A PROOF OF QUALITY

by Davide Davò

RELIABILITY IS THE WATCHWORD FOR FRATELLI NAVA, A COMPANY BASED IN MONZA, ITALY, WHOSE MISSION IS TO DEVELOP HIGH-PERFORMING AND RELIABLE SOLUTIONS, STARTING FROM AN APPROPRIATE SIZING OF THE STRUCTURE OF ITS PRODUCTION PRESSES AND MOULD-TESTING PRESSES, WHILE GUARANTEEING MAXIMUM SAFETY FOR THE OPERATOR.

At the beginning: Fratelli Nava has more than half a century of experience in the field of hydraulic presses

In the middle: the sturdiness of the structure is one of the winning factors of Fratelli Nava's presses

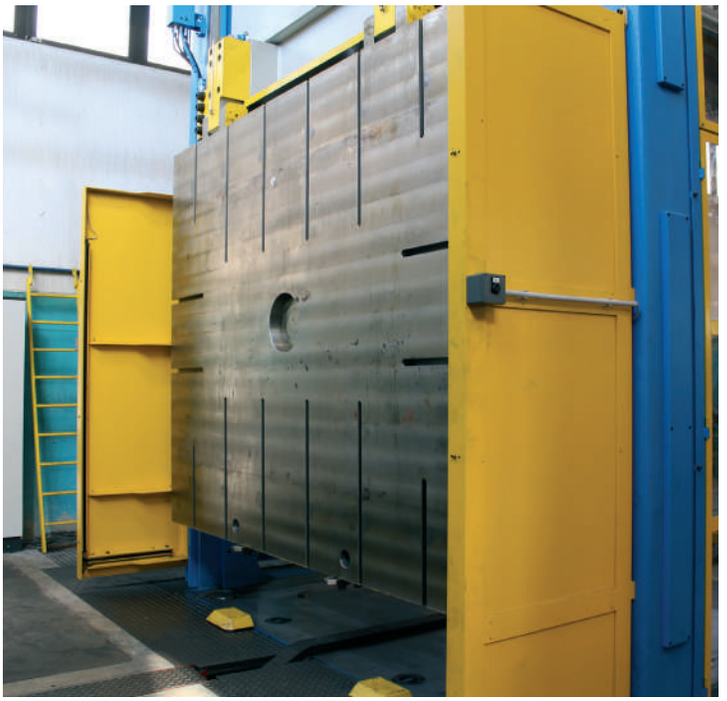
At the side: production presses are used in a variety of sectors

The company has been operating in the market for more than 50 years with one goal always in mind: to create innovation in the hydraulic presses and production presses sector. In brief, this is the story of Fratelli Nava, a company based in Monza, Italy, which since the early Sixties has excelled in the development of presses appreciated by customers for their high levels of safety in use by operators. They are also highly reliable, which means maximum continuity of operation without sudden machine stoppages. This approach has enabled Fratelli Nava to succeed on national and international markets by offering increasingly efficient hydraulic presses for deep drawing and moulding, with consideration not only for moulding quality but also for sustainability and environmental impact. The company's sheet metal business has been extended over the years to include the plastics sector, for which it now offers a complete range of production and mould-testing solutions.

ADVANCED SOLUTIONS

«Our production presses are dedicated mainly to the thermocompression process for processing thermoplastic, thermosetting and composite materials. - begins Engineer Andrea Nava, one of the members of the family business - Each of these materials needs a working cycle that is customised to a greater or lesser degree, according to the customer's requirements and with which we conform. These presses are used in particular in the automotive and aeronautical sectors,

> ROBUST MECHANICS COMBINED WITH ELECTRONIC SYSTEMS ALIGN THE MACHINE WITH THE INDUSTRY 4.0 PHILOSOPHY



At the side: the 2MPS 250/3000 mould testing press developed for an automotive customer

At the right: the solution developed by Nava Presse for handling large moulds

in which composite materials, or materials with properties that can make the manufacturing process critical, are used. With regard to service machines such as mould testing presses, the technology is cross-sectoral and its task is to check that the mould closes correctly, without interference or gaps. This type of equipment is used both by mould manufacturers and by companies with their own production». A distinguishing feature of the solutions developed by the Monza-based company is undoubtedly the strength of the structure, which has been designed to ensure low deflections and consequently extremely precise control. These are characteristics borrowed from the sheet metal working sector and adapted to the world of plastics. Another key element is backlash recovery, with table movements managed by ensuring very tight tolerance centring so as not to lose the references for matching the upper and lower parts of the mould. «The more precise the machine, the more effective the mould setup. - continues Engineer Nava – In this context, we have taken advantage of our expertise in sheet metal production in terms of the design of the structure, completing the presses with a series of constructive solutions relating to the drive part of the machine to maximise the continuity of operation of the equipment». Fratelli Nava also devotes a considerable attention to energy efficiency, equipping its presses with the latest generation of machine control technologies that allow actions aimed precisely at managing movements and ensuring a reduction in consumption. This means that full power is only given to the drives and systems during operation, when the maximum available force is needed. In all other situations, the system operates at "idle" speed, thereby optimising the energy efficiency of the system.

SAFE TESTING

All of the above is reflected in solutions that are well appreciated by the market, as in the case of the two uprights mould testing press model 2MPS 250/3000 developed for an automotive customer. «The customer's main requirement was to be able to handle moulds of significant weight and size. - affirms Engineer Nava – Hence the decision to design the structure to ensure the safe handling of the forces involved, which reach 2,500 kN and can be finely adjusted. The press features working tables of 3,000x2,400 mm with a clearance of 2,700 mm, while the clearance between the uprights is 3,010 mm». The lower extractable table has a maximum capacity of 60 tons, while the swinging table under the ram has a capacity of 30 tons. Extremely precise mechanics ensure smooth and progressive movements, avoiding jerks

that can compromise the accuracy of mould positioning. Suitable technical solutions allow the operator who has completed adjustments on one or both parts of the mould to reposition them in the press, centring them within very tight tolerances. Robust and precise mechanics, combined with electronic systems that align the machine with the direction marked out by Industry 4.0.

One example is the equipment's sensor system, which allows real-time control of the press with the possibility of local and remote diagnostics. A comprehensive overview of the machine's status is readily available via the simple and intuitive operator panel, which allows any malfunctions to be displayed. «We devote the same level of attention to technical and operational aspects as we do to safety, to protect the machine and above all the operator from dangerous situations. - concludes Engineer Nava - A concrete example of this are the safety pins on the ram, which are designed to physically prevent the ram from descending accidentally. During the moulds movement, adjustment and testing the operator continuously enters the working area of the press. The pins ensure the operator's safety, and intervene when the ram is stationary at the end of the ascent to ensure that the upper mould does not hit the lower one during tilting».