UNIQUE PIECES ON STAINLESS STEEL

WITH THESE 11,000 KN AND 5,000 KN PRESSES, BOTH WITH 2,500×1,800 MM SHELVES, THE COMPANY NAVA IS ONCE AGAIN THE MAIN SUPPLIER OF APPLICATIONS FEATURING HIGH QUALITY CONTENT AND PERFORMANCE. HENCE, IT IS THE IDEAL TECHNICAL PARTNER FOR ALL METAL PRESSING COMPANIES THAT PLAN ON EXPANDING THEIR HORIZONS AND BUSINESS, MAKING TECHNOLOGY A WINNING WEAPON TO BEAT THE LOW COST, POOR QUALITY COMPETITION.

The company NAVA is proud to present presses featuring conventional drawing and active downward drawing. The top of the range model is 2MI 1100/500 for drawing, with 11,000 kN maximum hammer force, 5,000 kN bottom sheet press, 800 kN third top effect, and 2,500×1,800 mm processing shelves. The model with lesser force is 2MI 500/300 for drawing, with 5,000 kN maximum hammer force, 3,000 kN bottom sheet press, and 2,500×1,800 mm processing shelves. With these characteristics, these presses are conceived as the solution to special deep and very deep pressing needs for stainless steel tanks intended for the industrial sectors of domestic appliances and medical devices, a superior market segment where press quality necessarily makes the difference, allowing to produce items that would otherwise be inconceivable. In order to enable the client to push the evolution of mould technology to the utmost, with a keen perception of the highly developed needs and low price targets of the high end industry of domestic appliances and medical devices, the machine is produced with a very powerful third effect in terms of force, compared to what is required for the extraction of the piece. This allows pre-drawing to recall the material to be used during subsequent processing phases. A bottom sheet press has been conceived for this purpose. It can work both passively (by operating the drawing ring, which prevents sheet flow in the mould), and actively (by operating the male utensil for drawing).

The latter option allows to expand the range of pieces that can be pressed with a nominal press force because it allows to use a contrasting force on the steel sheet with the maximum hammer force (hence, with a two-fold increase in the previous limit given by the nominal value of the sheet press' force), with active force for remarkable deformation.

FORCES AND STRAIN ARE NOT A PROBLEM

In this framework few metal pressing companies have suitable machines to process such challenging orders for metal pressing. Needs do not only include owning a new generation mould producing technique, but especially the possibility of having the support and cooperation of the company that designs and produces the press, to ensure excellent interaction between machine and mould to form a winning close-knit team. Each of the two presses has a hammer with adjustable maximum force, and is conveyed by flat guides on eight tracks, with a high guide height and shelf size ratio. This solution, which is typical of Nava's vision for machine design, ensures the best result in terms of eccentric strain that can develop in the mould due to the asymmetrical features of the pieces to be obtained. The machine has a sheet press pad with highly flexible reaction force adjustment during the entire production cycle, in order to fully meet the need to withhold the metal sheet or allow it to flow, based on the differentiated area of the mould. This is the only way to

exploit all those devices designed and implemented on the mould to prevent excessive thinning of the piece, which would generate scrap and unsatisfactory quality of the moulded pieces. Each reaction cylinder is electronically managed to ensure the desired pressure profile based on the drawing run. The bearing has a rapid run function, which allows to reduce the duration of the pressing cycle as much as possible. Management of variations in the contrast force applied to the metal sheet in the mould is also ensured in case of operation with the active press sheet, like the standard one present on all NAVA presses for reactive operation of the metal sheet press. In the case of an active sheet press, variations are created by the hammer circuit that, when pressed, controls metal sheet flow in the mould, while the metal sheet press circuit enforces the movement on the male utensil.

EVERYTHING IS UNDER CONTROL

In terms of man-machine interface, the company NAVA has made an additional effort to ensure diagnostics that increasingly help the operator, allowing him to notice, at a glance, any causes of machine failure, especially inconsistent processing parameter settings or wrong preparation of the machine to start the pressing cycle. Indeed, the system proposes context-sensitive help pages for the line, which suggest the necessary conditions to obtain the desired operating phases, so that the operator may perform a point-by-point check, when required, to identify the missing condition to access the desired function. To facilitate the task of perfecting mould preparation and of adjusting the optimal parameters to produce the piece desired, press control has been improved with the addition of graphic pages that illustrate process value trends as they evolve during the pressing process. This simple but powerful process tracing function allows step-by-step supervision of the evolution of the pressing process, especially during the key phases that take place when the mould is closed and which are, therefore, harder to monitor externally. On the other hand, this basic function can be extended (by inserting the relative hardware and software modules required), allowing storage and printing of the dynamic image of the process. The ultimate version of this cycle tracing function allows to use the graph obtained both on screen and on paper to reflect on the expected evolution, comparing it with the actual one obtained and with performance on the actual piece. Particularly this function offers effective support for those who, producing moulds, might need to document the processing parameters adopted and the evolution of the processing cycle performed to produce the pre-series with which the mould was tested.

TECHNOLOGY PAVES THE WAY

Clients who acquired these machines have strengthened their facility, preparing to significantly expand their business on the high quality markets of Northern Europe and of the United States, thus presenting themselves with a new generation machine to also supply the most demanding markets in terms of quality of pressed/moulded items and prompt processing of orders. This has enabled them to place their offer on the Italian, European and international market by targeting an extensive range of potential clients, even where the proper technological and organisational credentials are required to actually hope for supply contracts.