


WARE HANDLING SYSTEM

BDF INDUSTRIES

presents its complete
Ware Handling System

Ware Handling System

A glass bottle is shown in the foreground, resting on a metal mesh conveyor belt. The bottle is partially filled with a golden liquid. In the background, several other similar bottles are visible, some hanging from a chain mechanism, suggesting a production line. The lighting is bright, highlighting the glass and the liquid.

From Servo Take Out to
Servo Stacker: the strategic
importance in choosing a
high-performance
Ware Handling System

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In the management of the hollow glass forming process, the definition of Hot End Glassware Handling is of crucial importance for the production optimisation and maximisation.

Increasingly demanding market requirements, apparently antithetical but complementary, require high-performance features such as rapidity in production changes and stability of process conditions, thus requiring the manufacturer to have reliable and sturdy production solutions available, capable of minimising both the number and time of operator activities for adjusting the process.

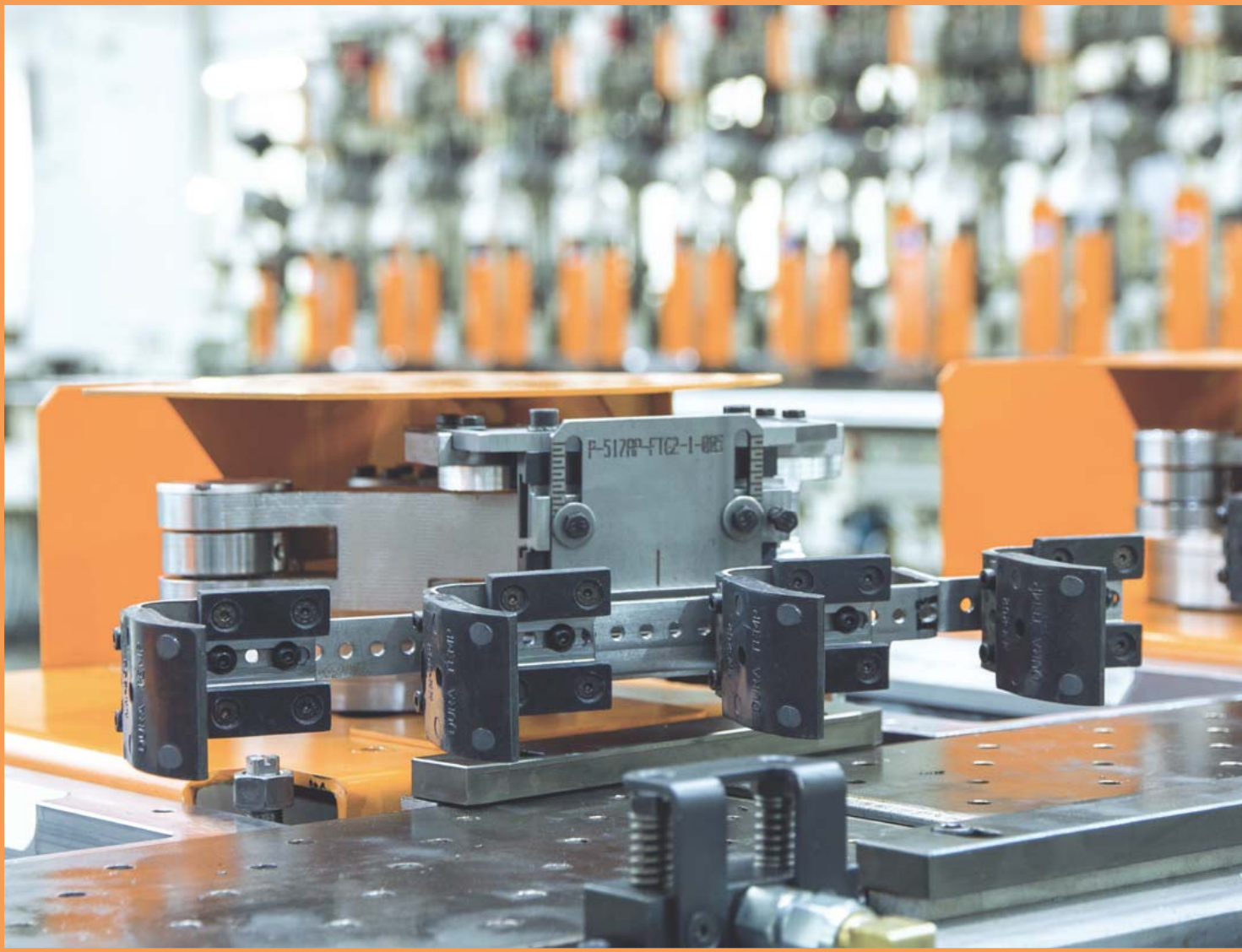
Always engaged in the research and development of effective and innovative solutions relating to the hollow glass supply chain, BDF Industries is in the forefront out in the OEM scene and for its ability to provide vertical, integrated and complete solutions in the field of glassware handling.

Thanks to long-term investments in R&D and a consolidated cooperation with end-users, today BDF Industries is able to offer next generation Servo Take Out, Conveyor & Servo Pushers, Transfer, Cross-conveyor and Servo Stacker components and systems.

Among these, in particular, there are two products with which the company has obtained considerable success and approval from the market: the AP Pusher Servo and the High Speed Conveyor.

INTEGRATED OR STAND-ALONE: THE BDF AP PUSHER FOR HIGH PERFORMANCE

The BDF AP Pusher Servo™ is the optimal solution for the management of ware handling as it ensures superior dynamic performance, accurate item motion and acceleration control, motion reliability and repeatability. It also ensures a significant reduc-



tion in the level of maintenance required.

The achievement of these advantages is due to the innovative articulated pentalateral structure, characterised by two driving levers that share the same fulcrum.

Movement takes place by means of two coaxial motors: this determines the absence of intermediate transmission motion elements (no belts, no gears, no position sensors) and the reduced inertia of the moving elements. To make the system more complete, integrated or stand-alone, it is possible to use a powerful, flexible and intuitive programming and simulation tool that minimises

set-up and production change times.

In situations where high transfer rates are required, the pusher fingers can be equipped with the Air Jet™ system (patent pending) thus enabling the item to remain in contact with the fingers through a vacuum effect generated with compressed air, adjusted for each cavity.

BDF CONVEYOR: THE KEY FOR ELEVATED DYNAMICS FEATURES

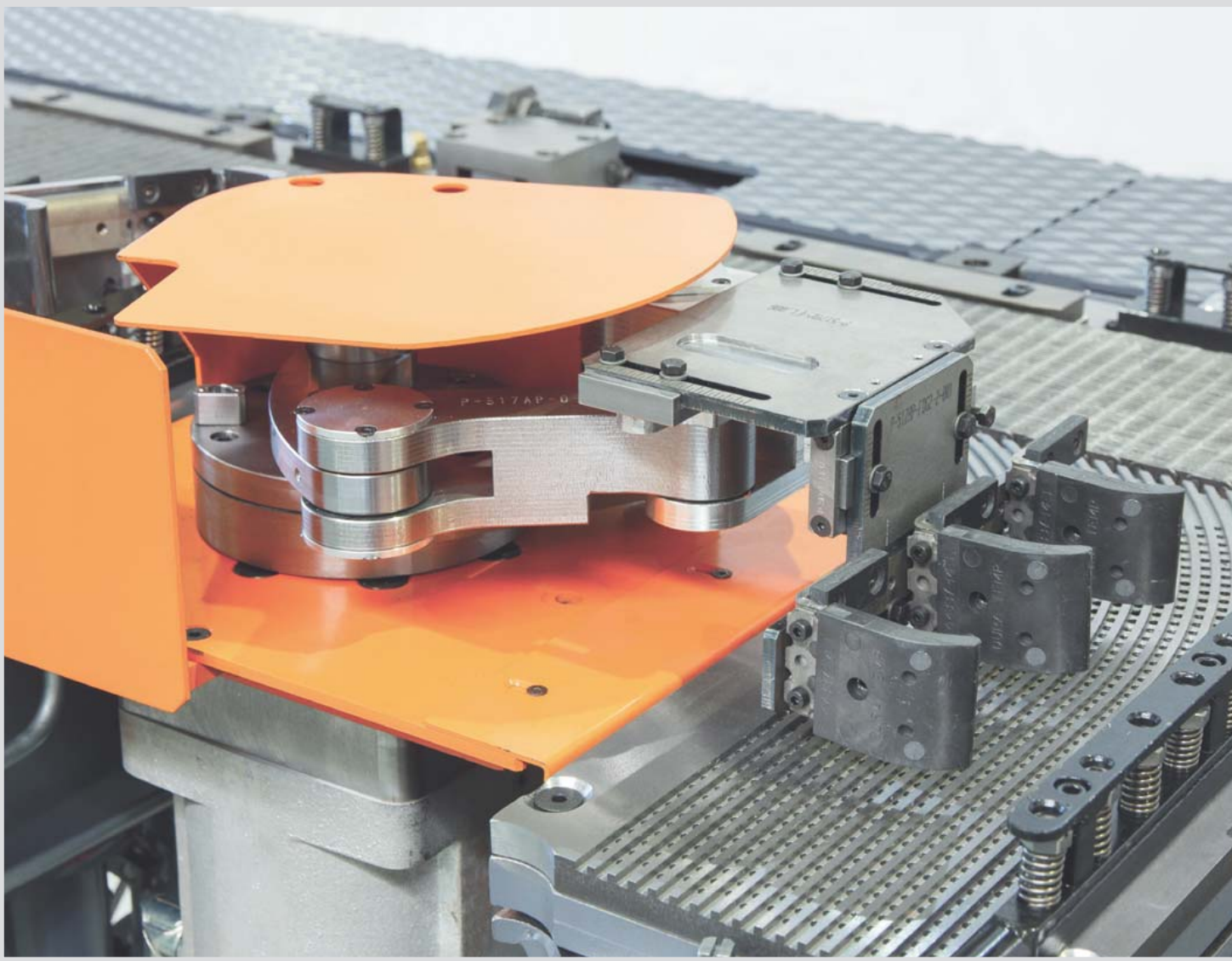
The second solution covered in this article is the High Speed Conveyor, the main component of the BDF Industries handling system.

The elements characterising

the equipment of this solution are: the AP Pusher™ Servos, the timed control system for cooling dead plates and the innovative transmission adjustment system for tensioning the chain and also adjusting its height and angle, higher transfer speeds up to 750 bottles per minute.

The dead plate cooling control, for each cavity, with air independent from the conveyor cooling, by means of timed on-off valves, ensures optimal cooling of the item through a controlled and stable axial air flow.

The dead plate can be equipped with an air guide, either external or integrated in the plate itself (crucial for the use of pre-rotation in the AP Pusher™) and



an air guide at the front of the conveyor that keeps the bottles in contact with the fingers even after exiting the usual operating area of the traditional air guide. For the manufacturer, the result is even higher dynamic performance.

The BDF Industries range also includes the optional mobile conveyor cover system, with electric movement, which enables the production change activities to be carried out without obliging the operators to remove and reposition cover plates, but simply by means of two electric controls for lifting and lowering the entire cover.

For the manufacturer this means greater agility and speed in maintenance and production

change operations, resulting in significant savings in terms of time and labour.

CWD SYSTEM AND BDF HS - ADV-8000: MORE EFFICIENCY FOR THE WARE HANDLING PROCESS

Another add-on is the CWD System (Conveyor Ware Detector), for controlling items on the conveyor, which integrates and completes the functionality of the conveyor. The system, in fact, detects stuck or lying items and controls their automatic rejection, thus reducing the risk of stopping the line downstream of the conveyor due to items positioned incorrectly.

A distinctive feature of the

CWD is the next generation laser sensor which makes the system suitable for working with all types of glass, therefore more versatile and functional.

With regards to the conveyor control electronics architecture, BDF Industries has designed the BDF HS - ADV-8000: an advanced and consolidated solution that ensures very high repeatability of the control signals, production flexibility, almost automatic set-up of the handling components line in production changes and a significant reduction in operating costs thanks to the A.F.E. (Active Front End) energy recovery system.

Related to the architecture of electronics, there is the statistical

WARE HANDLING SYSTEM



control system: extremely important for the manufacturer, thanks to its ability to count the rejected items separately due to stops or transfer wheel, cross conveyor and servo stacker out of phase.

Moreover, the implementation of transfer sensors provides the actual count of the items that have entered the annealing lehr.

The result for the manufacturer is greater productivity control and the consequent possibility of intervening to make the process more efficient.

The BDF Hot End Glassware Handling range is completed with the Servo Take Out, featuring high reliability and accuracy, the high-performance High Speed Transfer Wheel TRW 1208, the Cross-Conveyor with sturdy and articulated mechanics, and the Stacker which stands out for its ability to ensure top-level performance thanks to movement accuracy and repeatability, as well as

the intuitive and advanced graphic interface.

In conclusion, therefore, the BDF Industries solutions for Ware Handling management are suitable both for glassworks that operate for the mass-market and for those specialised in special glass.

The innovation and reliability of each component are in fact able to meet the needs of manufacturers that require high production speed, production volume, low sensitivity to external factors and effective control of production parameters to achieve a highly efficient process.

In particular, as seen in this article, throughout the entire hollow glass formation process, AP Pusher, Conveyors and related accessory products, contribute significantly to the reduction of maintenance costs, to the decrease in the percentage



of defects and therefore in maximising production, maintaining high efficiency of the plant. ■



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