WHEN PRECISION, PERFORMANCE AND ROBUSTNESS FACILITATE THE MOULD TEST

DECISIVE TO OBTAIN THE UTMOST PRODUCTIVE EFFICIENCY FROM MOULDING LINES, PRESSES FOR "MOULD TESTS" MUST MEET SPECIFIC OPERATIONAL REQUISITES. ESPECIALLY WHEN THEY ARE CALLED TO MANAGE LARGE MOULDS INTENDED FOR THE PRODUCTION OF AESTHETIC COMPONENTS. F.LLI NAVA HAVE CONFIRMED THEIR COMPETENCIES IN THIS MARKET SEGMENT TOO BY PRODUCING A HYDRAULIC PRESS WITH TWO CONNECTING RODS FOR AN ITALIAN CLIENT WHO CONDUCTS BUSINESS IN THE DEMANDING AUTOMOTIVE SECTOR.

Ever a pioneer in perceiving and anticipating the needs of the market of press users, F.lli Nava has always given the utmost care to the development of machines capable of providing not only high performance, but also high levels of safe use and availability to effectively carry out the planned production.

In other words, technological solutions with high added value, the outcome of practically sharing the goals pursued with their clients, with applications designed to meet the needs of the various industrial sectors that make use of cold pressing of metal sheets, moulding of thermoplastic materials for application in the automobile sector, and for hydroforming of sheet metal and tubes. An extensive range of machines and production lines studied and produced in the Monza (MB) facility. These also include various "mould testing" presses, designed as support machines for offline operations performed to perfect the mould. Engineer Andrea Nava, a partner of the company, says, «To obtain excellent performance of pressing lines, the moulds must be carefully checked, using a hydraulic press that has been specially designed for the purpose. This machine allows to safely perform finishes on both internal sides of the mould, without however impairing the centring of the two halves when they are repositioned in the press». There are several mould testing presses that allow to control and repair moulds of any size, and there are also several testing presses for cutting, die-casting and thermal compression moulds. These also include the one recently designed by the company based in Monza (MB), and produced for an Italian client who conducts business in the automotive sector: a mould testing hydraulic press with two connecting rods.

MEETING THE NEEDS OF LARGE MOULDS

Engineer Nava says, «Operating in the high end segment of automotive supplies, our client immediately stressed the needs and requisites to guarantee a highly precise process, absolute safety and the possibility of managing large moulds and, hence, also considerable weight». The study performed by technicians of F.lli Nava identified the press that best meets these needs in a press with adjustable pressing force up to 2,500 kN, 3,000 x 2,400 mm processing shelves, 2,700 mm maximum clearance between

shelves, 3,010 mm clearance between the frontal connecting rods, and up to 30+30 tons capacity to manage moulds between the bottom and top part. After these specifications were defined, the study focused on determining all the necessary devices to ensure the above specifications. «And I refer not only to structural robustness,» says Eng. Nava, «but also to the prerogative of adopting a correct correspondence between the process and the project design. The scope of this was to verify the adjustments implemented on either one or both sides of the mould, restoring them to the press, centred, with very small tolerance, to then proceed adequately with opening and closure movements for jointing». A precise check is even more important since the moulds produced by the client are intended for the production of high end car components, in which aesthetic perfection is a discriminating factor when accepting or discarding the item produced. Hence, the mould test is essential both to adjust pieces and for operator safety (moulds that are not precisely jointed or which are even wrongly jointed can cause hazardous situations due to the wedge effect that might occur in certain cases). The press practically helps the operators, allowing to test the movements, closures and extraction, checking the geometrical features, calibrated thickness and finish of metal surfaces. «We are referring to large moulds,» says Eng. Nava, «with a very big mass for vertical and rotational handling, with high mechanical precision, without tears but with fluid and progressive movements, besides excellent balance». Operational needs are met with dedicated devices and technical solutions that allow a well centred return, everything underpinned by structural stiffness that is important and decisive to obtain specific results in terms of performance and process quality.

FROM AUTOMATION TO SAFETY

Another distinctive trait of the press presented in these pages is the automation of machine functions, according to which, for instance, the shelves are automatically locked to the structure of the press and unlocked, in an electronically guided cycle. Eng. Nava says, «Indeed, the system has an extensive and capillary layout of sensors that allow not only to perform real-time control but also local and remote diagnostics. The above from the perspective of Internet Of Things and of Industry 4.0, which we are promoting, and our plants have long been focused on and prepared to offer these new opportunities». The envisaged operator panel, which is simple and user-friendly, concisely reports the status of the press in this sense, any malfunction, with the support of user-friendly diagnostic graphics that allow to follow the progress of the phases in real-time, evaluating the enabling/binding sensor statuses, and also the status of PLC input and output to facilitate maintenance operations, centrally controlling the status of all command and control devices present on the machine. The equipment designed to ensure the utmost operational safety is equally important, considering the cited sizes and subsequent mould weight involved. Like the safety plugs for the hammer, which have been adopted to mechanically prevent the accidental descent and, therefore, to protect the safety of operators when handling the moulds and, anyhow, whenever the operator enters the working area of the press to perform the necessary mechanical adjustments and related checks. The plugs, whose position (excluded/inserted) is controlled with electric stops to prevent false manoeuvres and to inform the operator of the position of the plugs themselves, can then intervene when the hammer stops at the end of the rise, a necessary position to start the tilting motion of the top mould safely, avoiding collisions with the bottom mould. A safety module is applied directly on the hammer return cylinder, and has been adopted to prevent the descent of the hammer, even in case of breakage of the cylinder's return tube. The same level of redundant hydraulic safety interlock that is electrically monitored is applied to the circuits that control the top mould's tilting cylinders.

PRODUCT, SERVICE AND SUPPORT QUALITY

The development and production of this "mould testing" press clearly shows that F.lli Nava are determined to make their presence a success even in this market segment, with non-standard machines that are always jointly designed with the client according to his precise specifications. «It is a wide ranging strategic policy that witnesses our facility's commitment to serve segments where quality, support and specialisation are discriminating factors in the choice of a partner with whom to develop solutions that have a high added value, solutions that are technologically cutting edge and consistent with the prerogatives for adequate performance, utmost safety and low maintenance requirements. Only thus can we distinguish ourselves as always, and consolidate the market position reached both in Italy and worldwide,» concludes Eng. Nava. High quality made-in-Italy product, service, technical support and consulting services, underpinned by know-how and transversal experience acquired in more than half a century of business.