

INVICTUS

TURNKEY PROJECTS FZC

**“WE DEVELOP LIFECYCLE SOLUTION
FOR HIGH PURITY WATER”**

MANUFACTURING |
PROJECT SERVICE SUPPORT



Pharma BioTech



Cosmetics



Hospitals



Food & Beverages



Hotels



INTRODUCTION

INVICTUS Turnkey Projects solutions Pvt. Ltd. Specializes in providing High Purity Water system required for Pharmaceutical & Other Industries from source to Point of use. We have 30 years hands on industries experience with us.

Water purification Technologies has evolved over the years with better control & monitoring for critical parameters.

It is challenge to maintain the consistency of Purified water considering Variation in RAW water parameters.

COMPLETE SOLUTIONS FOR WATER TREATMENT

- ◆ Pretreatment Systems.
- ◆ Purified Water Generation
- ◆ WFI Water Generation
- ◆ Storage & Distribution Systems for PW & WFI
- ◆ Side stream filtration for cooling towers.
- ◆ Softening system

TECHNOLOGIES

- ◆ Reverse osmosis
- ◆ Electro deionization
- ◆ Ion exchange (softening
- ◆ &Deminralisation) Ozonation (Air & Water
- ◆ Based)
- ◆ UV
- ◆ Vapour Compression
- ◆ LTI (Liquid Technology International)

MISSION

Explore new opportunities and optimise design & engineering processes by standardisation and strictly adhering to the quality and safety standards. Also to offer solutions to new challenges in the respective areas of application.

VALUES

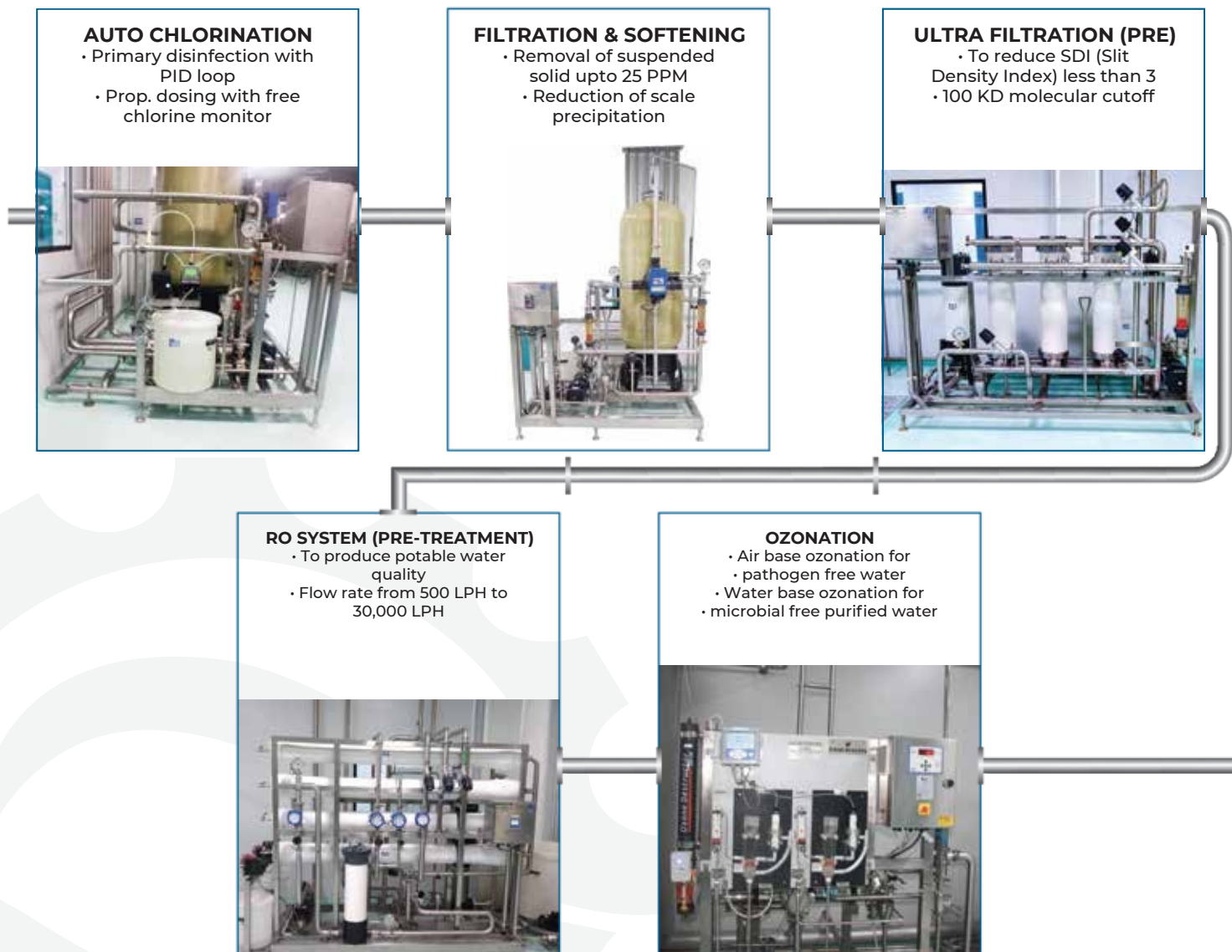
The core values of our organisation are positive attitude, innovation, ethics, openness, quality management & teamwork.

INVICTUS ADVANTAGE & KEY FEATURES

- ◆ 30+ Years of hand on experience in Water System.
- ◆ Robust System design with all controls.
- ◆ Remote monitoring of system.
- ◆ Association with European manufacturer for New Technologies.
- ◆ 24 x 7 online support.
- ◆ Source to point of use.
- ◆ Systems are engineered to deliver USP/EP grade water complying latest revision Fully automatic plant operation
- ◆ Instrument used in system of international warranty
- ◆ In-built disinfection philosophy
- ◆ System validation & documentation
- ◆ Piping installation, Orbital welding with traceability



PURIFIED / WFI WATER - SCHEMATIC



PW STANDARD OF PHARMACOPEIA VS INVICTUS PW QUALITY

	Unit	CP2010	USP37	EP8	PW product of INVICTUS
Conductivity	us/cm	< 4.3@20°C	< 1.3@25°C	< 4.3 @ 20°C	< 0.5@20°C
TOC	ppb	< 500	< 500	< 500	< 50
Bacteria	cfu/ml	<100	<100	<100	<10

HSRO + EDI (POST TREATMENT)

- USP grade purified water
- Hot water sanitizable!
RO+EDI
- Design in compliance
with international
standard



STORAGE & DISTRIBUTION (PW)

- Water availability 24x7 at user
point as per USP std
- Water based ozone sanitization
- Cold / hot loop as per user
requirement



WFI STORAGE & DISTRIBUTION

- Endotoxin free water
(0.25 EU/ML)
- 3 log bacterial reduction



MULTI COLUMN DISTILLATION PLAN (MCDP)

- Endotoxin free water
(0.25 EU/ML)
- 3 log bacterial reduction



PURE STEAM

- Sterilization - process
equipment & complete
loop till user points



TO POC

WFI STANDARD OF PHARMACOPEIA VS INVICTUS WFI QUALITY

	Unit	CP2010	USP37	EP8	WFI product of INVICTUS
Conductivity	us/cm	< 1.1@20°C	< 1.3@25°C	< 1.1 @ 20°C	< 0.5@20°C
TOC	ppb	< 500	< 500	< 500	< 50
Bacteria	cfu/100ml	<10	<10	<10	<10
Endotoxin	EU/ml	<0.25	<0.25	<0.25	<0.01

SPECIALISED PRODUCTS

TOC ANALYSERS



mini TOC & uni TOC
 ONLINE TOC
 CONTROL FOR PURE
 WATER

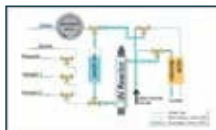
mini TOC - Based on Oxidation



miniTOC uses Oxidation by UV and conductivity based detection mini TOC system is designed for total organic carbon (TOC) online / offline monitoring from Pure water to Ultrapure water

0 to 1000PPB

uni TOC - Based on NDIR



Uni TOC uses full oxidation by UV and NDIR based detection, uni TOC system is designed for total organic carbon (TOC) online/offline monitoring from ground water to Ultra pure water

0 to 20000PPB

POU COOLER



Applications

Epharma sanitary Tube-in-Tube heat exchanger was special developed for Wil point of use cooling applications.

Features and Benefits

1. Patent and unique technology of double pitot tubes
2. 100% drainable due to block technology

MINI DTS

CAPILLARY DOUBLE TUBE SHEET HEAT EXCHANGER



Applications

Epharma Mini DTS is designed to meet high sanitary requirement in the pharmaceutical industries. Normally for WFI point of use cooling, modular integrate process cooling or heating

Features and Benefits

100% of import Seamless tubes We use only straight tubes Double tube-sheets to protect against service media leaking into the product

PURE STEAM SAMPLER



Applications

Pure steam sampler is a portable cooler designed to allow samples to be taken quickly and safely at any accessible location within a clean steam or high purity steam or WEI distribution system. Cooling water connections are Tri-clamp compatible which enable the unit be connected easily to a local water supply. The whole sampler could be sterilization by autoclaving.

Technical Data

1. Cooling water inlet and outlet connections: TC 3/4"
2. Sample tube inlet : TC 1/2"
3. Surface area : around 0.113m²

HEAT EXCHANGER



Applications

High quality DTS shell & tube heat exchanger

especially meets the high hygienic demands of the pharmaceutical industry. The heat exchanger was designed to work in the highest hygienic conditions in applications such as water-for-injection (WFI), Purified Water (PW), and heating/cooling of pharmaceutical products.

Features and Benefits

1. 100% imported Seamless tubes
2. Double tube sheet to avoid leakages

AUTOMATIC SELF CLEANING



Applications

SUNFILTER Filters are motorized compact designed models which are perfectly suitable for use in a wide range of application areas with low liquid flow rate and low filtration requirements. Self cleaning filter is perfect replacement of MGF/Sand filter.

Available Capacity Range - 1 m³/hr to 400 m³/hr.

Features and Benefits

1. Much more efficient during backflush; thanks to special cleaning mechanism allowing down to 100/50/20/10 micron

SERVICES WATER SYSTEM



SYSTEM DESIGN & PLANNING

Developing a comprehensive master plan for setup and management of your PW, PW and WFI systems



QUALIFICATION & VALIDATION

Monitoring, preventive maintenance and revalidation, benchmarked to FDA, CGMP, CGAMP, CUSP



INSTALLATION & COMMISSIONING

Installation and start-up, process verification, operator training and handover as per regulatory guidelines and requirements.



OPERATIONS & MAINTENANCE

Comprehensive services to enhance system performance, reduce downtime, increase operational life and lower costs.



PROCESS PIPING

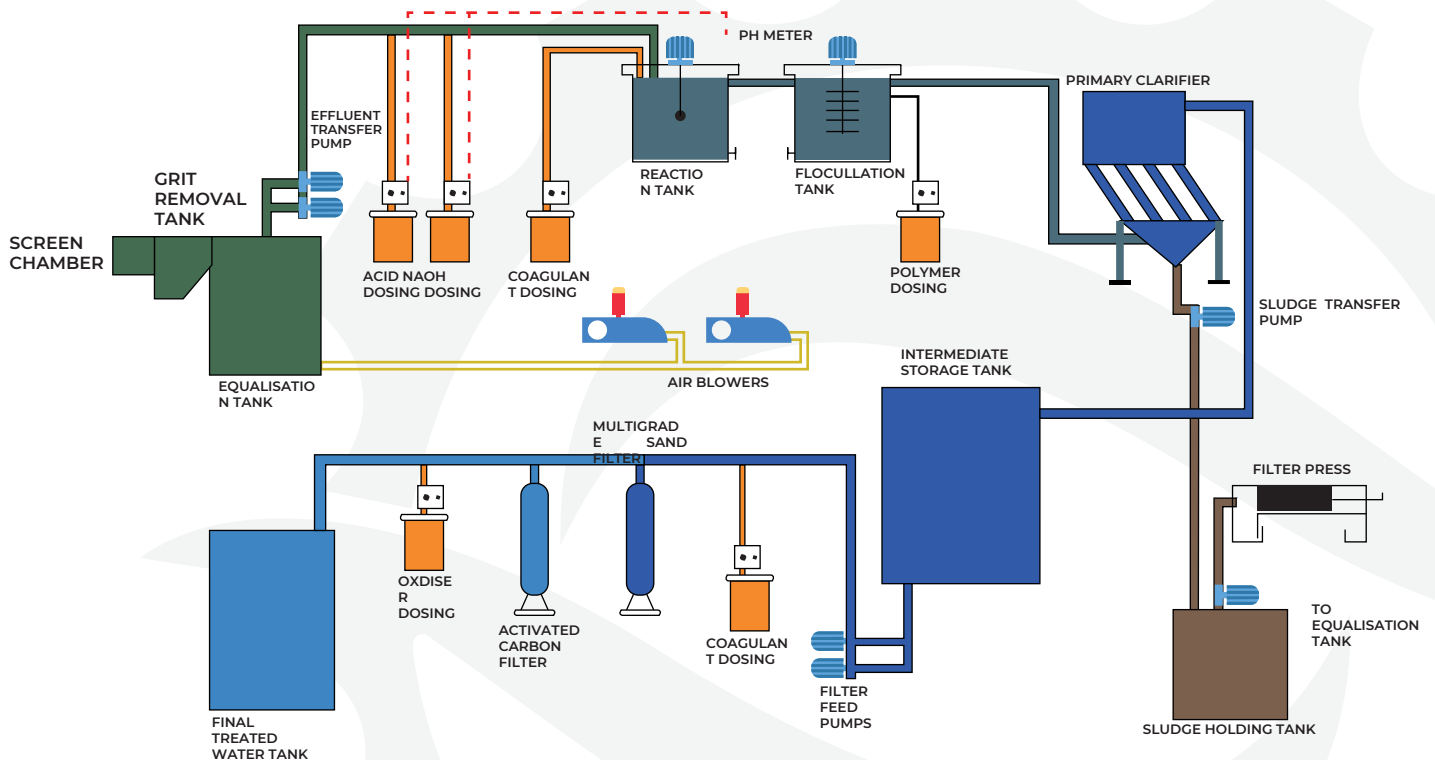
Compliance with CGMP guidelines for storage and distribution, to maintain quality, flow rate and temperature requirements.



UPGRADES & END-OF-LIFE

Proven, cost-effective services for system upgrades, optimization, decommissioning, remediation and replacement.

WASTE WATER - SCHEMATIC





INVICTUS

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Information in this brochuer is correct to our knowledge at time of printing