

# SINTERSTAR

A full range of Ag-sintering production solutions:

## Inline-F-XL / Inline F-XL-HC / Auto-F-XL-HC

Our fully automatic Ag sintering systems offer the absolute highest throughput available in the market. Our systems are capable of sintering a wide range of different devices: among others LEDs, Power Devices Clip/heatsinks assemblies, solar (CVP) cells, custom designed power modules and more.

The systems excel in offering the largest sinter area of 350x270 mm, precise process-control and – monitoring, logging large number of key parameters to auto control the quality with pre-set upper and lower control levels. All our systems can be equipped with a large variety of sintering tool concepts.



The fully automatic Inline-F-XL-HC can be integrated in the customers automated assembly line. The system is equipped with preheating and cooling stations.



The Inline-F-XL is an economic sinter system. The system has no integrated preheating and cooling stations and is designed to fit into customer automated assembly line.



The fully automated and stand-alone Auto-F-XL-HC works from cassette input to cassette output. The system is equipped with preheating and cooling stations.

## Main Features:

**Sintering tool configurations:** Boschman offers specific tool (patented) configurations like individual dynamic insert sintering, group dynamic insert sintering, insert-in-insert dynamic sintering, thick film sintering in combination with group dynamic insert sintering, top and bottom individual dynamic insert sintering and flat tool sintering (no inserts). For all applications we select together with the customer the best quality solution.

**Dynamic insert control unit:** The sintering pressure is precisely controlled and monitored during the complete sintering process. The sinter pressure is programmable via the MMI (man-machine-interface). The dynamic controlled inserts automatically compensate for die height differences. Resulting in a controlled and predictable bond strength.

**Product dimensions & UPH:** The system has a large effective sinter area of 350x270mm. The product thickness can vary from 0,1 up to 150 mm by simple exchange of 4 pillars. Due to the use of dynamic inserts we press only on the needed sinter area, this enables us to design high density tools and lowest overall sinter and clamping force. Resulting in a very high UPH and lowest cost of ownership.

**Oxidation prevention:** Our systems can be equipped with gas (i.e. N<sub>2</sub>) supply during the sintering process and offloading. Just before the products are loaded on the bottom tool a controlled flow of gas covers the tool. When the tool is closed a small cavity around the products is formed and filled with N<sub>2</sub>. To limit oxidation.

**Process control, monitoring, recording and communication:** Our systems are equipped with many sensors to detect process parameters during the sintering process. Providing the customer and their factory control system with very detailed process information for every sintering cycle. Linked to the sintered products.



## Boschman Technologies offers distinct process and equipment solutions for the semiconductor industry and related markets.

Boschman focuses on specific market segments offering unique and superior solutions tailored to customer requirements and wishes. We dedicate our resources to deliver molding and sintering equipment for the following market segments:

Mems and Sensor packages

Powers/Discretes

Smartcards

Leadless packages

Pre-molded packages

LED

## Mold and Sintering tools

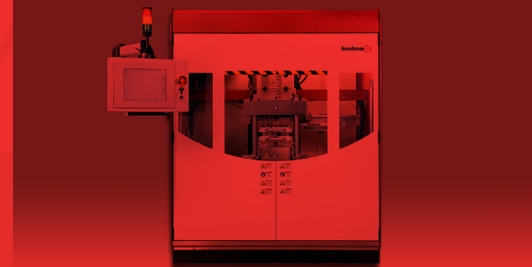
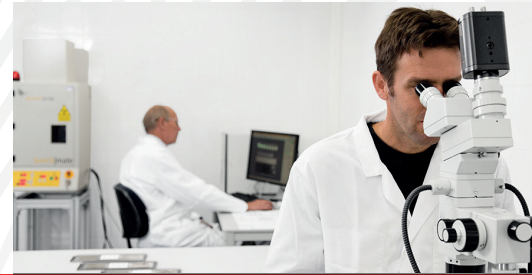
All our molds and sintering tools are developed, engineered, manufactured and tested at our mold tooling center in the Netherlands - all under one roof. Our design specialists and experienced craftsmen form a formidable team with one goal in mind - meeting your requirements. Thanks to our long history of innovative design and precision manufacturing in the Netherlands, our molds comply with the highest standards. We only use powder metallurgy tool steels of the highest quality and deploy certified heat treatments and coating processes. Our molds and sintering tools offer unprecedented wear resistance, dimensional stability and field replaceable spare parts during their entire service life. Our sintering tools are designed and manufactured based on our long term experience on molding tools.

## Mold and Sintering systems

Our molding and sintering systems are developed at our systems R&D facility in the Netherlands. Mechanical, electrical, software, process and mold-design experts work in multidisciplinary teams to realize the best possible total system solution. Our semiautomatic and automatic systems are produced at Boschman Technologies Asia in Singapore. Aside from an experienced production staff, we have local mechanical, electrical, software and process engineers available to ensure and maintain the highest possible production quality.

## Packaging services

Our Advanced Packaging Center B.V. (APC) provides packaging services ranging from package technology research, package development, qualification, prototyping and small to medium volume manufacturing services. APC also assists customers to transfer from proto-typing to massproduction for mems, Sensors and advanced IC packages.



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