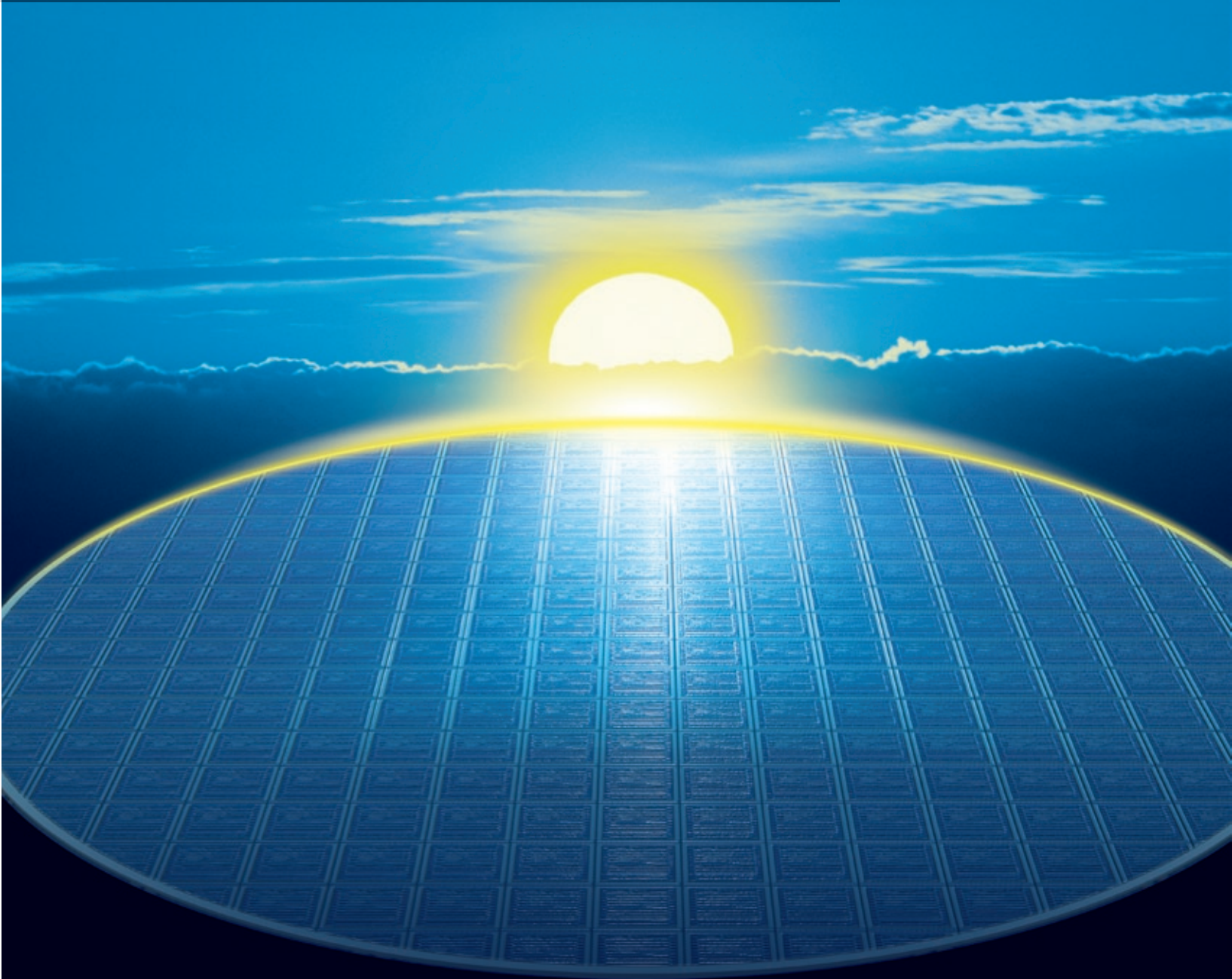


Semiconductor & Photovoltaic Productivity Solutions

Motion, drive and control technology to strengthen your competitive edge.



Realize the full value of automation



Industry forces drive need for productivity

Fast-changing demand cycles. Intense competition. Unrelenting pressure to ramp yields faster and increase margins. Fundamental forces driving the industry—the move to 32nm and 23nm nodes, exploding demand for solar technology, rapidly changing product mixes—have led to renewed focus on improving fab productivity and throughput.

Automation technology can make a powerful difference. At key areas throughout the fab—from wafer processing and metrology to wire

bonding and chip packaging operations—you can reduce cycle times, speed up installation and maintenance, and boost your operation's ROI through flexible, reliable, best-in-class motion and control systems.

Solutions to prime your productivity

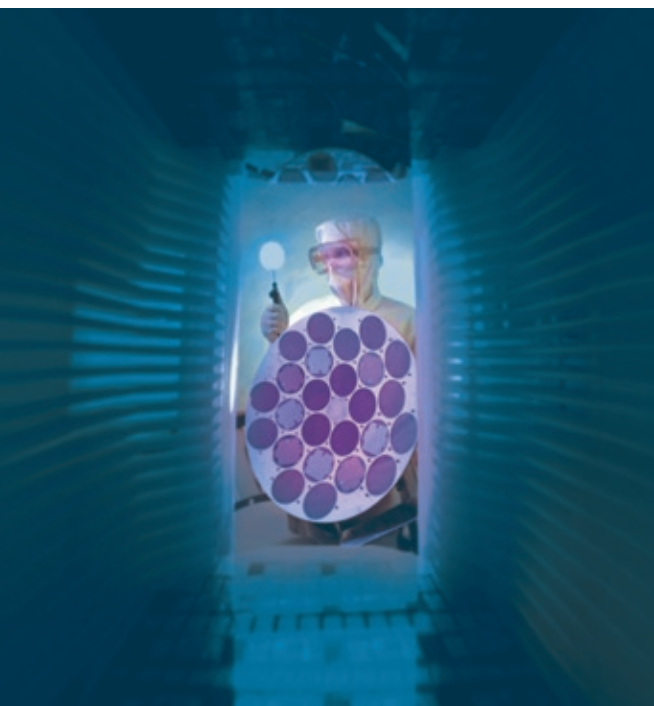
Semiconductor and photovoltaic manufacturers and tool builders are investing in core technologies that give them a competitive edge.

In turn, they are outsourcing key automation systems to those with the experience and

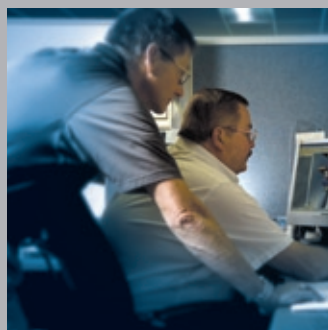
resources to deliver sustained value and cost of ownership throughout their operations.

Bosch Rexroth offers unique value: a global partner with excellent local resources focused on helping you get the most from your production systems. Our proven technologies—electronic, pneumatic, and linear motion and assembly products—are engineered to work together, helping you fully reap the rewards of the investments you are making in cutting-edge manufacturing technology.

High-yield manufacturing— the keys to success



Reduce cycle time. Unlock productivity improvements. Respond faster to rapidly changing market demands and growth in new product sectors like solar. Bosch Rexroth understands what it takes to move wafers through fabs faster, with less waste and fewer bottlenecks, and can deliver systems and subassemblies engineered to improve the areas that are key to increasing ROI in your operations.



Productivity includes everything that affects a fab's efficiency, from designing, installing, and commissioning new equipment, to factory and tool communications. Bosch Rexroth can help improve it all, with integrated, reliable systems and subassemblies proven to perform in 24/7 production lines handling 100,000 wafer starts per month, allowing you to focus on your core competencies.

PRODUCTIVITY



An agile fab maximizes uptime, eliminates unscheduled downtime and ensures that tools operate with near-perfect availability. Bosch Rexroth can help raise the reliability, and thus the ROI, of your operations. We offer smarter systems, improved diagnostics, and subsystems built with components engineered for fast maintenance, increased uptime and precision production.

RELIABILITY



Boosting fab throughput (and thus profits) means producing more with less—less time, less waste. For decades, Bosch Rexroth has been helping manufacturers worldwide meet that goal. We know how to use automation to improve wafer handling and increase intertool efficiency, to deliver higher duty cycles and to help you reduce the time wafers spend waiting to be processed.

THROUGHPUT



It's estimated that the semiconductor industry spent \$12 billion to transition to 300 mm wafers, and billions more will be spent to ramp solar cell manufacturing to meet global demand. To fully reap the rewards of these investments and keep costs from spiraling out of control, count on Bosch Rexroth to handle the burden of motion and material handling solutions for you, by engineering and building high-performance subassemblies.

COST

Complete systems to break the bottlenecks

From inline reference and critical dimension metrology tools, through back end chip packaging and inspection systems, Bosch Rexroth has the technology and expertise to keep production moving. We've focused significant resources on solving key process bottlenecks that limit your ability to maximize fab yield and achieve profitable manufacturing.

Wafer Handling

High quality components and complete motion platforms let OEMs focus on their core competencies, while we provide subsystems with extremely stable, reliable motion and control performance—for use within tools, for intertool movement, and for cleanroom manufacturing and assembly applications.



Wire Bonding

Experience with high performance requirements lets us partner successfully with OEMs to create state-of-the-art control solutions and precision engineered assemblies proven to deliver micrometer-scale precise motion that is stable, repeatable and meets the demand for non-stop, 24/7 wire bonding throughput.



Metrology

Experience with nanometer-scale control performance lets us provide OEMs with state-of-the-art control solutions and precision engineered assemblies that fulfill demanding accuracy and throughput requirements without sacrificing ease of use.



Chip Handling

Our compact, modular systems incorporate advanced processing features, interfaces and motion elements engineered to handle ultra-fast chip die-cut, inspection and sorting operations. Realize substantial savings through reduced cabling, more uptime and subsystems built and tested prior to final tool assembly.



Solar

From photovoltaic process tools to factory automation and into the field, we leverage our semiconductor experience and systems capabilities to enable shorter design cycles, faster ramp-up and reliable, high throughput production.

Global resources, local support: outsource your subassemblies to Bosch Rexroth

Invest your resources in the technologies that give you a competitive edge. Count on Bosch Rexroth to engineer and build automation subassemblies that will help you control tool development costs and deliver systems to market faster.

Bosch Rexroth operates industry centers in North America, Europe and Asia dedicated to providing a full range of applications support, engineering, design and subassembly outsourcing capabilities to the semiconductor and solar manufacturing industries.



Technology Centers

- Advanced application engineering, CAD and mechatronic design resources with industry-specific experience in metrology, wafer handling, and chip processing applications
- Account managers and project managers dedicated to ensure rapid response for OEMs
- Convenient locations near Silicon Valley, New England, Europe and Asia, enabling face-to-face communications and design review
- On-site cleanroom mini-environment and applications lab

Manufacturing and Assembly Operations

- Decades of experience building linear motion & mechatronic subassemblies
- Unique expertise integrating multiple technologies—electric drives, controls, linear motion and pneumatic actuators—into proven systems
- Major industry certifications include ISO 9001, ISO 14001, ISO 18001
- Our optimized Bosch Production System (BPS) ensures lean production, fast delivery, and lower cost of systems
- Single part number for a complete subassembly streamlines purchasing and inventory management

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