

AUTOfab GIGA690

PRODUCT OVERVIEW

HIGH PERFORMANCE PLASMA CLUSTER SYSTEM



ABOUT THE SYSTEM

MICROWAVE AND RF PLASMA PROCESSING. ADVANCED PACKAGING, ACCELERATED.

Advanced packaging stuck at single-wafer speed?
Not anymore. Maximizing throughput at small footprint
and highest process quality.

The AUTOfab GIGA690 is a high-throughput plasma platform with a compact, modular multi-cluster architecture. Combining two GIGA690 IL with a dual-arm robot, it achieves advanced batch processing of wafers or panels. Optimized for wafer-level and panel-level packaging, it delivers scalable automation for advanced semiconductor manufacturing. It enables GHz (Microwave) plasma treatment for pre-flip-chip underfill, surface activation, and cleaning or MHz (RF) plasma treatment for descum and cleaning processes.



Built on the proven GIGA690 Inline platform

Leverages a field-tested plasma platform with proven process quality.



Maximum substrate flexibility

200/300 mm wafer (CoWoS), 310 x 315 mm panels (CoPoS), glass substrates, framed wafer.



Full automation and SECS/GEM

Modern software for plug-and-play factory integration and automated production lines.



High throughput at small footprint

Parallel processing of up to 12 wafers or panels.



Unmatched process performance for underfill

Best activation (smallest contact angle) for extremely small gaps and large chip sizes, e.g. for AI applications.

- > Cleaning before die bonding
- > Cleaning before wire bonding
- > Activation before molding or underfill
- > Cleaning before solder ball attach
- > Photoresist descum



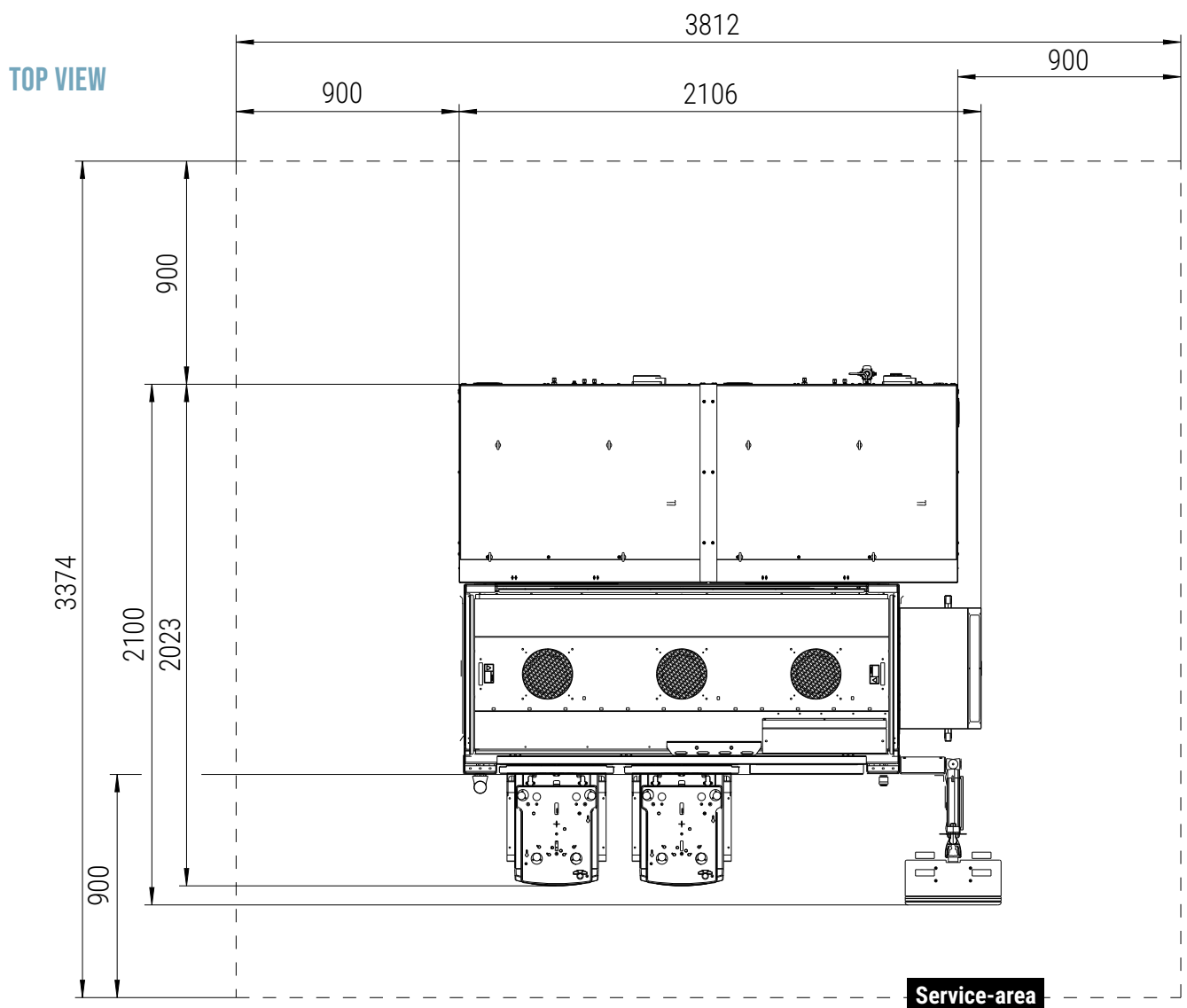
TECHNICAL PARAMETERS

SPECIFICATIONS	
Key features	■ Handling system: Dual-arm robot, prealigner, wafer mapping, cooling station for wafers up to 300 mm ■ Wafer ID Reader: Data Matrix Code (DMC) and Optical Character Recognition (OCR) ■ HEPA filter: Up to ISO Class 1 inside EFEM ■ ESD protected handling (end effector and ionizer above handling area)
Process chamber	Material: Aluminium 64 liter (opt. 91 liter) 400 x 400 x 400 mm ³ (opt. 450 x 450 x 450 mm ³)
Microwave plasma generator	2.45 GHz 0–1000 Watts (pulse free operation) Continuously adjustable magnetron (air cooled)
Vacuum system	Vacuum connection: DN 63 ISO-K Ultimate pressure: < 0.01 mbar Process pressure: Approx. 0.1–1.5 mbar Vacuum gauge: Range 0.1–1.5 mbar
Control system	PC based system with 17" Touchscreen Energy-saving function Graphical user interface Ethernet USB Light tower system status R/Y/G
Functions and Software	■ Graphical real-time operating system with process monitoring and recipe management ■ SEMI S2 and CE compliant ■ User password level protection, software and hardware interlocks ■ Process recipe warnings, alarm message dialogues and self test routines ■ Optical plasma intensity monitoring
Dimensions Weight	2106 x 2088 x 2100 mm ³ (W x H x D incl. light tower) approx. 1240 kg
Gas supply	2 x 1–2 bar, O ₂ ¼" VCR female, 2000 sccm 2 x 1–2 bar, O ₂ ¼" VCR female, 500 sccm 2 x 1–2 bar, N ₂ ¼" VCR female, approx. 90 l/min
CDA	3 x Festo Push-in bulkhead connector Ø 6 mm 100 l/min
Exhaust casing process module	2 x Exhaust socket Ø 110 mm 180 m ³ /h
Electrical connection (options)	■ 1 x 380–400 V AC, 3 PH, N, PE, 50–60 Hz / 2 x max. 15 A incl. EFEM: 230 V AC, 1 Phase, max. 15 A > consumption overall approx. 45 A / 10.4 kW ■ 3 x 200–220 V AC, 2 PH, PE, 50–60 Hz / 3 x max. 15 A > consumption overall approx. 45 A / 10.4 kW
House VAC for vacuum gripper	1 x 0.2 bar 6 l/min Festo Push-in bulkhead connector Ø 6 mm
Optional Features	■ Comprehensive selection of vacuum pumps (oil-sealed/dry) with varying pumping capacities ■ SECS-GEM host communication for seamless integration into production environments ■ Hydrogen process gas option, featuring a safety-certified gas box and an integrated generator ■ FFKM sealing for fluorine processes, enhancing organic removal efficiency ■ Light curtain for Overhead Hoist Transport (OHT) FOUP loading
PUMP UTILITIES FOR 2 X DRY PUMP EV-S100P	
Electrical	2 x 3 Phase (380–440 V, 50–60 Hz) or 3 Phase (208 V, 50–60 Hz) 6.4 kVA Main fuse: 20 A SCCR: 10 kA
Cooling water	2 x Flow rate: 2.0–3.0 l/min 2 x max. Temperature: 30 °C 2 x Connection: RC1/4 (Coupler) 2 x Pressure (Gauge): max. 0.4 MPa
VAC	VAC-line connection to process module: 2 x DN 63 ISO-K VAC-Exhaust: 2 x DN 40 ISO-KF Exhaust pump casing: 2 x exhaust socket Ø 110 mm
Purge	2 x 1.5 – max. 7 bar, N ₂ ¼" VCR female, approx. 17–20 Pa · m ³ /s

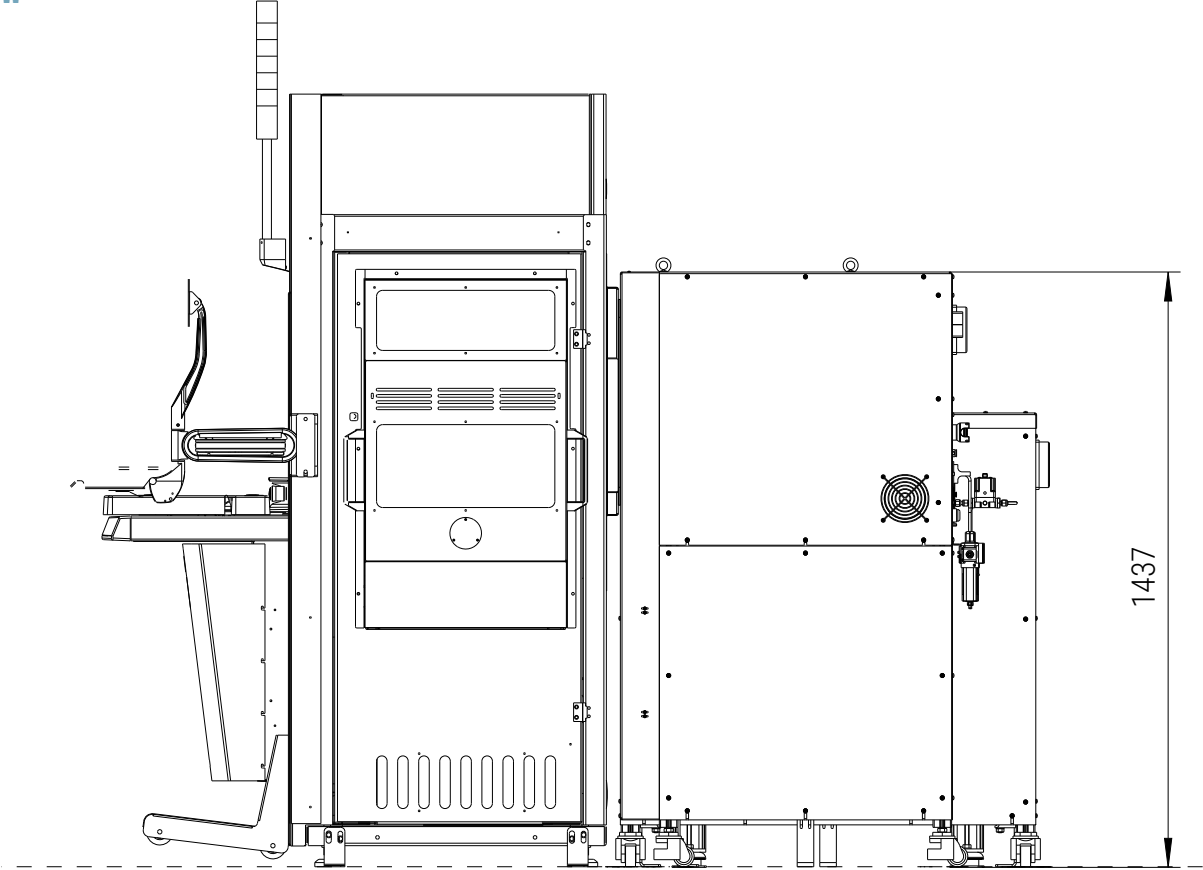
DIMENSIONS

TECHNICAL DRAWING

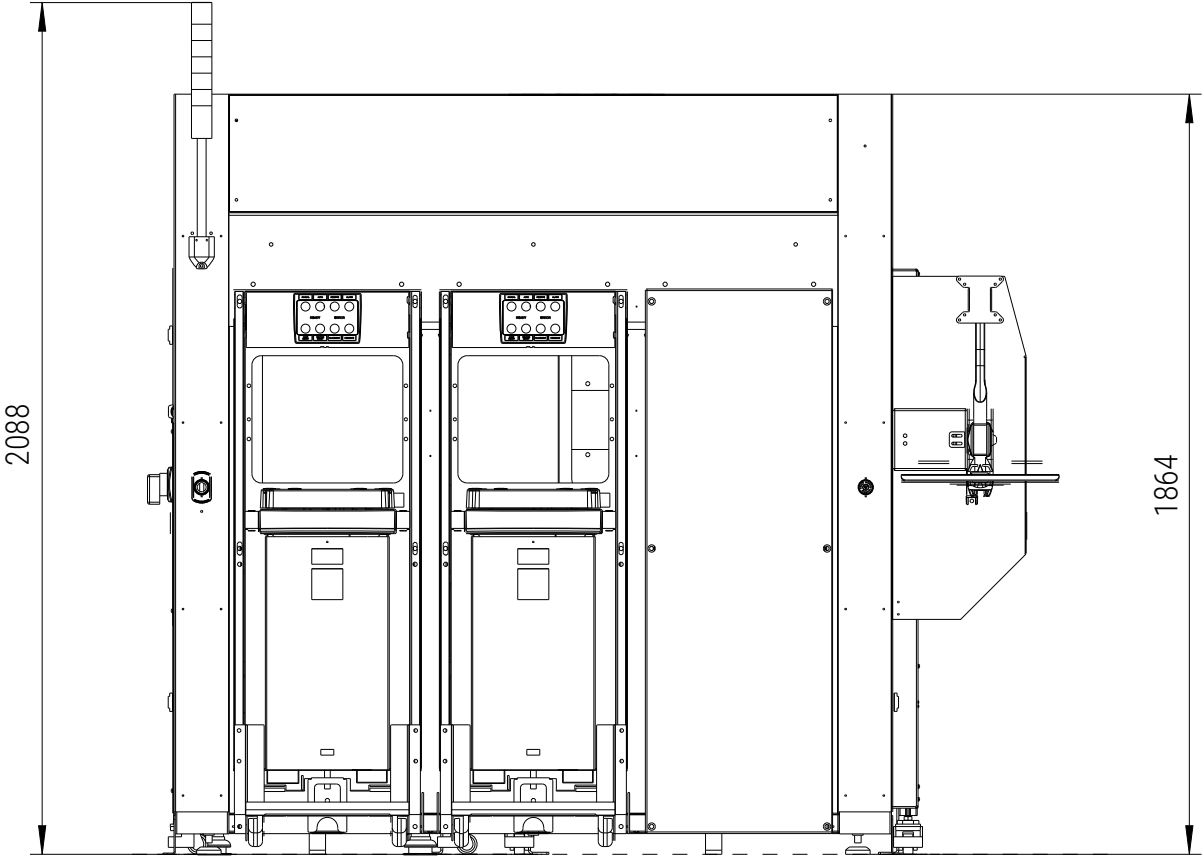
Compact multi-cluster architecture on a 2106 x 2088 x 2100 mm footprint.



SIDE VIEW



FRONT VIEW





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