QILEE

Get a Free Quote



⩾18 MΩ	<5 ppb	<0.1 ppb
RESISTIVITY	TOC	SILICA

100+	30+	10–2,000	75 Days
PROJECTS DELIVERED	COUNTRIES SERVED	M³/DAY CAPACITY RANGE	AVERAGE LEAD TIME

5–7 Yrs

EDI MODULE SERVICE LIFE

PRODUCT GALLERY

Real Systems, Real Performance

Factory photos of QILEE EDI systems built and tested at our Shanghai facility before shipment.



EDI 2-Module System

SS316L skid • Dual EDI modules • Integrated control panel • Resistivity monitoring



EDI 4-Module Large-Scale System

4 × EDI modules • Power distribution cabinet • Multi-channel resistivity display • Auto alarm

THE CHALLENGE

Is Your Current Water Quality Limiting Your Process?

These are the most common problems our clients faced before switching to a QILEE UPW system.

✕ BEFORE QILEE

Yield loss from ion contamination — trace Na^{1}, Fe, and Cu ions at ppt level shorting transistor gates, causing chip defects costing thousands per wafer.

Downtime for chemical regeneration — mixed-bed IEX systems requiring 4–8 every 2–3 weeks, disrupting fab or pharma batch schedules.

Rising chemical OPEX — acid and caustic regeneration chemicals, neutralisation tanks, hazardous waste disposal fees adding up to USD 20,000–80,000/year.

Inconsistent product water quality — resistivity fluctuating between 10–18 MΩ·cm, failing SEMI F63 or USP Purified Water spec at critical process steps.

✅ WITH QILEE UPW + EDI

Consistently ⩾18 MΩ·cm, 24/7 — EDI continuously regenerates in-situ using DC current; product water stays at spec even during demand surges and feed water fluctuations.

Zero regeneration downtime — no acid, no caustic, no scheduled shutdowns. Continuous operation means your process lines never wait for water.

OPEX cut by 40–60% vs mixed-bed IEX — no chemical purchase, no waste treatment, no labour for regeneration cycles. EDI module lasts 5–7 years before replacement.

Automatic divert-to-drain protection — inline resistivity sensor triggers divert valve instantly if quality drops below 17 MΩ·cm, protecting your tools from off-spec water.

HOW IT WORKS

Six Stages to Semiconductor-Grade Water

Every QILEE UPW system follows this proven purification sequence — from municipal supply to ⩾18 MΩ·cm ultrapure water.

1

PRE-TREATMENT

MMF + ACF

Cl&sub2; → <0.05 mg/L

SDI <3

2

UF MEMBRANE

PVDF 0.03 µm
Flux 60–80 LMH
Particles → zero

3

1ST PASS RO

75% recovery
TDS → <5 mg/L
99% ion removal

4

CO&SUB2; DEGASSER + 2ND PASS RO

Strip CO&sub2;
TDS → <0.05 mg/L
UV 185nm TOC

5

EDI MODULE

DC field regen
No chemicals
Continuous 24/7

6

UPW PRODUCT

⩾18 MΩ·cm
TOC <5 ppb
SiO&sub2; <0.1 ppb

⚠ Optional: UV 185 nm (TOC reduction), polish loop UF (sub-100 nm), point-of-use PVDF filters at tool outlets

INDUSTRIES WE SERVE

Built for the Most Demanding Purity Requirements

Wherever trace contamination translates directly to yield loss, product failure, or regulatory non-compliance — QILEE UPW delivers.



SEMICONDUCTORS

IC / DRAM / NAND Wafer Fabs

Photolithography rinsing, CMP, and wet etching demand ⩾18 MΩ·cm with sub-50 nm particle control. A single Na^{1} ion at 1 ppt corrupts a gate dielectric.

SEMI F63 • ⩾18 MΩ·cm



DISPLAY PANELS

LCD / OLED / MicroLED Glass Cleaning

TFT glass substrate and color filter rinsing. Metallic ions cause pixel defects and color non-uniformity. Low-silica specification prevents surface haze.

15–18 MΩ·cm • Low SiO&sub2;



SOLAR / PHOTOVOLTAICS

TOPCon, HJT, Perovskite Cell Lines

Silicon wafer texturing, PECVD, and AR coating rinsing. Metal ion contamination reduces minority carrier lifetime, cutting cell conversion efficiency.

Metal ions <0.1 ppb • Wafer rinse



PHARMACEUTICALS

Purified Water (PW) / WFI Pre-treatment

Sterile drug manufacturing, bioreactor feed, and CIP rinsing. Meets USP <1231>, EP 2.2.3, and Chinese Pharmacopoeia standards for PW production.

USP PW • Endotoxin <0.001 EU



POWER GENERATION

High-Pressure Boiler Feed Water (BFW)

Thermal, nuclear, and CHP boiler feedwater at <0.1 µS/cm. Replace chemical mixed-bed IEX, eliminate acid/caustic waste, cut OPEX by 40–60%.

<0.1 µS/cm • OPEX −50%



GREEN HYDROGEN

PEM Electrolyser Feed Water

Protect membrane electrode assemblies (MEA) from ion poisoning. PEM electrolysers require feed water <1 µS/cm, zero hardness, zero chlorine, continuously.

<1 µS/cm • PEM / Alkaline

LABORATORIES

HPLC / ICP-MS / Cell Culture

Mobile phase preparation, trace metal analysis blanks, and cell culture media requiring ISO 3696 Grade 1. QILEE compact units for R&D institutes and QC labs.

ISO 3696 Grade 1 • HPLC / ICP-MS

PCB / ELECTRONICS

PCB Etching & Plating Rinse

Inner-layer etching, electroless copper plating bath rinsing, and SMT flux cleaning. Prevents copper migration and dendritic growth. Cascade rinse tank integration.

>10 MΩ·cm • Cascade Rinse

GUARANTEED PRODUCT WATER QUALITY — QILEE UPW / EDI SYSTEM

Resistivity (25°C) ⩾ 18.0 MΩ·cm	TOC (Total Organic Carbon) < 5 ppb
Silica SiO&sub2; (total) < 0.1 ppb	Dissolved Oxygen (DO) < 5 ppb
Heavy metals (each ion) < 1 ppt	Particles ⩾ 0.1 µm < 50 / mL
Viable bacteria < 1 CFU / mL	Specific energy (RO + EDI) 0.8 – 1.2 kWh/m³
Conductivity < 0.056 µS/cm	Na[1] / Cl[2] / SO&sup4;[23] (each) < 0.5 ppb
EDI module service life 5 – 7 years	Standard reference SEMI F63 / ASTM D5127

WHY CHOOSE QILEE

Six Reasons Engineers Choose Us

Zero Chemical Regeneration

EDI uses DC current to continuously regenerate ion-exchange resin in-situ. No acid, no caustic, no hazardous waste. Reduces OPEX by 40–60% vs conventional mixed-bed IEX systems.

24/7 Continuous Operation

No scheduled regeneration downtime. Your fab or pharma process lines get constant, on-spec water every hour of every day — critical for high-throughput production.

Auto Divert-to-Drain Protection

Inline resistivity sensor triggers a divert valve instantly if quality dips below 17 MΩ·cm. Off-spec water never reaches your tools. Alarm logged and reported to SCADA.

PVDF & SS316L Wetted Parts

All product water contact surfaces use semiconductor-grade PVDF piping and SS316L fittings. Zero copper, zero brass. PVDF electropolished inner surfaces minimise particle generation.

Factory-Assembled & FAT-Tested

Every system is fully assembled, plumbed, and tested at our Shanghai facility before shipping. On-site installation is bolting and connecting — typical commissioning in 3–5 days.

Worldwide Shipping from Shanghai

EXW Shanghai with 75-day lead time. We have shipped to 30+ countries. Skid-mounted or 40HQ containerised options for maximum logistics flexibility.

TECHNOLOGY COMPARISON

QILEE EDI vs. Conventional Alternatives

Criteria	QILEE RO + EDI	Mixed-Bed IEX	Conventional RO Only
Product resistivity	✅ ⩾18 MΩ·cm guaranteed	⚠ 10–18 MΩ·cm (degrades)	❌ ~0.05–1 MΩ·cm
Chemical regeneration	✅ None — DC current only	❌ Acid + caustic, every 2–3 weeks	✅ None
Operational continuity	✅ 24/7 uninterrupted	❌ 4–8 hr downtime per cycle	✅ Continuous
OPEX (chemicals)	✅ Near zero	❌ USD 20,000–80,000/yr	✅ Low (antiscalant only)
TOC removal	✅ <5 ppb (UV + EDI)	⚠ Partial (depends on resin)	❌ Limited
SEMI F63 compliance	✅ Full compliance	⚠ Only when freshly regenerated	❌ Not applicable
Hazardous waste	✅ None	❌ Acid + caustic effluent	⚠ Concentrate only
Footprint	✅ Compact skid / 40HQ	⚠ Large (vessel + chemical tanks)	✅ Compact

READY TO UPGRADE YOUR WATER QUALITY?

Get Your Free Technical Proposal in 48 Hours

Send us your feed water analysis and flow requirements. Our engineers will design a system and send you a detailed technical proposal with sizing, P&ID sketch, and budgetary price — at no cost, no obligation.