giovanni Menardi, Managing Director of Hi-Tech engineering, discusses the changes in heat treatment industry through digitalization and sustainability.

What is the core competence of your company?

Menardi: Hi-Tech engineering, of which I am proud of being the Managing Director, is an industrial company with typical framework of "family business" which over the years has allowed us to develop strengths such as flexibility, speed of response, company resilience, sharing of values and many others.

Our equipment is addressed to those industries which produce different parts in steel, light alloys, super alloys and iron steel, obtained by casting, stamping, hot forging, ring rolling or other different production cycles that require a subsequent heat treatment cycle. In fact, we have no catalogue installation, no series, but only unique and tailored installations such as roller type installations for bars, plates and long products, modular equipment with batch type furnaces, bottom car furnaces, quench systems in water, water-polymer, oil and air. These are only some of the types of installations that we can offer to our customers. The choice of an installation is made on the careful analysis of the specifications, the available space in the building, the process to be performed and the demanded versatility – so that each customer gets a specific installation. Some of our goals are the cooperation with the customer during the pre-order phase and the perfection of the project during the engineering and construction phase, always with a single contact interface until the end of the project. The service we offer is a "turnkey" service.



What are the main challenges for your company?

Menardi: The main challenge for Hi-Tech engineering is to consolidate the good results of recent years, but also to set the goal of increasing the turnover by 15 % in the short term. In order to compete at a European and global level in constant evolution, it is necessary to be able to propose solutions that are increasingly innovative and up to date. The advantage of having the knowledge of heat treatment and materials allows us to anticipate the trends of the moment with feasibility studies able to demonstrate our vision and refute with data the real correspondence of the made.

We are also focusing a lot on energy saving with innovative propositions and on the aesthetic rationalization of our plants.

What are the major trends in the industry?

Menardi: Today's trend is aimed at technological improvement in order to comply with the regulations in force, more and more restrictive, both for steel applications (AMS2750E) and aluminium (CQI9) in order to always achieve a higher quality of the treated products.

One aspect that is receiving great attention lately is energy saving; the reduction of emissions is now an obligation that all companies must strive for. Thanks to the situation of uncertainty, we are realizing in synergy with Politecnico di Torino (the most qualified technical university in the North of Italy), some processes that, thanks to the recovery of the heat, allow to reduce some thermal cycles and relative logistics in order to be more competitive and acquire new customers.

Our company has created an internal dedicated department, to carry out the feasibility tests of our customers. The demand is increasingly important, and our company is ready to accept the challenge of new processes only thanks to the technical preparation and the carrying out of practical laboratory tests.

How do you assess the THERMPROCESS 2019 and the business climate in general?

Menardi: In the current climate of confusion in which the European and world market is located, the presence of an important exhibition as THERMPROCESS gives us the opportunity to meet the world's customers in order to

implement our visibility on wide scale. During the fair it was possible to create a shared synergy in order to predict current and future issues. In our experience, the participation in the most important fairs in the sector represents an added value of visibility and knowledge of new realities.

The market is getting more competitive. How does this change your business strategy?

Menardi: Thanks to our experience and the plants realized over the years, both in the steel and in the aluminium field, we consider ourselves very competitive on both. This has allowed us to shift the focus on the most leading market so that we never lose competitiveness and can always maintain a high level of technology.

Currently, the aluminium field has stimulated our interest more and more thanks to the increasingly engaging challenges: study of new parts, made of more and more alveolations and requiring specific processes, study of tailor-made equipment for the location of parts to limit deformation during heat treatment etc.

"We are focusing on energy saving with innovative propositions and on the aesthetic rationalization of our plants"

In order to deal with it in the most appropriate way we have put in place a very challenging series of new tips concerning the structure of the industrial operations of the company, the growth and diversification of technological content. The rapid transformation of the customers' needs required an immediate reaction from our side that became concrete with the organization of an internal R&D area. Every year, we devote an interesting share of our turnover to R&D so that we can always anticipate and propose solutions. The identification of the markets in full growth, their analysis and knowledge has led us to invest in new locations in order to expand our presence and to offer to our customers more presence on the territory. We have in fact opened an office in Mexico, a market in fervent growth, where we guarantee both the construction of new plants and technical assistance to the historical customers of our company.

What business areas are becoming more important in the future?

Menardi: Where the market will go is the main question to consider in order to understand the decisions to follow. And the growth in the use of aluminium parts and components in passenger cars has had a trend. In Europe, the average aluminium content per vehicle was 50 kg in 1990 and is expected to exceed 200 kg by 2025. It is therefore possible to envisage an increasing rush to lightening, regardless of the type of propulsion, in order to drastically reduce emissions into the atmosphere. Aluminium is now considered, by many, as green metal and synonymous with circular economy. Steel also plays an important role for us. The aerospace industry with the AMS2750 E standard is increasingly shrinking, allowing us to propose very performing continuous lines with rollers furnaces or batch plants, driven from the point of view of the adjustment of the charge so as to achieve uniformity more restrictive than the norm.

How will steel production change due to digitalization of the economy?

Menardi: With digitalization we have adapted the production systems to achieve results with a view to a necessary economy, now strictly indispensable. Thanks to digitalization, we have refined the production control systems by optimizing the process rate of the jobs. Moreover, the management of the warehouse and the consignment stock is guaranteed through a digital net of exchange data of the demand, availability and logistics towards the customer.

Remote control systems have mainly supported us in real time assistance to our customers. With today's systems it is possible to interrogate, analyse and solve at a distance the major problems and reduce, consequently, the time of intervention and the relative costs; the effect is that we guarantee to the customer a start on production in almost immediate timing. The thermprocess technology will have the possibility to interrogate the systems for the identification of similar processes carried out, their adaptability to the new application, with the possibility to modify the contents and the variables.

The digitalization also allows to communicate to the customer the process parameters already adapted to their new part through simple remote connection to a plant management panel.

Are you already working with predictive maintenance tools?

Menardi: We are considering the possibility of including predictive maintenance tools in our software; however, after a series of tests carried out with some of our customers, we have received the message that this instrument requires dedicated resources from the client, and a considerable financial commitment. Alternatively, we have set up a network of remote and local assistants to analyse the condition of the plant every six months. This tool allows us to anticipate problems and be ready for any maintenance. All our plants are provided by a process control system that covers a wide range, from simple temperature monitoring to advanced computer systems able to manage and control thousands of parameters, provide digital and paper process documentation and interface with centralised management systems.

What is the contribution of your company to a sustainable steel industry?

Menardi: Hi-Tech engineering designs all its installations with the greatest possible attention to the environment: the concept of the plant is linked to solutions that reduce consumption and recycle as much natural resources as possible with some measures tailored to each situation.

The use of electric motors with high energy efficiency managed by inverters allows a reduction in consumption. The insulation of the furnaces is performed with a type of fibre defined low bio persistence, ecological, which has the advantage of being able to be manipulated and maintained with less complex methodologies than the classic refractory ceramic fibre. These are small technological devices that have an impact on the sustainability of the process, on the personnel involved in the production, and on the user of the plant.

"Traditional heating systems are increasingly being replaced by hybrid systems: mixed gas and electricity, heat recovery and pre-heating"

Traditional heating systems are increasingly being replaced by hybrid systems: mixed gas and electricity, heat recovery and pre-heating. For example, only a closed-circuit cooling system allows to drastically reduce the amount of water used for industrial use, as well as the possibility to orient the flows of hot air coming from the controlled cooling of parts allows to heat, even only partially, the buildings during the winter period.

Do you offer a CO_2-efficiency monitoring tool that can be integrated in plant control systems?

Menardi: The study of heat recovery heating systems and the integration of data in a combustion management software designed and built in-house allow very low emissions in comparison with the levels established by the regulations in force. In addition, beside our intervention, the current market offers components that can reduce more substantially the NO_x emissions without the use of special and expensive additional filtration systems.

The manufacturing of the equipment is only a small part of the technological process chain; our company has always supported the growth of innovative systems, attentive to the environment and safety. However, the raw material we use is still obtained through processes that we can hardly control or verify. The attention of all is required because from the dawn of time it has always been possible to notice that small measures and actions have led to concrete global results. A common vision of the will to pursue a forward-looking policy must be established in every industry too. We are in.

See you at Euroguss for further discussions on these topics.