Forerunners in safety, **pioneers of automated lines**

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> **"Process monitoring and data analysis will be increasingly necessary in the life cycle management of machinery and moulds"**

ALWAYS AT THE FOREFRONT OF OPERATOR SAFETY, FRATELLI NAVA SEES THE MARKET MOVING INCREASINGLY TOWARDS THE CREATION OF AUTOMATED MACHINES THAT RELIEVE HUMANS OF TIME-CONSUMING TASKS AND PUSH PRODUCTION AND TOOLING TIMES TO THE LIMIT

Lamiera magazine is entering its 60th year. During this time, or at any rate since the founding of your company, how has the sheet metal working sector changed in your specific area in terms of technological innovations and the needs of customers and the market?
Our company has a well-established position in the market for quality hydraulic presses with a history that began in the 1960s and was immediately appreciated for the quality of the machines and customer service provided. During this great interval of time, many evolutions have taken place. At the beginning, also as an answer to the needs of a market oriented towards meeting high production volume demands in all application sectors, the drive was towards producing machines that were increasingly reliable in their ability to generate production at high rates and above all with continuity of use over time. At a later stage, the focus changed in the direction of ever-increasing safety of use for operators to be as high as possible according to the available technical state of the art. Notably this was accelerated on hydraulic presses first by our adoption of the German standard and immediately afterwards in the mid-1990s by the introduction of the Machinery Directive.

Always a forerunner of safety as our company philosophy, our production has always been appreciated for its achievements, which were often ahead of the mandatory introduction of relevant regulations. Further, the market's drive has turned to the creation of machines increasingly equipped with automation, to relieve operators of time-consuming tasks and push for a maximum reduction in both production and tooling times. This gave rise to our islands as well as complete automated lines, both in the more common sense of parts handling and in the more specific sense of production changeover automation. This means both the handling of the moulds with the automatic and safely manned clamping to the press tables and the safe and rapid coordination with the relevant work recipe. The latest phase, experienced over the last few years, has added the digital dimension to the above developments, namely the awareness of the importance of process and production data. Anticipating the times of the so-called Industry 4.0, machines capable of digitally tracking key process parameters have been built at the beginning arriving in recent years to complete IT solutions for integration into the customer's production structure, sometimes creating the digital foundations

FOR DEEP DRAWING REQUIREMENTS

Nava's 5,000 kN press, with 1600x1000 millimetre plates, three totally independent "third effect" moulding functions and differentiated blank-holder adjustments, was created as a solution to the special requirements of deep and very deep drawing of parts, including those in stainless steel, dedicated to a variety of industrial sectors, such as automotive, pump housings, filter units, food and medical, addressing a superior market segment, where the quality of the press necessarily makes the difference, making it possible to manufacture parts that would be impossible to achieve otherwise.

The machine is equipped as standard with fully controllable third effects with a very high force compared to what is required for the simple extraction of the piece, allowing on the contrary the creation of pre-forming to recall the material to be used in subsequent phases of the process.

Also designed in this perspective is a lower blank-holder that can work both passively (in the traditional way, i.e. by operating the deep-drawing ring that counteracts the flow of sheet metal into the mould) and actively (by operating the male deep-drawing tool).

By using this last possibility, the range of parts that can be moulded with the same nominal press force can be greatly extended, as it allows the use of a counterforce on the sheet metal equal to the maximum force of the ram (thus doubling the previous limit given by the nominal value of the press force), with an active force for deformation that is still considerable.

FRATELLI NAVA IN BRIEF

NAVA designs and manufactures high-tech hydraulic presses, with an excellent performance/price ratio and high quality design and construction, using components from leading brands worldwide. During the design phase, NAVA takes into account various environmental factors such as energy saving and reduction of noise and vibration, resulting in a lower overall operating cost of the system. A fundamental point in the design is the users' safety: starting from the strict compliance with all applicable regulations, proceeding by trying to anticipate the needs which are likely to be present during the use of the press in order to further improve the user's experience in terms of safety and comfort. Simple operation and programming, to obtain working cycles adapted to the specific needs of the mould are among prerogatives of its proposal. The most advanced applications implemented so far are built according to the criteria of Industry 4.0, complete with software for production traceability. The company guarantees assistance in purchasing, start-up and subsequent series production; and support also through the Internet telediagnostics service. NAVA offers a wide range of technological solutions and innovations in the field of hydraulic presses, realizes both standard and customized constructions according to the specific production needs and guarantees a prompt assistance to the Customer.

for less structured customers, thus helping them to get started in the digitised and interconnected world of production management.

In an industry where automation is now firmly established, what do you think we should expect in the near future in terms of technological innovation or new solutions?

In our opinion, current and future developments will coincide both with the continuous optimisation of process monitoring, in order to be able to detect any possible deviations in the moulding process due to wear on mould components or critical hydraulic control mechanisms as early as possible, and with the increased analysis of the amount of data made available by the current mass tracking. This opens up interesting possibilities, both in terms of a more conscious and more targeted calculation or budgeting of production, with the associated costs, and with regard to the management of the life cycle of the machinery and the associated moulds, which is increasingly efficient and increasingly preventive and predictive, and at the same time less occasional, in the event of the occurrence of faults, even if remote.