

# Life Science Engineering (LSE)

## Purified Water Generator (RO–EDI Skid)

Engineered for Compliance & Reliability

LSE designs and manufactures high-quality Purified Water (PW) Generators based on RO–EDI technology, delivering USP/EP/JP compliant water for pharmaceutical, biotech, cosmetics, and food & beverage industries.



Figure 1. Purified Water Generator skid

### Key Benefits

- Local manufacturing in Indonesia – reduced cost & lead time
- Compact skid design – optimized footprint for new & existing facilities
- Regulatory compliance – USP, EP, JP, ASME BPE, ISPE, WHO GMP
- Validation ready – full documentation package (DQ, FS/DS, FAT, SAT, IQ, OQ)
- Energy efficient – advanced RO–EDI with reduced chemical consumption
- Automation – PLC/HMI with 21 CFR Part 11 compliance

### Applications

- Pharmaceutical production
- Biotech & life sciences
- Cosmetics & personal care
- Nutraceuticals
- Food & beverage

### Process Flow

Raw Water → Pre-Treatment → RO → EDI → UV → 0.22 µm Filtration → PW Storage & Distribution



Figure 2. Simplified process flow for RO–EDI Purified Water generation.

### Technical Specifications

|                |                                                                  |
|----------------|------------------------------------------------------------------|
| Capacity Range | 500 – 5000 LPH (scalable)                                        |
| Materials      | SS316L contact parts (Ra ≤ 0.5 µm EP optional), SS304 skid frame |
| RO Membranes   | Sanitary RO (e.g., Hydranautics SanRO)                           |

|                |                                                           |
|----------------|-----------------------------------------------------------|
| EDI Modules    | Ionpure HX / equivalent                                   |
| Pumps          | Grundfos CR sanitary pumps                                |
| Instruments    | Conductivity, TOC (optional), flow, pressure, temperature |
| Sanitization   | Ozone dosing or hot water (80 °C)                         |
| Control System | Siemens / Allen Bradley PLC, 21 CFR Part 11 compliant HMI |

## Compliance & Standards

- USP 645, EP, JP Purified Water
- ASME BPE 2024
- ISPE Baseline Guide – Water & Steam
- ASTM E2500 – Validation by Design
- GAMP 5 – Automation Lifecycle
- WHO GMP Annex 1

## Deliverables

- PW Generator Skid (fully assembled, FAT tested)
- Documentation: DQ, FS/DS, FAT/SAT, IQ, OQ
- Certificates: MTC 3.1, Calibration, Orbital Welding logs
- Operator & Maintenance Training
- Service & Spare Parts Support

## Contact Us

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