

# Automated Coatings Removal

Southwest Research Institute®  
San Antonio, Texas



# Southwest Research Institute

Founded in 1947 as an independent, nonprofit research and development organization, Southwest Research Institute provides a significant research, engineering, and testing resource for industry, business, and government. The Institute uses a multidisciplinary, integrated approach to solving complex problems in science and applied technology. SwRI provides adaptive engineering solutions that match the characteristics of individual manufacturing or maintenance processes. As part of a long-held tradition, intellectual property rights arising from sponsored research at the Institute are often assigned to the client. SwRI generally retains the rights to Institute-funded advancements.

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**Southwest Research Institute (SwRI<sup>®</sup>)** provides innovative and cost-effective solutions for automated removal of coatings for commercial and military applications. With almost 20 years of experience in automated coatings removal, SwRI solves complex coating removal problems taking into account part size, substrate material, process, system interfaces, and level of automation.

Ideally suited for production stripping of large numbers of similar components, automated systems offer improved ergonomic working environments, better process control, consistent paint removal, and reduced labor hours. The Institute, an independent, multidisciplinary research and development organization, has extensive experience in dry media blast stripping. However, SwRI engineers are familiar with many new and developmental coating-removal technologies, enabling them to determine the most appropriate technology for a range of depaint applications, including:

- Automotive components
- Full-aircraft structure
- Off airframe components
- Process testing and analysis

*This system included an SwRI-developed and patented paint sensor package (U.S. Patent No. 5,038,038) for automatically maintaining optimum robot speed to remove the paint completely without excessively exposing the substrate to the depaint process.*



*The Institute developed two full-aircraft depaint systems for the U.S. Air Force. A three-robot system was installed at Warner Robins Air Logistics Center to depaint the F-15 Eagle, while a two-robot system was installed at Ogden Air Logistics Center to depaint the F-4 Phantom, F-16 Fighting Falcon, and C-130 Hercules flight controls. Both systems use the same nine-axis mechanical platform and control methodology.*

## Services

To establish a smoothly functioning coating removal system, SwRI offers a wide range of services and technical support, including:

**Feasibility Analysis** — Engineers and analysts determine the appropriate level of automation and the optimum process for meeting the application characteristics.

**System Support** — SwRI provides a variety of support options, ranging from short-term transitional support to long-term service contracts.

**Independent Verification and Validation** — SwRI maintains a diverse group of experienced engineers in varying technical disciplines who can provide clients with an independent review of a system prior to implementation.

**Turnkey Services** — As part of a complete robotic coating-removal package, SwRI provides comprehensive design, installation, training, and documentation services.

## Robotic Systems

Recognized as a leader in applied research and development in robotics and automated coating removal, SwRI provides a wide range of robotic paint and coating removal systems, including:

**Robotic Systems** — Engineers utilize custom, off-the-shelf, or hybrid robotic solutions to achieve the application's accuracy and work envelope requirements.

**Software and Controls** — Knowledgeable in the use of a variety of robotic controllers and programming languages to accomplish controlled robotic tasks, SwRI engineers provide user interfaces ranging from simple commercially available equipment to customized user-friendly graphical interface solutions.

**Coating Removal Processes** — SwRI provides an unbiased recommendation for the most suitable automated coating removal processes, including commercially available systems for use with robotic technology or customized, experimental methods designed for specific needs.



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*This SwRI-developed automotive component coatings removal system strips paint from automotive parts. The system uses a four-axis manipulator with two nozzles and possesses a simple user interface to the system consisting of a button panel with a part selector.*



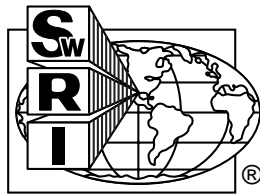
*SwRI developed an automated depaint system to depaint a variety of off-airframe components at Warner Robins Air Logistics Center. This system incorporates a user-friendly interface and path teaching tools for ease of operation and training.*

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*Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres and provides nearly two million square feet of laboratories, test facilities, workshops, and offices for more than 2,800 employees who perform contract work for industry and government clients.*

We welcome your inquiries,  
For additional information, please contact:



Paul Evans  
Automation Engineering Section  
Automation and Data Systems Division  
Southwest Research Institute  
6220 Culebra Road • P.O. Drawer 28510  
San Antonio, Texas 78228-0510  
(210) 522-2838 • Fax: (210) 522-5499  
E-mail: [pevans@swri.org](mailto:pevans@swri.org)  
SwRI Web Site: [swri.org](http://swri.org)

Web Site: [manufacturing.swri.org](http://manufacturing.swri.org)