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SBS ECOCLEAN GROUP

Defence Industry

Technical Cleanliness for Mission-Critical Components



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Reliability Starts with Clean Components

Manufacturers of mission-critical components face increasing demands for technical cleanliness, process stability and consistent product quality. Whether producing hydraulic systems, precision mechanical components, electronic assemblies or components for aerospace applications, even minor contamination can impact functionality, assembly performance and long-term operational reliability.

Technical cleanliness has therefore become a key enabler of manufacturing excellence. It helps reduce quality risks, supports stable downstream processes and provides the foundation for reproducible production results. At the same time, it contributes to higher process confidence, improved product performance and the reliable operation of critical components throughout their service life.



AT A GLANCE

Parts & Components

- Hydraulic and pneumatic components
- Valve bodies and actuator components
- Fluid-carrying components
- Precision machined parts
- Gear and drive components
- Housings and structural parts
- Electronic housings and connectors
- Sensor and optical components
- Satellite and space components
- Repair and MRO components
- Additively manufactured components

Materials

- Steel
- Stainless steel
- Aluminum
- Titanium
- Copper and copper alloys
- Nickel-based alloys
- Composite materials
- Ceramics
- Additively manufactured materials

Applications

- Pre-cleaning after machining processes
- Intermediate cleaning during production
- Fine cleaning with cleanliness specifications
- Final cleaning before assembly
- Cleaning prior to leak testing
- Cleaning before coating, painting or bonding
- Surface preparation for downstream processes
- Cleaning of optical and electronic components
- MRO and refurbishment cleaning
- Corrosion protection and preservation processes

Cleaning Technology Designed for Reliable Manufacturing Processes

Reliable component performance starts with a cleaning process tailored to specific manufacturing requirements. Different component geometries, materials, contamination types and cleanliness targets demand application-specific process solutions. Combining decades of application expertise with a comprehensive portfolio of cleaning technologies, Ecoclean helps manufacturers reliably remove particles,

metalworking fluids and process residues. The result is reproducible cleanliness, documented process control and efficient manufacturing performance. From pre-cleaning and intermediate cleaning to final cleaning and surface preparation, Ecoclean develops customized solutions that support product quality, operational reliability and sustainable process excellence across the entire manufacturing chain.

SYSTEM TECHNOLOGY

Cleaning Systems:

- Aqueous cleaning systems
- Solvent-based cleaning systems
- Single and dual chamber systems
- Inline immersion systems
- Customized special-purpose systems

Process Technologies:

- Spray cleaning
- Immersion cleaning
- Injection Flood Washing (IFW)
- Ultrasonic cleaning, including multi-frequency applications (for contamination on the exterior of a component)
- Ultrasonic PLUS cleaning (for contamination inside a component)
- Vacuum-assisted Pulsated Pressure Cleaning (PPC) (for contamination inside a component)
- Plasma cleaning
- Surface treatment

Drying Technologies:

- Vacuum drying
- Hot-air drying
- Combined drying concepts
- Drying solutions adapted to component geometry and cleanliness requirements

Media Preparation & Process Integration:

- Distillation systems
- Evaporation technology
- Filtration systems
- Deionized water treatment
- Process monitoring and quality assurance

Automation & Material Handling:

- Semi-automated and fully automated handling solutions
- Integrated transport systems
- Robot-assisted loading and unloading
- Production line integration



Applications for Mission-Critical Components

Manufacturers in the defence industry produce a broad range of mission-critical components, each with unique cleanliness requirements and manufacturing challenges. From hydraulic assemblies and precision mechanicals to electronic housings, sensor systems and aerospace-related components, technical cleanliness is essential to ensuring reliable functionality, consistent quality and stable manufacturing processes. Ecoclean supports manufacturers with application-specific cleaning solutions tailored to individual component requirements. The result is reproducible technical cleanliness, improved process reliability and a dependable foundation for downstream operations such as assembly, testing and surface treatment.

	EXAMPLE APPLICATIONS	YOUR BENEFIT
HYDRAULICS & ACTUATORS	Valve bodies, actuator housings, piston and cylinder components, hydraulic manifolds, couplings and fluid-carrying assemblies.	 Reproducible cleanliness & improved leak-tightness Higher process reliability
ELECTRONICS & CONNECTORS	Connectors, contacts, busbars, electronic housings, power distribution modules and communication components.	 Reliable contaminant removal & performance Reduced quality risks
PRECISION MECHANICS & DRIVE COMPONENTS	Gear components, shafts, bearing seats, housings, machined parts and structural components made from steel, aluminum or titanium.	 Consistent cleanliness & assembly quality Reliable component operation
OPTICS, SENSORS & PRECISION HOUSINGS	Sensor housings, optical assemblies, lens mounts, heat sinks and precision-engineered enclosures.	 Protection of sensitive surfaces Dependable component performance
MRO & REFURBISHMENT	Repair parts, replacement assemblies, refurbished components and parts prepared for inspection, testing or overhaul.	 Reliable removal of mixed contamination Efficient refurbishment processes
SURFACE PREPARATION	Components prior to coating, painting, bonding, welding or assembly.	 Reliable corrosion protection Enhanced coating quality

Across hydraulic, electronic, mechanical, sensing and aerospace-related applications, reproducible technical cleanliness is a key enabler of reliable component performance, stable production processes and documented quality throughout the manufacturing chain.



Inside our
Test Center (Video)

Application Expertise and Component Analysis for Proven Cleaning Processes

Manufacturers of mission-critical components require more than a cleaning system. They need a reliable process that consistently achieves defined cleanliness targets under real production conditions. With decades of experience in industrial parts cleaning, Ecoclean supports customers from analysis and feasibility studies to validated cleaning concepts and production readiness. Combining application expertise with proven process know-how, Ecoclean reduces implementation risks, accelerates project execution and ensures reproducible cleanliness results.

Every cleaning task begins with understanding the component, its contamination and the required cleanliness target. In Ecoclean's Test Centers, original customer components are cleaned and evaluated under realistic production conditions, enabling customers to verify cleanliness levels and process performance before investing. Based on assessments of component geometry, materials, contamination, cleanliness requirements, throughput and downstream processes, Ecoclean develops optimized cleaning concepts that reduce implementation risks, accelerate project execution and ensure stable, reproducible and measurable results.

Global Expertise. Local Support.

Ecoclean combines global engineering expertise with local support. Through its worldwide network of Test and Technology Centers, Production Sites and Service Organizations, customers benefit from direct access to cleaning specialists, consistent global standards and responsive support throughout every project phase.

BRING US YOUR COMPONENT

Together, we define the contamination challenge, cleanliness target and success criteria. Based on practical testing, application expertise and proven process development, we create a validated cleaning solution tailored to your specific requirements, transforming contamination challenges into a production-ready cleaning process.

Our Locations Worldwide



CONTACT



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