WOG
WATER • OIL • GAS

ULTRA-PURE

WATER POLISHING SYSTEM

(Gujarat)

CLIENT OVERVIEW

A prestigious scientific research institute in Gujarat specializing in high precision plasma and pharmaceutical research, requiring consistent and ultra-pure water quality to uphold experimental integrity and regulatory compliance.

PROJECT OVERVIEW

WOG Technologies was entrusted with the design, engineering, & commissioning of a 240 m^3/day Ultra-Pure Water Polishing System. The system was developed to meet < 0.2 μS/cm conductivity & ≥ $5x10^{12}$ MΩ·cm resistivity, in full compliance with pharmacopeial standards & research-grade water norms.

01
WATER CAPACITY
240 m^3/day

02
CONDUCTIVITY
< 0.2 µS/cm

03
RESISTIVITY
≥ $5x10^{12}$ M

04
STANDARDS MET
Pharmacopeial & Research Grade Water

CHALLENGES

- Meeting pharmacopeial & ASTM Type I water standards crucial for pharmaceutical & R&D applications.
- Seamless integration with legacy laboratory infrastructure and distributed research loops.
- Ensuring continuous uptime, zero contamination, & dissolved oxygen (DO) 0.1 ppm in sensitive applications.

01 WATER STANDARDS
Pharmacopeial + ASTM Type I

02 SYSTEM INTEGRATION
Legacy Lab Infrastructure

03 UPTIME + CONTAMINATION
Continuous, Zero Contamination

04 DISSOLVED OXYGEN (DO)
≤ 0.1 ppm

SOLUTIONS

- Custom-Engineered Water Polishing System (WPU) including:

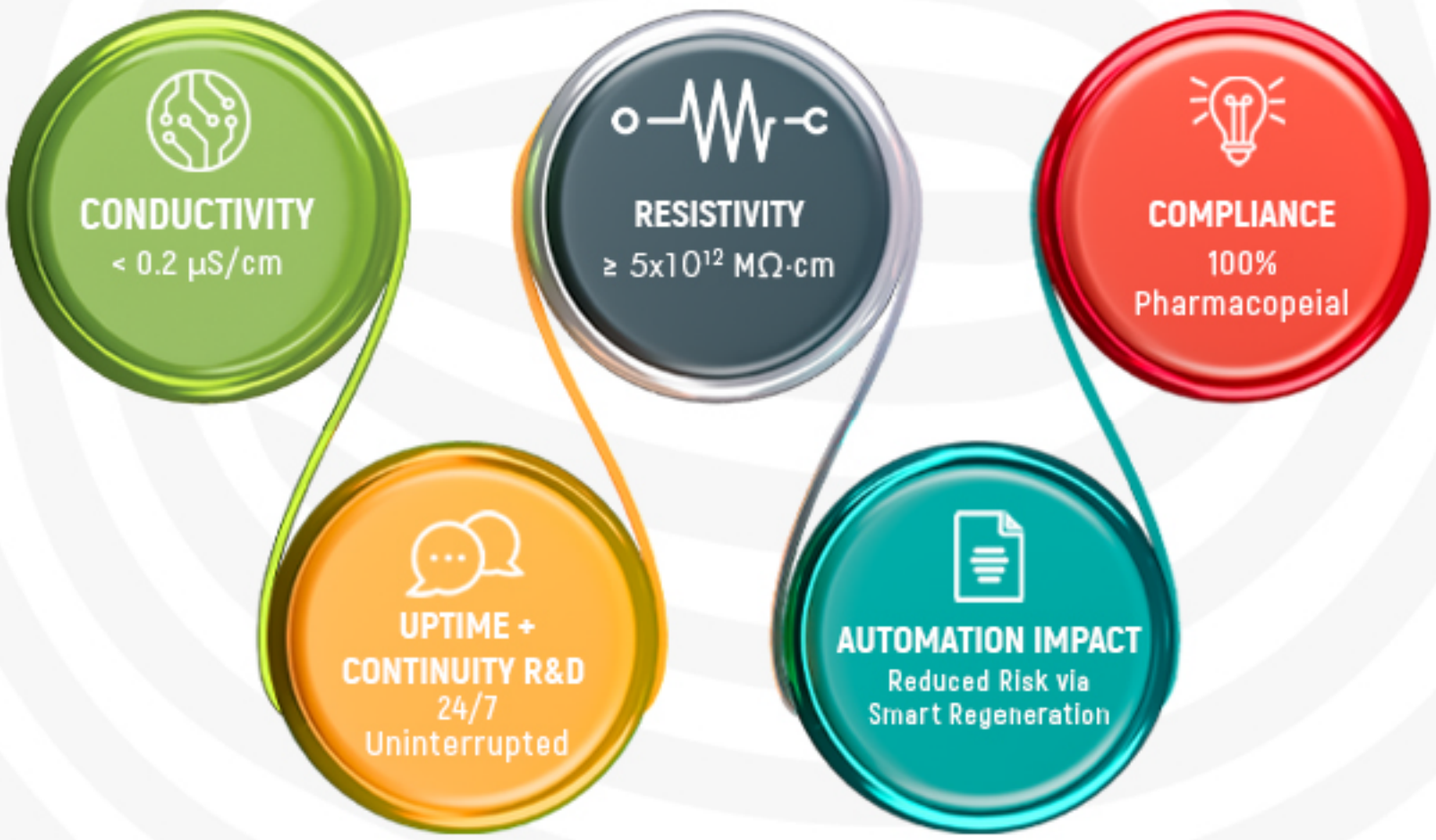
- Three independent polishing loops designed for tailored outlet water quality per application.
- Advanced ion exchange (SAC/SBA/MB) and Electrodeionization (EDI)
modules, with precise DO control.
- Implementation of real-time monitoring, auto-regeneration, and redundancy to ensure uninterrupted output.

TECHNOLOGIES USED

- Multi-Grade & Activated Carbon Filters with automatic backwash logic
- Strong Acid Cation (SAC) & Strong Base Anion (SBA) exchangers with CO_2 degasser
- Advanced Mixed Bed Units (MB) and Electrodeionization (EDI) modules
- Dissolved Oxygen (DO) removal systems and integrated air scourers
- Real-time instrumentation & auto-regeneration cycles using bed volume/hour metrics

RESULTS

- Achieved outlet water quality of < 0.2 μS/cm conductivity & ≥ 5x10^{12} MΩ·cm resistivity.
- Fully compliant with scientific & pharmaceutical water requirements.
- Supported uninterrupted, high-precision R&D operations.



IMPACT

- Delivered stable ultra-pure water for high-stakes plasma & pharmaceutical experiments.
- Ensured 100% compliance with pharmacopeial water quality standards.
- Supported long-term scalability & operational resilience for critical R&D activities.