

The Right Prescription for the Pharma Industry's Needs



ONE STOP SOLUTION FOR YOUR PHARMA NEEDS

Ion Exchange (India) Ltd. leverages over five decades of pioneering specialisation in total water and environment management. Our close association with the pharmaceutical industry along with technological expertise and R&D capabilities have enabled us to develop customised and speciality products & solutions to meet the industry's stringent requirements for high purity water treatment and distribution, bulk drug purification and manufacture of pharmaceutical formulations.

Total Water Management Solutions

- Raw water treatment
- Process water treatment
- Purified water
- Effluent treatment & recycle
- Zero liquid discharge

COOLING TOWER & BOILER WATER MANAGEMENT

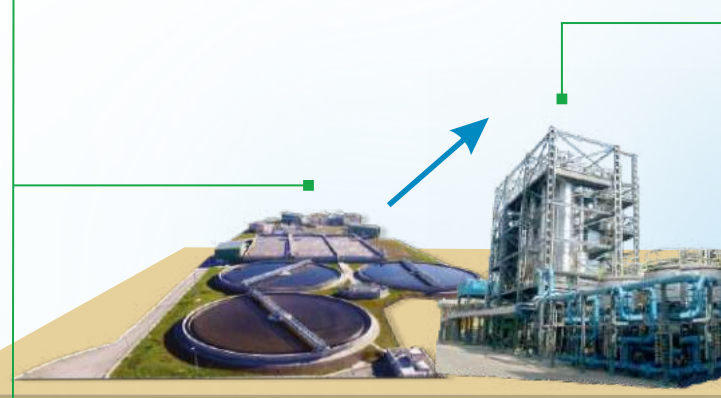
- Complete range of products for scaling, corrosion, fouling & bio-control management
- Cleaners & disinfectants for process equipment
- Remote monitoring, measuring & control systems

PRETREATMENT

- Full range of clarification & filtration equipments
- Feed water pretreatment chemicals including flocculants, coagulants, antiscalants
- Complete range of feed water disinfection equipment including on-site hypo generation, chlorine dioxide generators, ozone generators, ultra violet equipments
- Complete range of standard & customised ion exchange process equipment – softeners, dealkalisers, demineralisers
- Membrane systems – micro filtration, ultra filtration, nano filtration, reverse osmosis
- Electrodialysis reversal, electrodeionisation, electrocoagulation
- Condensate polishers, deaerators

PHARMA WASTE WATER TREATMENT / RECYCLE

- State-of-the-art biological & advanced treatment processes for complex effluents – ASP, SBR, MBBR, MBR, UASB, CSTR, AOP
- Recycling system incorporating ultra filtration, PF/DT reverse osmosis system, forward osmosis, multi effect evaporators.
- Range of polyelectrolytes for colour, BOD, COD, TSS removal, etc.
- Selectively adapted bacterial cultures



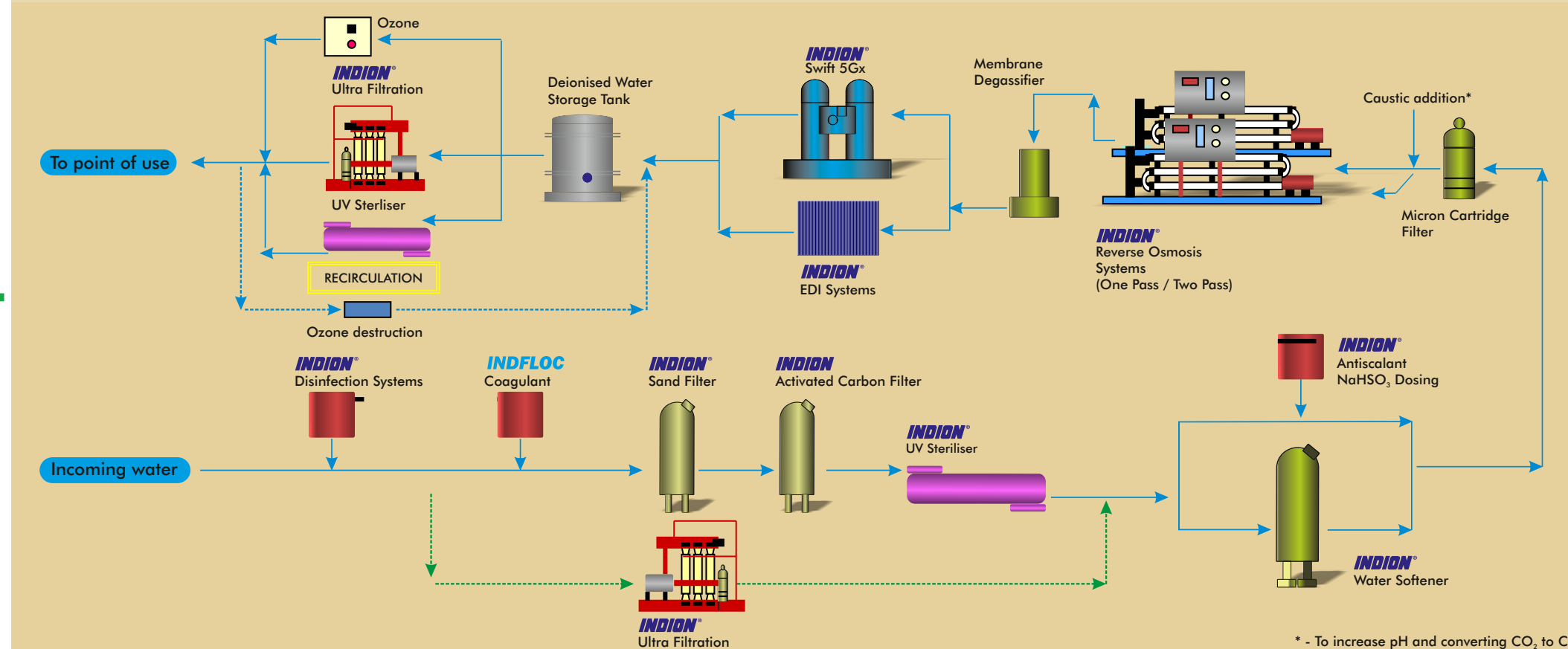
ZERO LIQUID DISCHARGE

- Multi-Effect Evaporator (MEE)
 - Thermal Vapour Re-compression (TVR)
 - Mechanical Vapour Re-compression (MVR)

SPECIALITY RESINS | ADSORBENTS | MEMBRANES FOR PURIFICATION & CONCENTRATION

- API concentration & purification
- Fermentation broth clarification
- Enzyme concentration
- Desalination of organic acid
- Production of organic acid from organic acid salt
- Desalination of intermediate for medicines
- Removal of endotoxin
- Purification of phase transfer catalyst (PTC)
- Deashing of antibiotics / amino acids
- Isolation and concentration of antibiotics like streptomycin, gentamicin & neomycin
- Recovery of Vitamin B₁₂ from fermentation broth
- Novel & established biotech applications such as:
 - Aloe vera juice purification
 - Fenugreek / Methi seed extract purification

HIGH PURITY WATER FOR PHARMACEUTICALS



* - To increase pH and converting CO₂ to CO₃

INDION LAB Q LAB WATER MAKER SERIES

- Conforms to ASTM standards of laboratory type 1, 2 & 3 water
- Easy user interface
- Single touch dispensing



SERVICES

- O&M, service contracts
- Water audits, consultancy
- Pilot studies, R&D, feasibility studies
- Plant upgradation, automation, rehabilitation
- Water systems on BOO/T
- Integrated facility management
- Supply of genuine ion exchange resins, membranes, adsorbents, RO antiscalants, cleaners, effluent treatment chemicals and critical spares



INDION® High Purity Water Generation & Distribution Systems

INDION® SWIFT 5Gx



- Instantaneous flow rates up to 20 m³/h
- Conductivity less than 1 μS-cm, with low running costs
- Integrated cation polishing unit
- Mixed bed water quality (catpol) meeting stringent international standards
- Automatic PLC control with continuous display readout of system status
- Short cycle (4 hours), rapid regeneration (35 mins)
- High chemical efficiency, smaller footprint and higher flow rates than conventional plants
- Near neutral effluent reduces disposal costs

INDION® RO-EDI Systems



- Hot water sanitisation
- Plug and play unit
- Fully pre-validated to FAT
- Compliance with latest USP & Ph Eur specifications
- Compliance with cGMP / cGAMP and ISPE design standards
- Fully automated with SCADA

INDION® Distribution Systems



- Hot water sanitisation at > 80° C
- Imported SS316 L tubes with original certificates with mill finish <0.8Ra, after EP: 0.3 - 0.5 Ra
- All pumps, UV steriliser & fittings in sanitary construction
- Orbitally welded with printout facility
- Built around ISPE and cGMP guidelines
- Fully automatic with SCADA 21 CFR Part 11 compliant

Processing of Pharmaceuticals and Bulk Drugs

As the behavioural pattern of chemical compounds can be highly individualistic, the pharmaceutical industry requires products that are engineered to meet the requirements of a particular application.

Ion Exchange offers the pharmaceutical industry customised solutions consisting of:

INDION® Ion Exchange Resins

- Isolation and concentration of antibiotics like streptomycin, gentamycin, neomycin
- Isolation of amino acids
- Decolourisation of fermentation products
- Deashing of antibiotics

INDION® Polymeric Adsorbents

Polymeric adsorbents are available in different polarities, surface areas and various chemical natures with polystyrenic and polyacrylic ester matrices for:

- Isolation and concentration of antibiotics like tetracycline and oxytetracycline
- Decolourisation of antibiotics and bulk drug intermediates

INDION® Speciality Products for Pharmaceutical Formulations

Ion Exchange is the first company in India to have an ISO 9001 & 14001 certified state-of-the-art resin manufacturing facility in Ankleshwar, Gujarat. We are also the first to have an USFDA compliant and WHO-GMP certified manufacturing facility for pharmaceutical excipient resins, also at Ankleshwar. Our R&D and technical experts interact closely with customers and develop solutions best suited to the manufacture of pharmaceutical formulations.

Our range of speciality excipient resins is widely used for several applications such as:

Taste Masking

- Highly effective compared to other forms of taste masking
- Usage in different dosage forms – suspension, dry syrup, dispersible tablets, tablets and capsules
- Free flowing and insoluble in all pH range

Typical Drugs: Norfloxacin, Ofloxacin, Taxithromycin, Dicyclomine, Hydrochloride, Famotidine, Chloroquine Phosphate, etc.

Sustained & Controlled Release

- Uniform, predictable & prolonged drug release
- Can be formulated in any required form - suspension, dry syrup, dispersible tablets, tablets & capsules
- Insoluble in all pH range

Vitamin B₁₂ Stabilisation

- Significant reduction in overages. Only 20% overages in B₁₂ formulation instead of 100%
- Stable Vitamin B₁₂ complex at much lesser formulation cost

Tablet Disintegrants

- Remarkable swelling tendency on wetting, causing rapid disintegration
- Compliant with commonly used therapeutic agents and excipients
- Works equally efficiently in hydrophilic and hydrophobic formulations
- Enhances mechanical strength of tablets, facilitating ease of packaging and transportation

Cholesterol Reducers

- Cholestyramine resin, when used as an active ingredient, binds bile acids leading to replenishment of the bile acids through increased metabolism of serum cholesterol. This helps reduce serum cholesterol levels
- Easy to monitor
- No involvement in other functions

Treatment of Hyperkalemia

- Effective for prolonged peritoneal dialysis
- Easy to administer, quick results

INDION® PF/DT Reverse Osmosis System

- Minimal pretreatment & footprint
- Treats high strength waste (COD, TDS, TSS)
- 40-90% recovery



INDION® Water Quality Monitoring Products

We offer wide range of process analyser and hand-held, portable instruments for measuring critical water parameters like conductivity, pH, redox, resistivity, etc.

INDION® Speciality Chemical Treatment

We offer a complete range of customised INDION boiler/cooling water and fireside treatment programmes to complement engineered water treatment for optimum performance. Highly trained engineers conduct in-depth surveys of your plant and system requirements, closely monitor the treatment programmes and regularly evaluate results to make required adjustments for optimum benefit.

INDION® Zero Liquid Discharge (ZLD) Systems

Waste water recycle gives significant economic and environmental benefits by conserving large quantities of water, thus assuring availability of water, accruing considerable savings in fresh water costs and through recovery of valuable by-products and enabling compliance with pollution control regulations for protecting the environment. Our advanced, cost-effective recycle technologies integrate physico-chemical, biological and membrane separation processes for optimum water recovery, enabling up to 90% reduction in raw water requirement.

Our state-of-the-art manufacturing facilities are ISO 9001, ISO 14001 & ISO 45001 certified.

To the best of our knowledge the information contained in this publication is accurate. Ion Exchange (India) Ltd. maintains a policy of continuous development and reserves the right to amend the information given herein without notice.

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Bahrain | Bangladesh | Canada | Indonesia | Kenya
Malaysia | Oman | Portugal | Saudi Arabia | Singapore
South Africa | Sri Lanka | Tanzania | Thailand | UAE | USA

Manufacturing Units

India - Ankleshwar | Hosur | Patancheru | Rabale | Verna | Wada

Overseas - Bangladesh | Indonesia | Saudi Arabia | UAE

All India Service and Dealer Network

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