

**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**

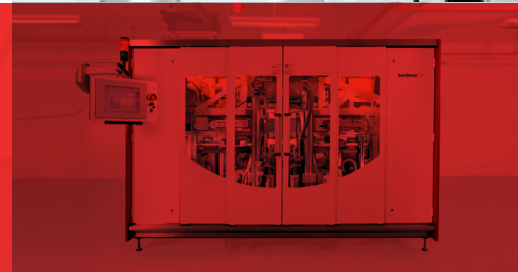
All our molds and sintering tools are developed, engineered, manufactured and tested at our mold tooling center in the Netherlands - all under one roof. Our design specialists and experienced craftsmen form a formidable team with one goal in mind - meeting your requirements. Thanks to our long history 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.



# UNISTAR

## Innovate-2-FF-L

The most universal semi-automatic molding system designed for practically any kind of package. Works with lead frames, substrates, ceramic carriers and individual modules. Can handle standard mini-pellets, powder and liquid encapsulation materials. Comes standard with most Boschman unique and extensive Film Assisted Molding (FAM) technologies.

Suitable for package technology research, package development, process optimization, qualification runs and small to medium size production volumes. This system can handle test molds, 1-strip molds and 2-strip molds. Transfer process technology used in this system is identical to the technology used in automated systems.



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# The most universal semi-automatic FAM molding system

This system can process leadframes, substrates, ceramic carriers and single components/modules. It can mold all standard packages. In addition, this system offers our full range of Film Assisted Molding (FAM) technologies. Conversion between packages and/or FAM technologies is very straightforward and fast.



## Package Technology Research, Development and Process Optimization

This system can be equipped with an universal test mold base. Small low cost mold inserts are available for this mold making it easy and inexpensive to run process trials, develop new packages and provide first customer samples.

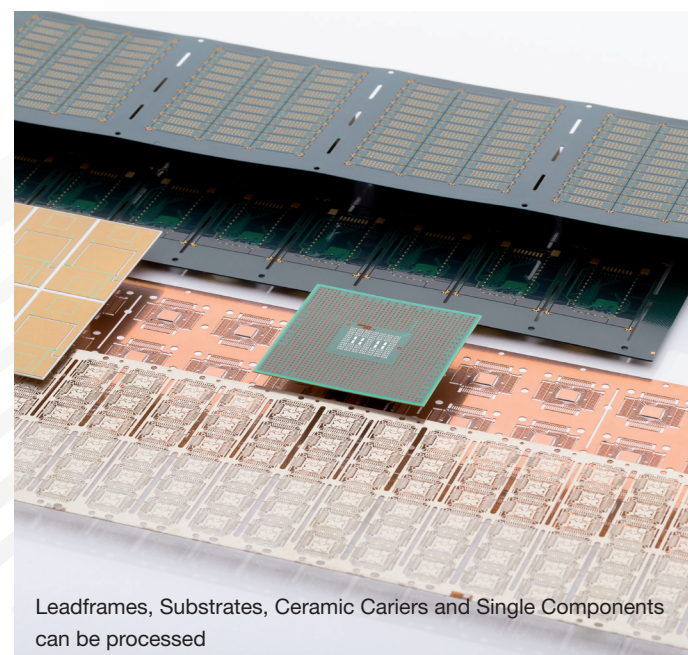
## Low to Medium Sized Volume Production

This system is semi-automatic meaning that carriers and compound have to be loaded and unloaded manually using easy to handle jigs. Mold movements, the transfer process and film handling are fully automated, and 100 % identical to our fully automatic 2-strip systems. User interface and control system are also the same as in our fully automated systems. This

system can process 1-strip production molds and/or 2-strip production molds. These molds can handle low to medium size production volumes without needing to invest in a fully automatic system. When volumes grow and a fully automatic system is needed, the production mold can be transferred to the automatic system.



Pellets, Powder and Liquid Encapsulants can be processed



Leadframes, Substrates, Ceramic Carriers and Single Components can be processed

UNISTAR INNOVATE 2 FF L

## Features

### High Precision Press with Self Correcting Clamping System

Real time clamp force control from 20 to 100 tons by easy use, color touchscreen parameter settings. Mold movement and closing are controlled by servo motors.

### Unique Automatic Substrate Thickness Compensation Clamping System

Can compensate thickness variation without any hardware changes.

### Advanced Transfer and Cure Process Closed Loop Control

Easily programmable and monitors unlimited steps. Can be equipped with additional pressure sensors in the runners for more accurate process control.

### All Film Assisted Molding Technologies can be Processed with Short Conversion Times

Available technologies: Single film on bottom mold. Or, double film covering the complete mold area and plunger resulting in no mold wear, no mold cleaning and the ability to process very sticky compounds. Processes both SFT (Seal Film Technology) or AFT (Adhesive Film Technology) films.

### Patented Dynamic Insert Control Technology Optional

Mold sensitive mems and sensor packages, requiring one-sided or two-sided open cavity packages, or power packages, with single or double sided exposed cooling areas, with large height tolerances.

### Automatic Pellet Feed System Optional

### Simple and Fast Mold Exchange

Quick mold exchange is supported by a touchscreen guide menu.

### Multiple Language Options Available

### Hard Disk Drive and USB Port

Enables storage of all relevant process parameters and allows for the easy extraction of data. All key process parameters can be monitored real time with upper and lower limits. With every shot, the process can be displayed on a graphical touchscreen. SECS/GEM optional.

### I/O Menu Available

Allows for easy monitoring all sensors.

### Energy Efficient System Design

Low power consumption. During clamping no power consumption.

### Small Footprint and Easy Access

### Vacuum Mold Option Available

### CE-Certified

