Crafting distinction: OCMI-OTG advancements for vials and cartridges

Introduced just under two years ago, OCMI-OTG's FLA18-9-LF518 line raises the bar for borosilicate glass tube pharmaceutical container processing. Achieving a whopping 55 pieces per minute, it offers flexibility, efficiency and superior automatic production quality. The modular platform, servo-driven system, OPTIVIAL camera and integrated components all account for its high-flying industry recognition.

A worldwide leading supplier of borosilicate glass tube processing lines for pharma and medical containers, OCMI-OTG recently shared its insights and the technical specifications on its FLA18-9-LF518 vials and cartridges complete line - a breakthrough technology the group launched less than two years ago, it has already been chosen and appreciated widely on the market, which quickly recognized it as a major step forward in vials and cartridges automatic production lines - even setting new standards.

The core of the production line is the index rotation forming machine FLA18/9 which, combined with the after-forming line LF518, ensures maximum flexibility in terms of product formats and specifications - all while granting superior quality accuracy and line efficiency.

THE FLA18/9 AND FORMING

By way of last generation servo and torque control technology, the FLA18/9 forming machine maximizes the index rotation working concept advantages, thereby meeting and exceeding OCMI traditional continuous motion performances. Indeed the FLA18/9-LF518 line can reach a maximum output of 55 pcs/min with 2R vials as well as a capacity to process vials with diameters ranging from 9 mm to 30 mm and lengths from 30 mm to 100 mm.

Furthermore, the complete line FLA18/9-LF518 was originally conceived as a new complete modular platform -

leveraging a new design and engineering approach to afford OCMI customers the chance to select and combine, whether at fabrication stage or after installation, any standard or customized accessory within the extensive OCMI portfolio.

FORMING CONFIGURATION

FLA18/9 forming machine is equipped with 18 stations on the upper mouth forming crown and nine stations on the lower bottom finishing turret. This optimizes both upper and lower configuration while combining with the working turret to assure maximum performance and productivity in all conditions.

The rotation of turrets is driven by torque-motors which are provided with a relative water chiller to maintain ideal motor-operating temperatures while simultaneously allowing active cooling of the onboard forming tools.

Glass tube forming operations are performed by three dedicated stations, each dedicated to roughing and shoulder preparation, profile pre-finishing and finishing respectively. Through bearings equipped with individual forming heads the stations follow the upper chucks mechanically. Consequently, there's no need for any manual chuck alignment or adjusting. Through dedicated quick-lock devices and docking blocks all three tooling stations can either be easily turned for quick access or else removed for maintenance and job-changes.

PRECISION OPERATIONS

All FLA18/9 tools, plungers and rollers are independently servo-driven, which really makes all setting and forming operations extremely accurate and smooth. Internal lubrication on tooling is implemented to avoid oil spreading while guaranteeing a very clean machine and smooth operations. Servomotors also power both the setting of tube receiving plates and the cutting station. Before unloading the device, a dedicated station flattens the bottom through a containment buffer - a key feature, especially for large size vials. Lower chucks are equipped with blowers that

are managed by solenoid valves. These aim to remove smoke from inside vials so that alkalinity remains within the limits determined by current ISO standards.

Additionally, developed for connection with the OCMI after-forming line the take-out transfer system is servo-driven as well.

Thanks to this extended, smart use of servo motion and control, operators can easily and quickly adjust every FLA 18/9 parameter for all machine devices - directly from HMI with its wide screen and improved user experience, which is based upon the intuitive OCMI icon-based interface.

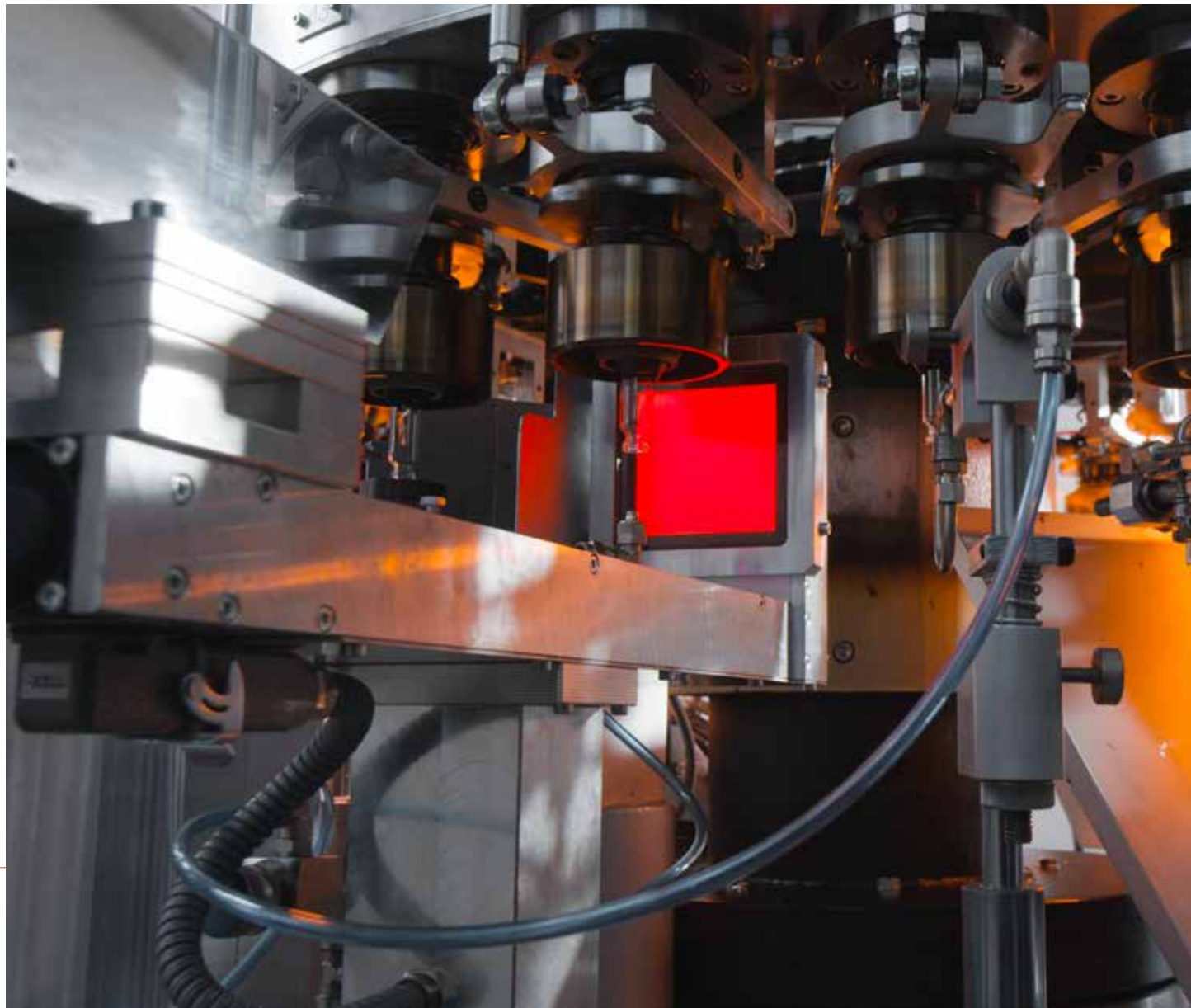
FLA18/9 can be featured, as a standard option, with a complete set of last generation mass flow meters, thereby replacing traditional manual mixers. All gas setting parameters are saved in a recipes library before being automatically recalled/changed during job changes while having any gas mix manually-adjusted by operators during production. This includes gas consumption optimization, savings and monitoring as well as automatic capability and insurance that gas mix administration follows all forming machine transitories such as acceleration, deceleration, start/stop ramps, etc. INdeed this feature definitely offers OCMI customers major process advantages, together with quality insurances and cost savings.

VIAL DIMENSIONS

During FLA18/9 forming operation, vial dimensions can be controlled 100 percent by the OPTIVIAL device, OCMI's specific vial hot-end camera system developed within same technology and experience as that of the OCMI OPTISTEM, which is highly regarded in the market for ampoules hot-end control.

The OPTIVIAL last generation camera takes 15 pictures within its revolution for each product - providing very accurate average measurements on all required dimensions. The device is fully integrated within the HMI line where dedicated pages allow easy recipe configuration, automatic self-calibration and immediate live check on ongoing machine quality output.

The FLA18 machine, too, is fully-predisposed to be



connected with the OCMI R-ATL4 loader, an anthropomorphic last generation multi-axes robot which allows for single tube picking from a muti-bundle high capacity magazine. This combination ensures maximum flexibility and minimizes contact/friction between tubes, which will effectively troubleshoot even minor cosmetic defects on finished products.

THE LF518 AND AFTER-FORMING

The OCMI after-forming line LF518 was specifically developed to be connected with the forming machine FLA18, with the same philosophy and design approach. Servo-motors drive all line mechanisms - including the completely renovated printing station, which is available on customer request.

The LF518 post forming line includes a latest version annealing lehr that's directly developed at OCMI's Italian headquarters. It's electrically powered and will assure total removal of glass surface strains thanks to the optimal distribution of heating elements along the three specific oven sections, which are individually controlled. The oven is sourced by a servo-feeding manipulator with six mechanical grippers - a device which picks the vials from the cooling conveyor and places them in a horizontal position upon drilled metal trays. Oven length and width can be selected according to standardized configuration based upon customer production area layout and the required number of vials per row. The pick-place manipulator, with adjustable gripper jaws, is designed to process vials from a minimum length of 30 mm to a maximum of 100 mm. After the annealing lehr and relative cooling section, a vision conveyor module can be provided. This has different length options in order to fit different types\models of camera inspection systems so that any cosmetic or printing defect type can be controlled on a case-by-case basis prior to packing as per customer request.

LINE INTEGRATION

As for automatic packaging, the LF518 makes provision for the OCMI PM-V plug and play option. This fully-automatic, modular, servo-driven packaging machine is available with either four or five box filling stations placed upon a rotating table - which is meant to replace and improve traditional manual packing operations, thereby completely solving the problem of friction between vials and consequent scratches. The line-integrated logic of the automatic packing machine PM-V allows companies to save multiply-dedicated recipes, including all specifications concerning vials, boxes, number or rows to be positioned in the box as well as vial number per row. Job changes are very quick and easy for the operator - all thanks to a vacuum picking arm modular design, with blocks that get added or removed according to box length and the number of vials to be picked from the machine racks. Delighted that primary multinational groups and glass industry opinion leaders are choosing this technology, the group recently witnessed and confirmed that the OCMI FLA18/9-LF518 line is showing itself to be an optimum option for producing any type of vial in a completely automatic process that ensures accurate dimensional and quality control while affording superior performance, flexibility, efficiency and ease of use. ■