

# TECHNOLOGIES

## Reverse Osmosis (RO)

### RO SYSTEM

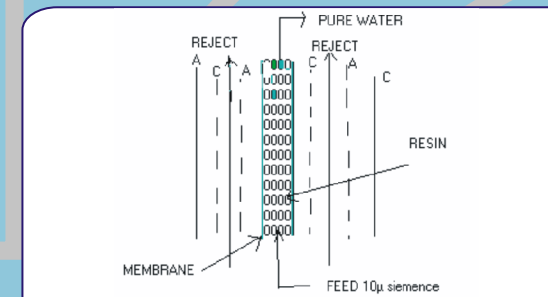
The main purification technology uses polyamide membranes to remove the vast majority of inorganic, organic and microbial contaminants.



## Electrodeionisation (EDI)

### EDI SYSTEM

State of the art EDI technology using ion selective membranes, ion exchange resin and a small electrical current to get desired output.



## Ultraviolet Irradiation (UV)

### UV SYSTEM

The use of an optional UV irradiation unit gives increased microbial control.



## Storage & CIP

### Storage & CIP SYSTEM

Stainless steel storage vessel allows control of feed pressure, a source for hot water sanitization and membrane cleaning.



## Ultra filtration (UF)

### Ultra filtration SYSTEM

A unique combination and technology for Pharmaceutical Industry to match end water parameter as per USP Guide-Lines.



AUTOCLAVE / STEAM STERILIZER



Dry Heat Sterilizer



BUNG PROCESSOR



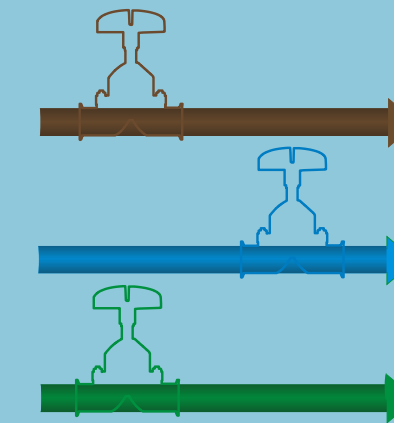
STERILE VESSEL



STERILE FILTRATION SYSTEM



SUPERHEATED AUTO CLAVE



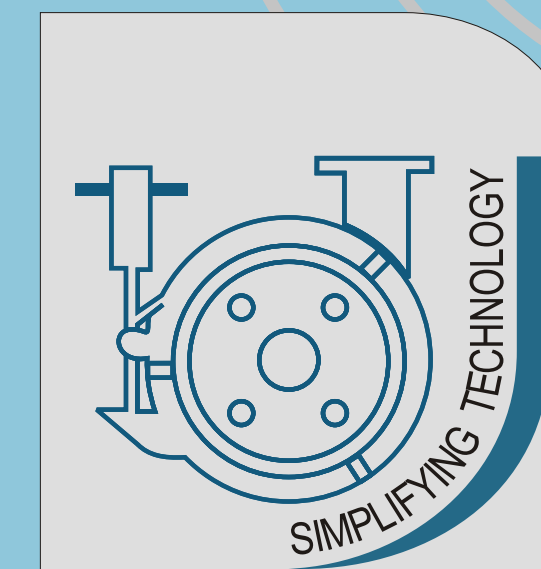
Pharma Water Generation System

Storage & Distribution System

WFI Distribution System

Pure Steam Distribution System

Turnkey Projects



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## Generation Systems

Pharmaceutical Water Systems Water for Injection			
Pharmacopoeia		EP	USP
		PW/WFI	
Units			
TOC	ppb	500	500
Conductivity	µS/cm	1.3	1.3
CFU	CFU/100ml	10000	10000
Endotoxin Units	E.U/ml	0.25	0.25

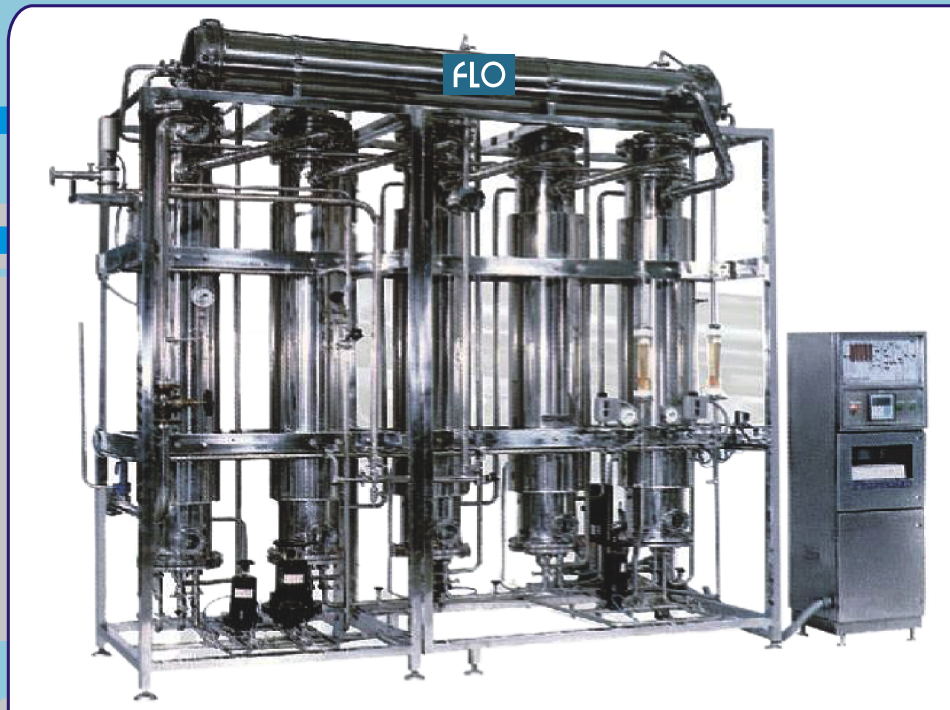
### GENERATION (RO-EDI-UV)

- Purified water to USP, EP and JP
- Option Chemical or Hot Water Sanitization.
- Flexible outputs from 250 to 10,000 Ltrs/Hr.
- Condensed footprint with optimal accessibility.
- Flexible installation options.
- Constructed from SS 316 L internal surface finishes 0.5-0.8 Ra.
- GAMP and 21 CFR PART 11 compliant.
- Flexible system integration with proven technological options.
- Designed for robust and safe operation.
- Validation to regulatory and client standard.
- Optimized power consumption and lowest operating cost.
- Designed and manufactured as per ISPE guidelines.
- cGMP compliance.

### STORAGE & DISTRIBUTION

- SS 316L Sanitary PW plain or Jacketed Storage Tank with accessories such as:
  1. Sanitary level controller.
  2. 360 Deg Spray Ball.
  3. PID based Temperature controller with steam trap and modulating valves.
  4. Jacketed / Non-jacketed / Electrically traced Air vent filter.
- PW storage tank as per cGMP and ASME design.
- Finish upto 240 Grit inside and 180 Grit level outside.
- Double tube sheet sanitary construction heat exchanger for sanitization.
- Sanitary PW distribution pump skid with variable frequency Drive for optimum velocity control.
- SS 304 Power cum Control panel.
- An online UV sterilizer specially designed vertically to avoid stagnancy.
- Sanitary SS 316L Seamless/ Bead removed imported polished tubing as per ASTM-269 standards with TC joints.
- Orbital welded distribution loops with weld print outs and records for validation.
- Passivation of the distribution loop at site.
- Video Boroscopy / Radiography for weld quality check and validation records.

## Water For Injection (WFI)



### WATER FOR INJECTION & PURE STEAM GENERATOR

- Design as per Aqua fina.
- Assures endotoxin free water.
- Water meant for sterile application.
- Standards meeting all the expectations in terms of Efficiency, Simplified maintenance, Greater Security and Aesthetics.
- All components are fully drainable, including the feed water pump
- All valves and fitting are of sanitary construction.
- A unique combination of Non Condensate Gas Remover (NCGR) to derive optimum standards of TOC

### FEPL Products and Service Guarantee:

- Superior Quality.
- On-time Delivery.
- Low Maintenance.
- Simple, reliable design.
- Easy access for factory acceptance testing.
- Comprehensive documentation package.
- Factory service technicians.

### Your Benefits at a glance

- Better water quality**
  - Assuring best water quality Generation and Distribution throughout the plant as per USFDA and ISPE Guidelines.
- Fast and easy installation**
  - Assured perfectly adapted software and technologies to reduce installation time.
- Sanitary Pipelines & Fittings**
  - The sanitary pipelines & fittings minimise bio-film growth.
- Complete Solutions from one source**
  1. Our In-house design & engineering and manufacturing facilities provide the ideal and economical solution for your water system.
  2. Adapted system permit compact design.
  3. Complete system solution available from one source.

**"One Stop Station for Water Solutions".**

  - Complete system solutions in compliance with **FDA, USP, ASME BPE, ISPE.**
  - Easy documentation and qualification. (DQ, IQ, OQ).

Necessary assistance & support extended if desired by the customer.

## Pure Steam Generation



### SYSTEM CONTROL

At FLO an unique team dedicated for various system design control logic as per required by the end users. Also; having the latest "Programmable Controller" technology with touch screen HMI (Optional) To allow ease of operation. and monitoring.

At FLO we allocate control and monitoring from a single interface with data login facilities and links to user BMS System.

Autoclaves    Bung Processors    Storage & Distributon    Liquid Vessels    Mfg.Vessels



Equipment & Others