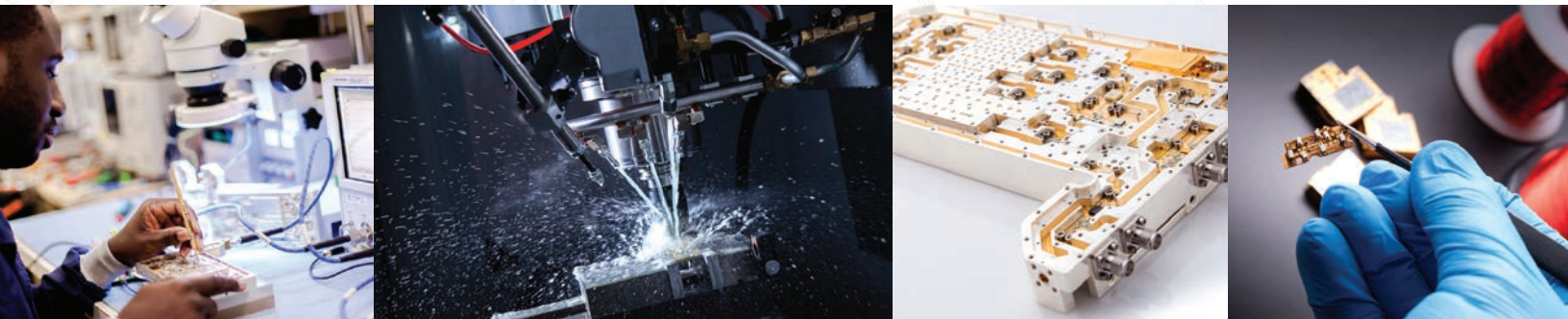
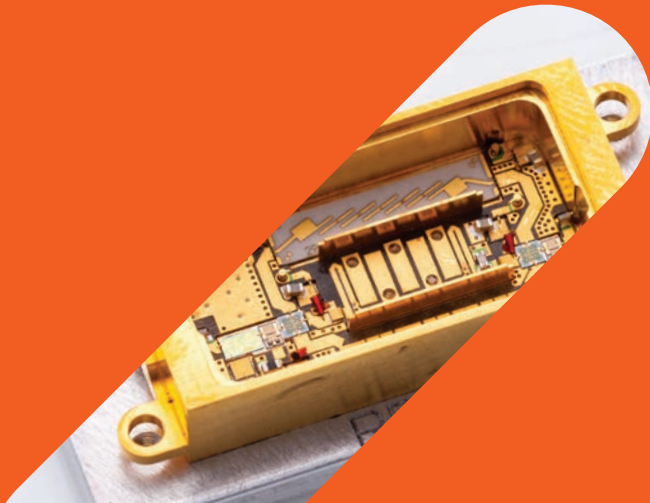


## Assured Performance





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# CAPABILITIES SUMMARY

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Lexatys, LLC

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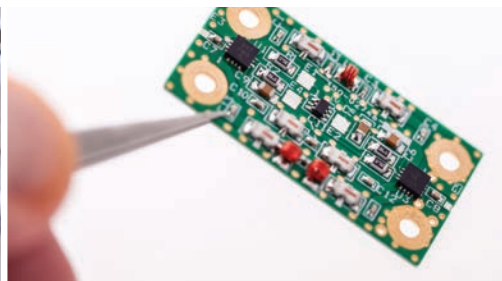
# HISTORY

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Formed in 2004, Lexatys has been performing design, development, and manufacturing in the forefront of the microwave and RF market segment. From concept to implementation, Lexatys' staff and employees are committed to using modern tools, techniques, and processes to deliver compact, high performance solutions to the marketplace.

Located in Laurel, Delaware since its move to an upgraded, well equipped and modern facility in 2016, the company draws from a rich pool of design and manufacturing talent while also developing people new to the industry.

From an initial focus in supporting OEMs with EM simulated, laser machined planar filters, Lexatys has grown to a full service provider of frequency converter modules at up to 50 GHz as well as expanding its offering of frequency selective components and integrated microwave sub-assemblies.



*Attention to detail with a focus on meeting and exceeding our customer's expectations drives us to continue to innovate, collaborate, and deliver precision engineered solutions.*

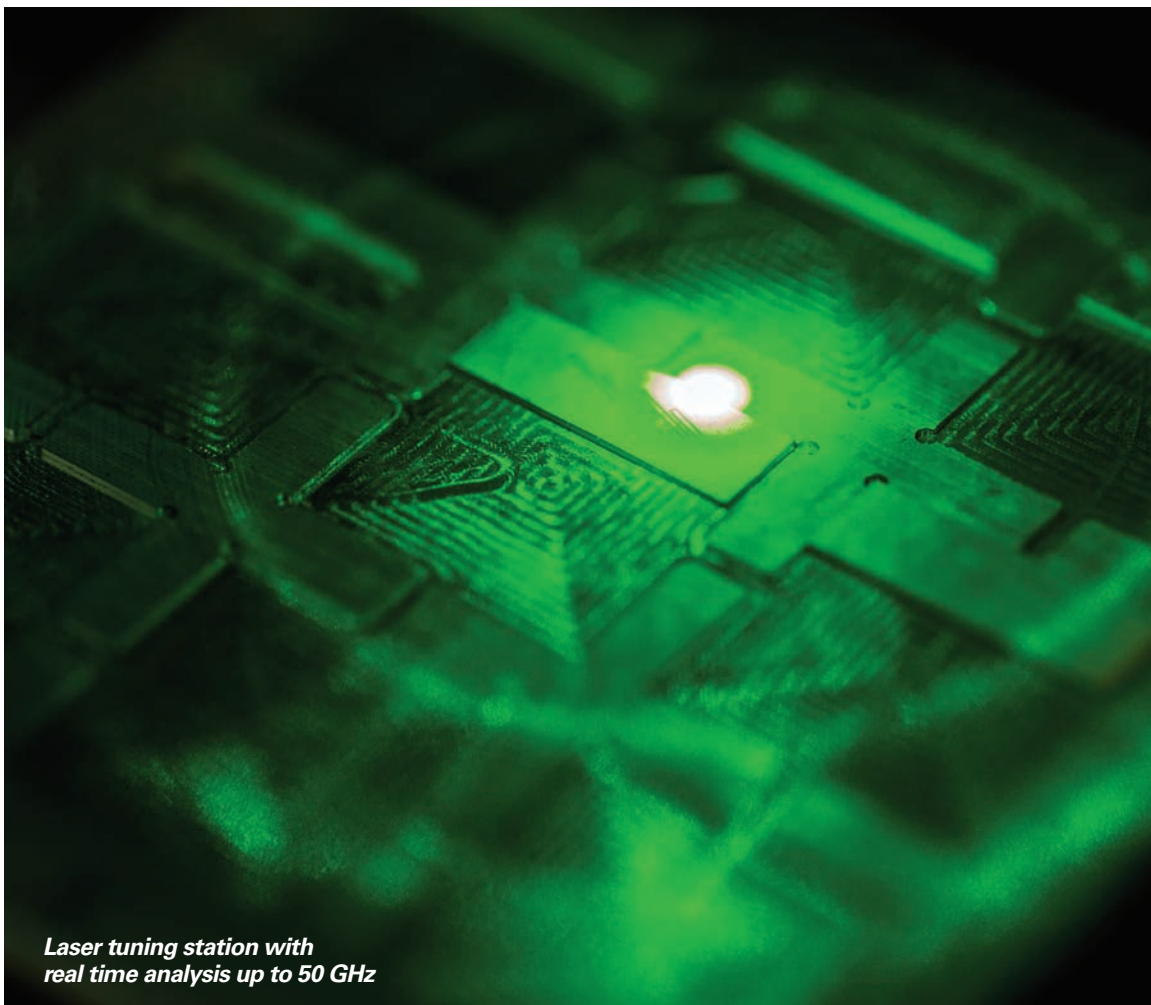
# CAPABILITIES

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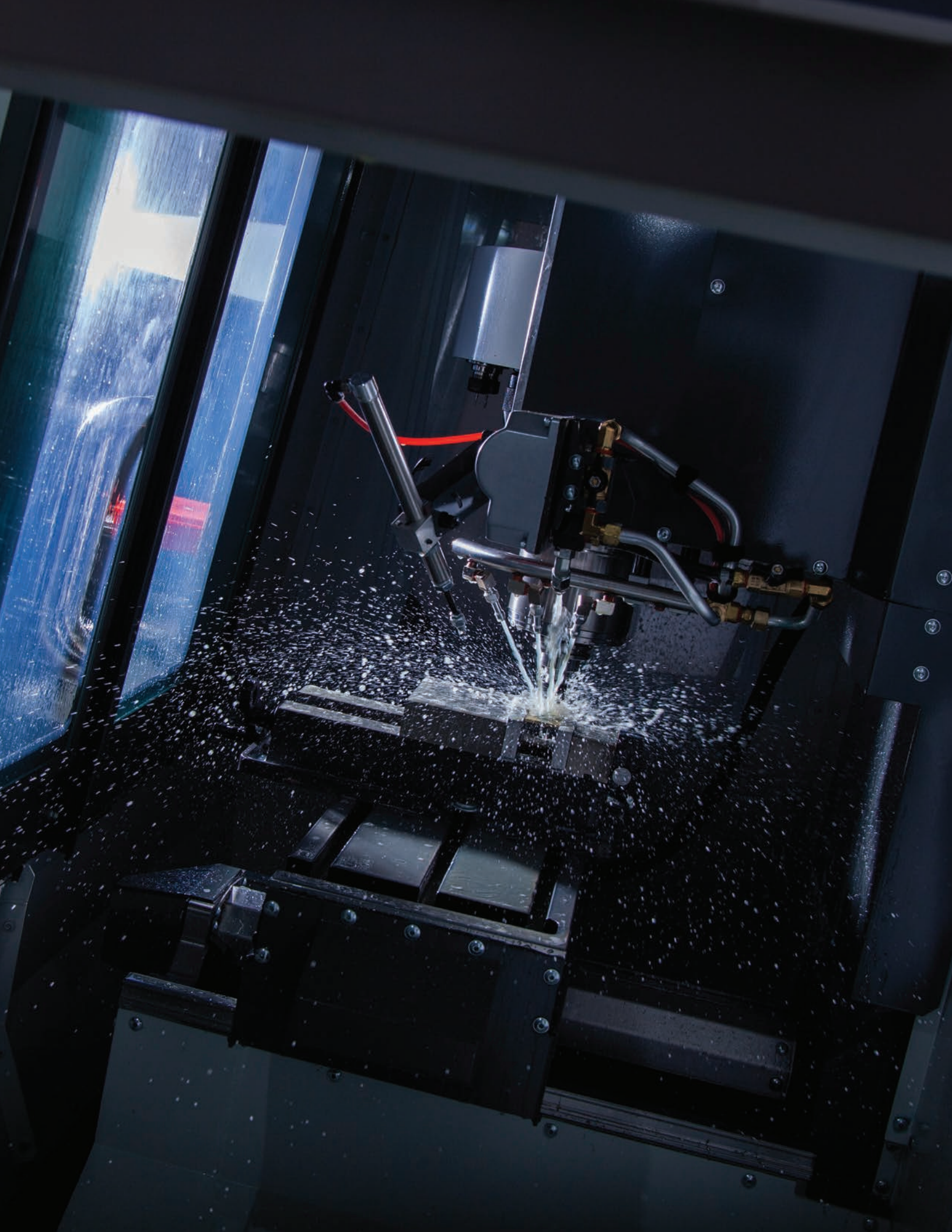
Lexatys develops unique, compact designs which optimize performance while minimizing package size. Lexatys has capabilities that include: miniaturized lumped element filtering, laser-tunable surface mount filters, integrated assembly design up to 50 GHz and high power, hermetic filter packages. Lexatys has designed and built several integrated assemblies that operate from below 6 GHz up to 50 GHz in range. Examples of existing product in production will be referenced further down in this document.

**A partial description of Lexatys' manufacturing support capabilities include:**

- Dedicated In-House laser micromachining capabilities which allow fine tuning of miniature filters as well as custom trimming of PCBs for optimum RF performance
- In-house environmental testing for live RF measurements or automated temperature cycling
- Laser machining of custom gaskets, substrate materials, and absorber materials which allows rapid addition of performance enhancing features to improve isolation

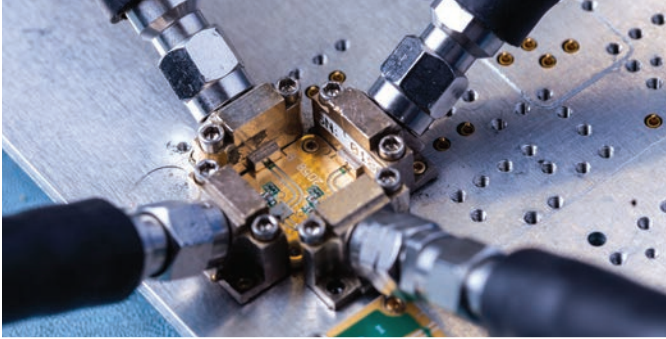


*Laser tuning station with  
real time analysis up to 50 GHz*

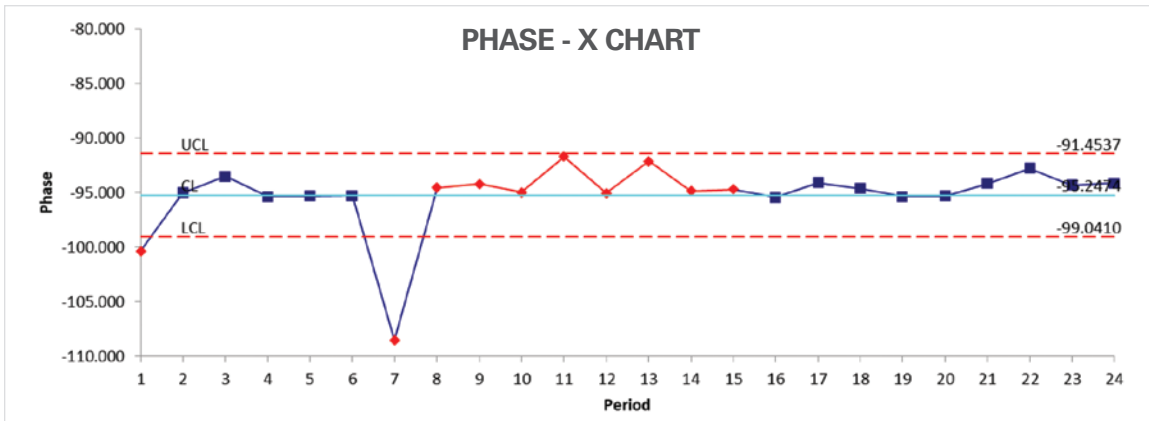


# TESTING CAPABILITIES

With extensive use of X-Microwave's 70 GHz RF probing system, Lexatys technicians align, verify, and record data for critical subassemblies prior to integration. As early adopters and developers of hardware using this broadband interface technique, the company has developed an extensive line of custom fixtures, components, and processes which enable rapid prototyping as well as statistical analysis of critical processes.



*4 port PNA test bench  
showing 20 GHz SP3T  
RF switch under test*



# VOLUME MANUFACTURING TO 50 GHz

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Lexatys has significantly invested in modern microwave test equipment and now maintains measurement capability to 50 GHz. Our commitment to manufacturing excellence includes development of automated measurement systems as well as mechanically automated (robotic) part handling. We have produced 27 GHz microwave block downconverters (BDCs) at a rate of one per day for extended periods. These production cycles include 100% testing with detailed performance data and quality reports.



*50 GHz microwave tuning station*

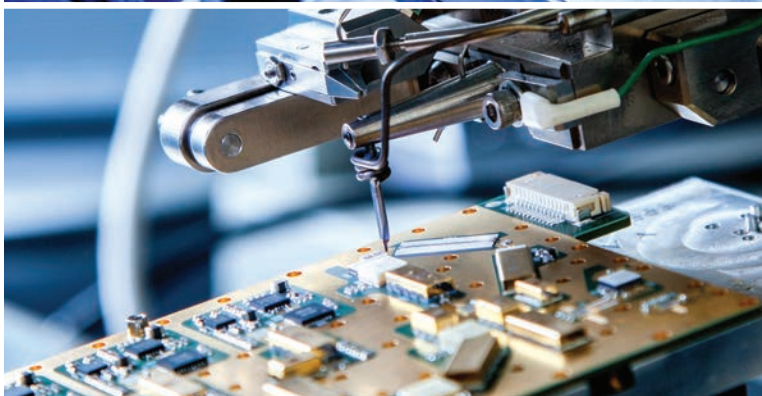


# WIRE BONDING

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Our West Bond Model 454647E Semi-Automatic Wire Bonding system includes targeting camera and Monitor, Microscope, Heated Stage, Illuminator, Bond Heads for Ball Bonding and Wedge Bonding.

The programmable, precisely controlled bond lengths allow Lexatys engineering to precisely control the impedance of RF connections. Implement microwave filtering also uses these controlled inductance values as integral circuit elements.



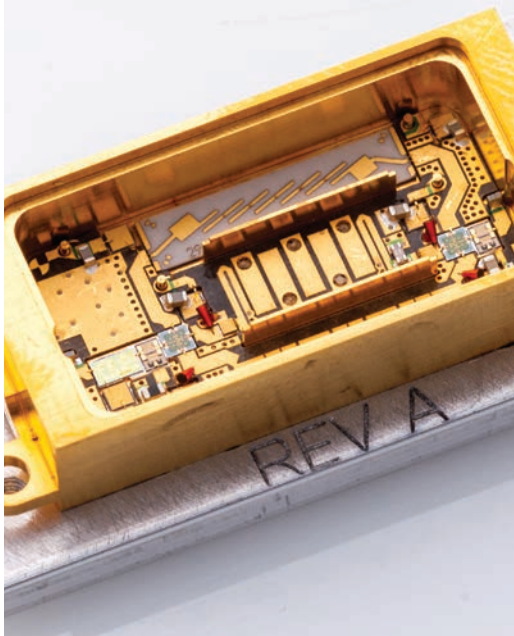
***Wire bonding from  
6 mil ribbon to 1 mil wire***

# LASER TUNING

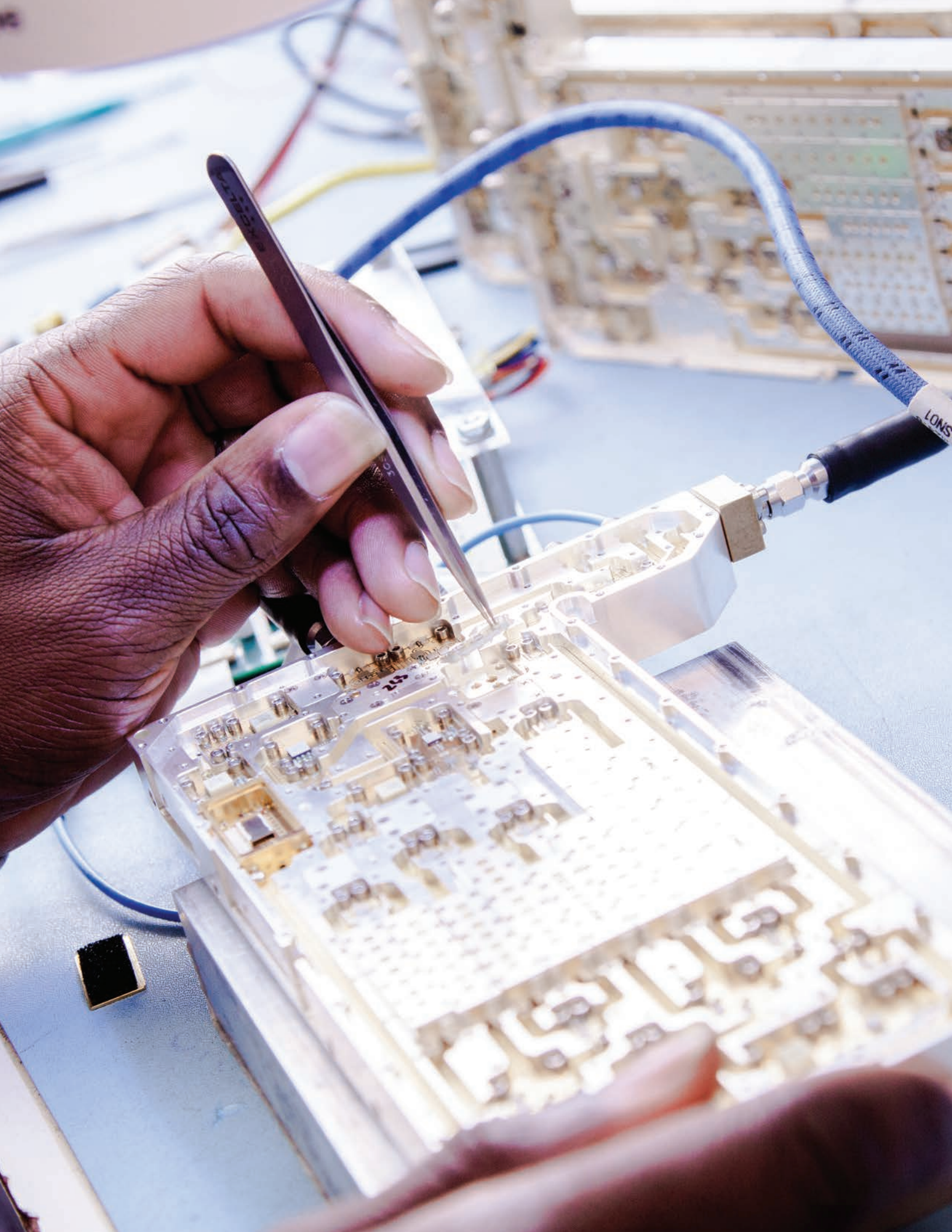
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An early innovation to emerge from Lexatys engineering was the ability to custom machine and trim microwave circuits using purpose built 535 nm CNC lasers. The cycle time from initial design to functioning prototype is measured in hours instead of weeks which is usually expected from other vendors processing high permittivity dielectrics. Lexatys works with microwave laminates, alumina ceramic, and various titanate materials to manufacture extremely compact RF filters, couplers, and switching circuits. Lexatys' engineers are constantly evaluating new dielectric materials to optimize performance.

► **Cycle time  
measured in  
hours not weeks**



*Laser tuning station*



# CAD DESIGN

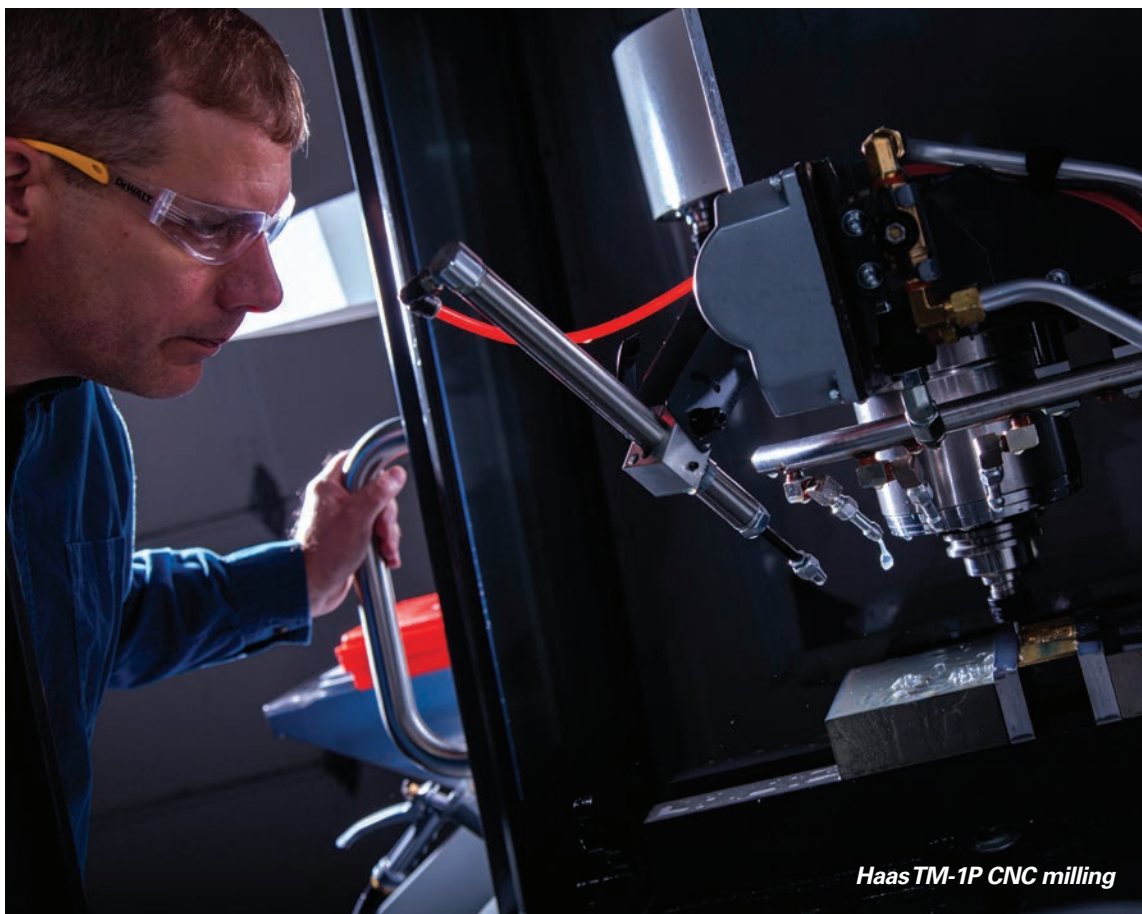
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Our design staff puts decades of experience in the design-to-order microwave arena to effective use addressing the challenges posed by a customer's requirement. From synthesis and analysis using EM simulation and flow modeling to documentation and CAM programming using 3D modeling tools, the end result is a tightly integrated solution which has been designed to be manufacturable for high volumes as well as rapid first article production.



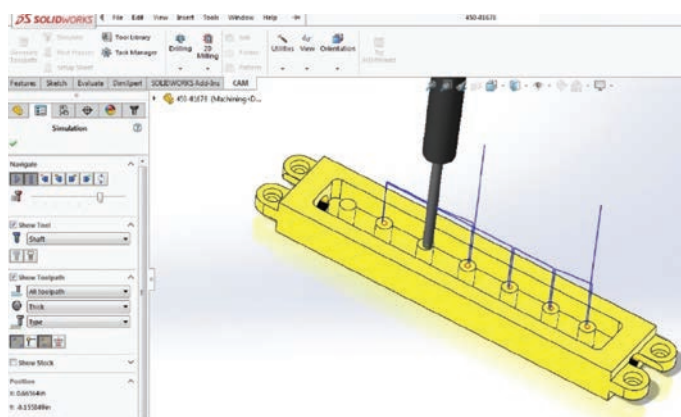
*Based design and development*

# ASSURED PRECISION MACHINING



In order to support the high precision machining driven by high frequency microwave parts, Lexatys' manufacturing employs Haas TM-1P CNC type equipment with automatic air gun, chip auger, programmable coolant nozzle, and rigid tapping which allows rapid prototyping and lights out machining to extend manufacturing capacity.

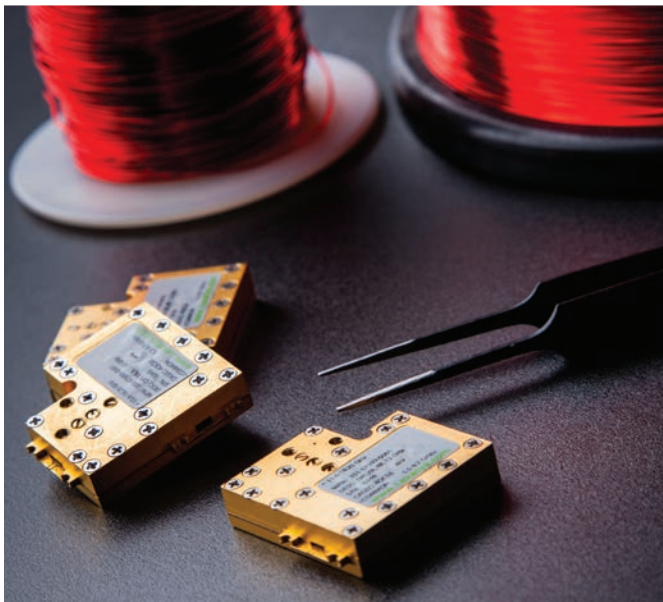
CNC tooling programs are driven directly from 3D models developed in Dassault System's SolidWorks Professional suite of software. Integrated into the suite is AutoDesk's HSM Works CAM tool which generates the toolpaths. With a low cost to change, engineers are encouraged to make design improvements early and often.



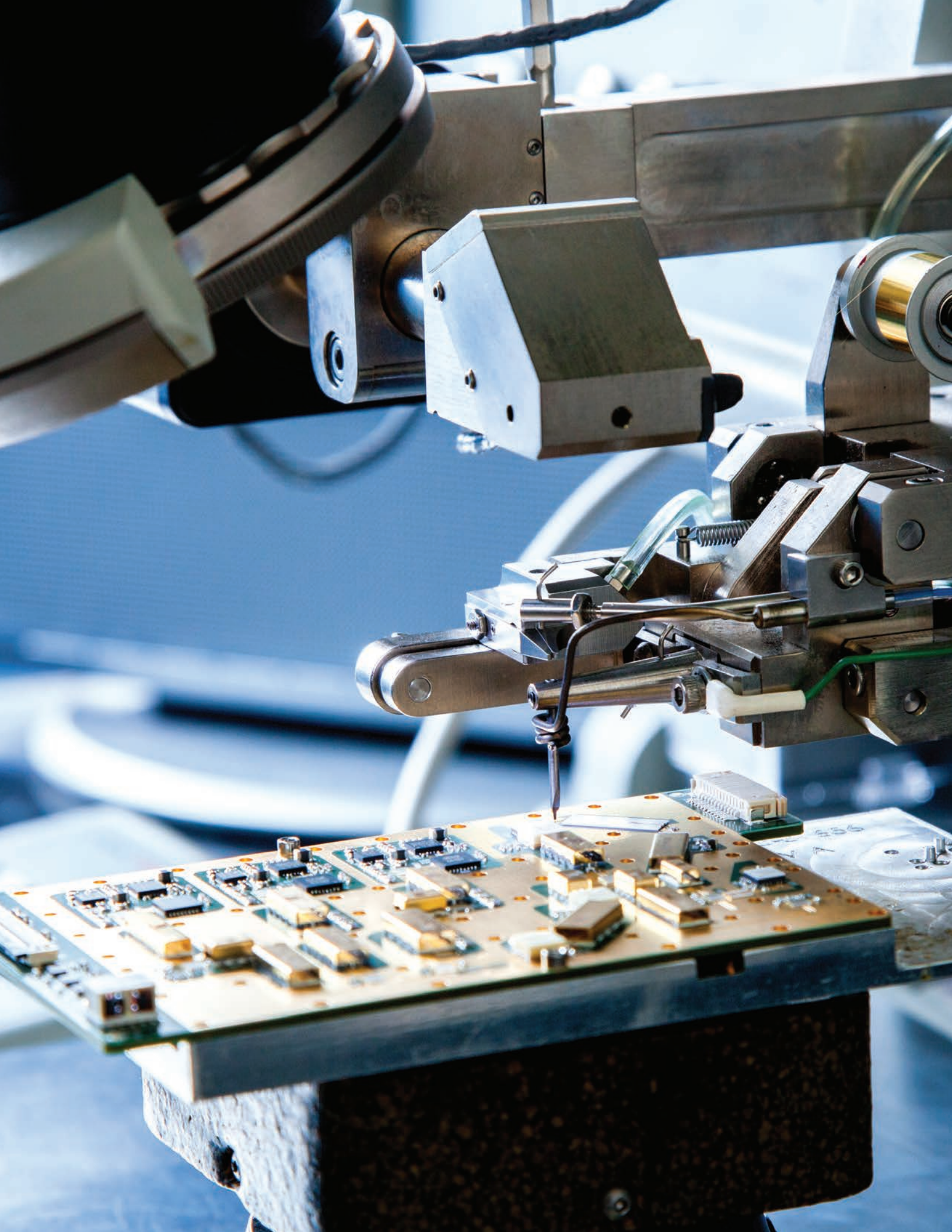
# CERTIFIED MANUAL AND AUTOMATIC ASSEMBLY DISCIPLINES

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Throughout the facility, fine hand tools and stereo microscopes are used extensively by our skilled operators. Each employee receives initial and recurrent training in the disciplines listed below. Lexatys has a full time certified J-STD-001 soldering instructor to provide initial and recurrent training in this critical process.



- Manufacturing Essentials
- QMS Awareness
- Connector Care
- ESD
- Shelf Life
- Preservation of Product
- FOD
- HazMat
- Five-S
- Cleaning of Product
- MPP Work-flows
- Control of Work Transfers
- Ablestik 5025E Handling



# ENGINEERING INSTRUCTION

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Experienced RF engineers routinely provide training and assistance to line personnel. Lexatys has developed an AS9100C compliant quality management system with some elements and terminology of the new ISO 9001:2015.

Following the establishment of customer requirements and recording them in our CRM system, Lexatys engineers follow the procedures established in 767-73000 Design and Development to ensure compliance with expectations.

During prototype, EDM production, and LRIP phases, all lessons learned and beneficial improvements are recorded using processes called out in 767-71300 Documentation Change and Configuration Management. Lexatys personnel are committed to developing and recording core expertise in all areas of our discipline. The body of knowledge is accumulated into our controlled documents maintained in our PLM system based on Aras Innovator as well as our PDM system configured within Dassault Systeme's PDM Pro distributed management tool.







JANUARY 2018

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