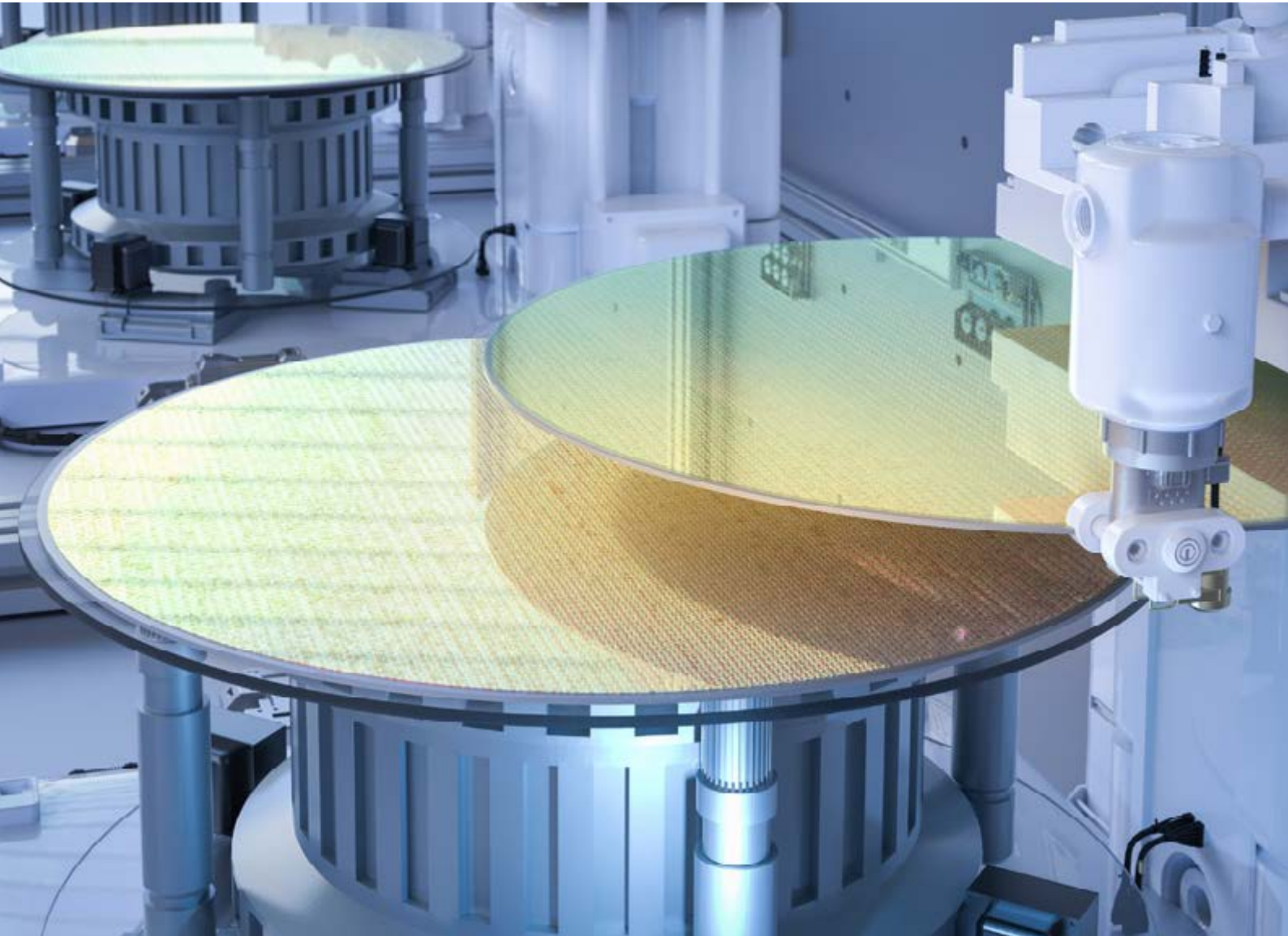


BOSSARD

Proven Productivity



Semiconductor

Fastening Technology for Ultra-Clean Environments



« Fastening Technology for Ultra-Clean and High-Precision Environments Proven Productivity from Wafer to Chip Assembly »



SMART FASTENING FROM FRONT-END TO BACK-END

Solutions tailored to the stringent demands of the Semiconductor industry

We enable manufacturers to meet exacting standards at every stage of the production process, from wafer fabrications to chip testing to cleanroom and packaging.

As demand grows for faster, smaller, and cleaner semiconductor technologies, equipment manufacturers face increasing pressure to deliver speed, precision, and contamination control, often at lower cost. Bossard has supported leading semiconductor OEMs for years, co-developing fastening and sealing solutions tailored to cleanroom, vacuum, and high-vibration environments. From ISO Class 1 cleanrooms to dynamic mechanical assemblies, our solutions are engineered to perform.

With in-house capabilities at Bossard Netherlands (BNL), we offer advanced surface treatments like Kolsterising® and electrolytic polishing, as well as custom part marking and vented screws to maintain vacuum integrity and prevent leaks in pressure-sensitive applications. Every fastener is designed to support reliability, traceability, and integration at scale.



One-stop shop

- Fasteners for electrical purposes
- Fasteners for mechanical purposes



Engineered parts

- In-house engineering know-how
- International network of specialised partner companies



Professional consulting

- Comprehensive engineering services
- Customer trainings for fastening solutions



Own test laboratories

- ISO/IEC 17025-accredited test laboratories in 16 countries around the world.
- Comprehensive mechanical, optical, geometric and chemical test methods



Optimal delivery conditions

- We are on the spot with more than 90 subsidiaries worldwide
- Short response and delivery times
- E-Shop for all catalog products



Smart Factory Logistics

- B- and C-part management
- IoT ready
- Smart, lean and reliable

ENGINEERED RELIABILITY FOR SEMICONDUCTOR MANUFACTURING

Complete fastening and assembly solutions
for the semiconductor industry

JECLIN™ Cleanroom/Vacuum Fasteners



Self-Clinching Solutions



Threaded Inserts



Access Hardware



Pneumatic and Cable Routing Tools



SOLUTIONS FOR FRONT-END EQUIPMENT

Precision Fastening for Ultra-Clean, High-Stress Environments

Front-end semiconductor tools operate at the heart of wafer fabrication, where even microscopic contaminants or mechanical failures can compromise yield. These systems demand fastening solutions that deliver both mechanical robustness and cleanroom compatibility.



APPLICATIONS: Lithography, Etching, CVD, Ion Implantation, Metrology, Inspection Tools

JECLIN™ CLEANROOM/VACUUM FASTENERS

- Prepared for ISO Class 1–1000 cleanroom environments
- Stainless steel versions undergo Kolsterising® to prevent galling
- Cleaned, vacuum-packed, and batch-traceable
- Ideal for vacuum chamber interfaces and contamination-sensitive applications
- Available in cleanroom-suitable materials such as A4-80 stainless steel



JEXTAR™ HIGH-STRENGTH SCREWS

- Burr-free, high-strength fasteners for structural and dynamic assemblies
- Stainless steel: controlled supply chain, low magnetic permeability (<1.01), 3.1 traceability
- Each part marked with “J” or “J900” for identification and sourcing assurance
- Titanium version ≥895 MPa with precision-forged head for better tool engagement



SELF-CLINCHING FASTENERS

- Press-fit installation with no tapping or welding required
- Creates permanent threads in thin sheet metal
- High push-out and torque-out resistance
- Ideal for control panels, covers, and equipment frames
- Compact, flush-mounted design for clean integration



APPLICATIONS: Lithography, Etching, CVD,
Ion Implantation, Metrology, Inspection Tools

THREADED INSERTS

- Reinforce tapped holes in soft materials like aluminum or plastic
- Suitable for panels or housings with frequent assembly/disassembly
- Available in materials like Nitronic 60 for enhanced galling resistance
- Optional vented keyserts for vacuum and cleanroom applications
- Maintain thread integrity under repeated use



ACCESS HARDWARE

- Quick-release latches, magnetic closures, and cleanroom-rated hinges
- Enable fast, tool-free access to service panels and enclosures
- Designed to balance accessibility with contamination control
- Suitable for maintenance zones in sensitive or cleanroom environments



PNEUMATIC & CABLE ROUTING SOLUTIONS

- Chemical-resistant cable ties, clips, and routing guides
- Secure pneumatic tubes and signal wires in clean environments
- Prevent tangling, disconnections, and contamination risks
- Support organized, maintenance-friendly layouts in equipment



ASSEMBLY TECHNOLOGY EXPERT SERVICE MODEL

Six Expert Services

Assembly Technology Expert works with six differentiated services. Each part contributes to improving your productivity step by step.



Expert Walk

We take an in-depth look at your production facility. We examine all workstations and assembly lines. Our engineering experts study fasteners and tools you are using and determine how to proceed leaner and smarter.



Expert Assortment Analysis

To reduce your total cost of ownership, we streamline your bill of materials by identifying opportunities for fastener rationalization. We work with proven analytical processes, application audits and state-of-the-art methodologies and techniques.



Expert Education

We empower you to become an expert in the full range of assembly technologies. In our seminars and e-learning, you learn about the essentials and secrets of fastening, from novice level to mastery.



Expert Teardown

We disassemble your product and examine every inch of it. Focusing on the fasteners, their design, their functionality and their assembly procedure, we identify the best fastening solution and the cost-saving potential for you.



Expert Design

Having the right fastener at the right time at the right place is crucial for your success. We provide you with technical solutions and access to big data to find the most practical part for you.



Expert Test Services

Bossard's test laboratories in Europe, America and Asia have cutting-edge measuring and testing equipment at their disposal. They guarantee that your manufacturing reliably meets quality requirements and that your production procedures are flawless.

SOLUTIONS FOR BACK-END EQUIPMENT

Reliable Fastening for High-Speed, High- Precision Assembly

Back-end semiconductor processes demand fasteners that withstand repetitive motion, thermal variation, and sensitive electrical operations. Bossard delivers high-performance solutions to support speed, precision, and serviceability in every tool cycle.



APPLICATIONS: WIRE BONDERS, DIE BONDERS,
ATE, PROBE SYSTEMS, LOGIC IC TESTERS

THREADED INSERTS

- Reinforce tapped holes in soft materials like aluminum or plastic
- Suitable for panels or housings with frequent assembly/disassembly
- Available in materials like Nitronic 60 for enhanced galling resistance
- Optional vented keyserts for vacuum and cleanroom applications
- Maintain thread integrity under repeated use



LEVELLING PADS & CASTOR WHEELS

- Adjustable feet and cleanroom-grade castors for equipment mobility
- Support precise tool alignment and stable positioning
- Enable flexible layout changes and production line reconfiguration
- Suitable for modular and serviceable semiconductor workstations



APPLICATIONS: WIRE BONDER, DIE BONDER, ATE, PROBE SYSTEMS, LOGIC IC TESTERS

ANTI-LOOSENING SOLUTIONS

- Self-locking nuts, serrated washers, and torque-resistant screws
- Maintain joint stability under vibration and dynamic loads
- Suitable for high-speed, high-precision semiconductor machinery
- Available with pre-applied threadlocking adhesives
- Reduce assembly time and prevent fastener loosening during operation



REUSABLE CABLE TIES

- Heat- and chemical-resistant design for demanding back-end environments
- Releasable locking system allows fast cable adjustments during tool servicing
- Withstands vibration and repetitive motion in high-speed assembly and test equipment
- Ensures organized routing of signal and power lines in wire bonders, die bonders, and ATE systems



SMART PROCESSES FOR HIGHER PRODUCTIVITY

Bossard Smart Factory Logistics

With innovative systems and solutions, we bring the Internet of Things to your factory and facilitate machine-to-machine communication. Focus on your core competence while we make your B- and C-parts management leaner and more transparent.



Systems

From the fully automated and flexible SmartBin to the informative SmartLabel with real-time information and to traditional Kanban systems: Your requirements determine our system.



SmartBin Cloud



SmartBin



SmartLabel Cloud



SmartLocker



SmartCard



Conventional Systems



Solutions

Focus on your core competence, knowing that your steady supply is guaranteed. Smart Factory Logistics Solutions are the key to smooth and seamless supply chain performance.



Demand Management



On-time Delivery



Expert Support



ARIMS



Customizable Options



ARIMS

Supply chain collaborative platform: With an easy to use interface, intuitive features and highly intelligent analytics, ARIMS is the operation dashboard of Smart Factory Logistics. Engineered with the latest software technologies, it enables M2M Communication. It is time-tested and a proven technology.


Integration of
all suppliers

Coordination of
material flow

Streamline
supplier base

ARIMS
Analytics

Coordination of
information flow

Single point of
contact

SOLUTIONS FOR SUPPORTING SYSTEMS

Fastening Solutions for Clean and Non-Clean Equipment Integration

Supporting systems connect high-value process tools with utilities, wafer handling, and automation modules. These areas demand both cleanroom compatible components and rugged fasteners for non-cleanroom structures, ensuring reliability and ease of maintenance. Bossard provides tailored solutions for seamless integration across the entire semiconductor line.



APPLICATIONS: VACUUM CHAMBERS, FOUP LOADERS,
PNEUMATIC MODULES, TRANSFER ARMS

JECLIN™ VENTED SCREWS

- Designed with a central vent hole to release trapped gases
- Maintain vacuum integrity during system drawdown
- Cleaned and vacuum-sealed according to cleanroom standards
- Ideal for vacuum chamber assemblies and FOUP systems



HOSE CLAMPS

- Available in stainless steel and engineered plastic materials
- Provide secure sealing for vacuum, air, and chemical fluid lines
- Corrosion-resistant and reusable for long-term reliability
- Suitable for supporting systems in cleanroom and process modules



PNEUMATIC FITTINGS

- Push-to-connect and threaded fittings for air and vacuum lines
- Designed for secure, leak-free fluid control
- Compact profiles and cleanroom-suitable finishes
- Ideal for wafer transfer tools and chemical delivery systems



ACCESS HARDWARE

- Quick-release latches, magnetic closures, and cleanroom-rated hinges
- Enable fast, tool-free access to service panels and enclosures
- Designed to balance accessibility with contamination control
- Suitable for maintenance zones in sensitive or cleanroom environments



APPLICATIONS: VACUUM CHAMBERS, FOUP LOADERS,
PNEUMATIC MODULES, TRANSFER ARMS

RIVETING SOLUTIONS

- Fastening for frames, covers, and utility modules
- Suitable for non-cleanroom areas
- Available in stainless steel and sealed-head designs
- Compatible with Bossard's Smart Riveting Tools for fast, repeatable installation



CERTIFIED TESTING SERVICES

Bossard's ISO 17025 - certified labs validate fastener performance through tensile, hardness, coating, and hydrogen embrittlement testing. These ensure compliance, quality, and reliability for critical assemblies.



International
Organization for
Standardization

A STRONG RETURN ON YOUR INVESTMENT

Benefits in your assembly

Smart Factory Assembly simplifies the assembly process while increasing productivity. Our comprehensive solution provides digital work instructions, worker guidance and ensures real-time traceability in production to improve product quality.

The core of digital work instructions is the simple breakdown of the assembly process into operational steps. At each step the system intuitively guides the operator through the assembly process. In addition all relevant assembly tools can be connected to the system. This enables total process

security and the resulting data creates transparency in order to identify the potential for optimization and ensure the traceability of production data.



CLEANROOM-READY COATINGS & SURFACE TREATMENTS

Engineered Fastener Finishes for Semiconductor Environments

In semiconductor manufacturing, fasteners must meet strict standards for cleanliness, durability, and mechanical performance. Bossard offers a range of engineered coatings and surface treatments, such as iForm® Optia® and Kolsterising®, designed to minimize particle generation, reduce galling and wear, and ensure long-term corrosion resistance. These solutions are optimized for cleanroom use and validated through years of collaboration with semiconductor equipment manufacturers.



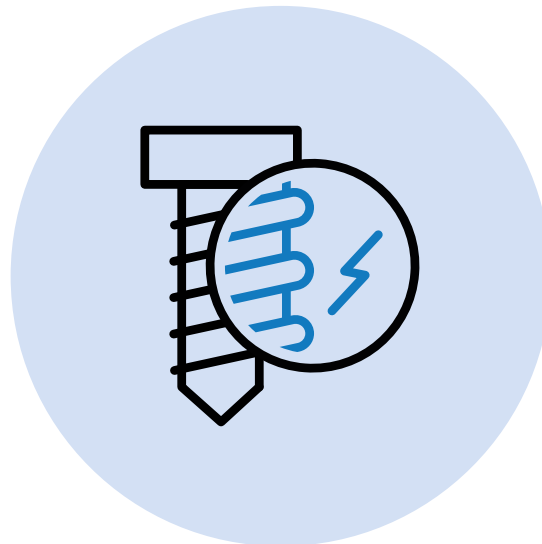
ENGINEERED COATINGS & SURFACE TREATMENTS FOR CLEANROOM PERFORMANCE

iForm® Optia®

- Ultra-thin coating for higher clamp force and lower seating torque
- Minimizes surface friction and prevents galling
- Low particle generation, suitable for ISO Class 100 cleanrooms
- Ideal for fasteners in sensitive semiconductor environments

Nickel Plating

- Provides a smooth, non-porous surface finish
- Enhances corrosion resistance and reduces wear
- Minimizes particle shedding and contamination risk
- Suitable for high-humidity or chemically reactive environments



Kolsterising®

- Kolsterising® is a surface hardening process that increases surface hardness, wear resistance, and fatigue strength
- Applied to stainless steel without affecting corrosion resistance or magnetic properties
- Non-flaking and coating-free, making it ideal for high-purity, high-stress cleanroom applications

Why Choose Kolsterising® and Electropolishing over Silver Plating?

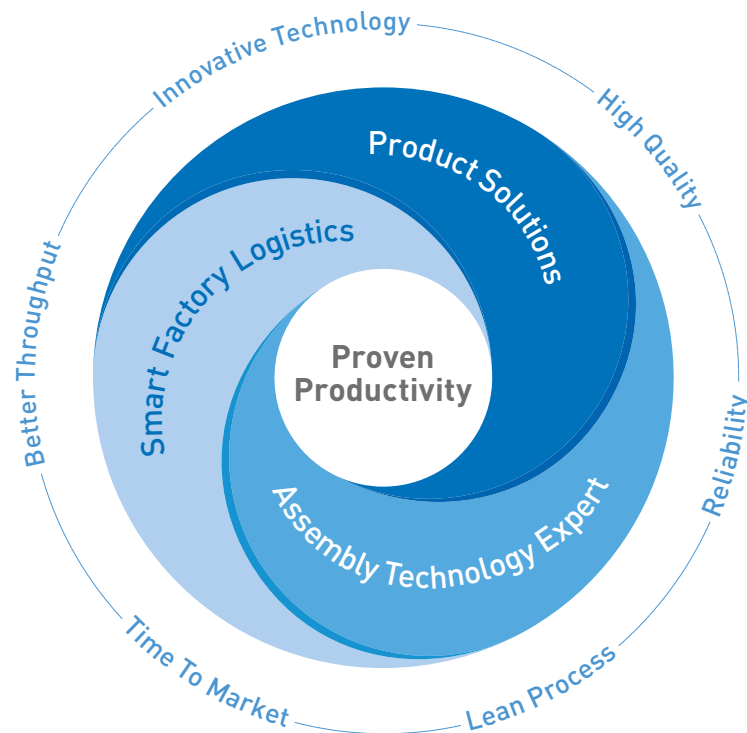
- Lower particle risk and better cleanability
- No flaking or coating thickness issues
- Stronger anti-galling performance (800 HV)
- Proven cost efficiency over silver



Learn more in our technical
comparison document

PROVEN PRODUCTIVITY – A PROMISE TO OUR CUSTOMERS

The strategy for success



From years of cooperation with our customers we know what achieves proven and sustainable impact. We have identified what it takes to strengthen the competitiveness of our customers. Therefore we support our customers in three strategic core areas.

Firstly, when finding optimal **Product Solutions**, that is in the evaluation and use of the best fastening part for the particular function intended in our customers' products.

Second, our **Assembly Technology Expert** services deliver the smartest solutions for all possible fastening challenges. Our services cover from the moment our customers developing a new product, to

assembly process optimization as well as fastening technology education for our customers' employees.

And thirdly, optimising our clients' productions in a smart and lean way with **Smart Factory Logistics**, our methodology, with intelligent logistics systems and tailor-made solutions.

Understood as a promise to our customers, "Proven Productivity" contains two elements: Firstly, that it demonstrably works. And secondly, that it sustainably and measurably improves the productivity and competitiveness of our customers.

And this for us is a philosophy which motivates us every day to always be one step ahead.

www.bossard.com