


Managing a precious resource



 **ION EXCHANGE**
Refreshing the Planet



OUR VISION

To be the leader in our business
which is so vital
to people's lives and the environment



Optimising Solutions For Growing Water Treatment Needs

It's a cliché to say that water is a scarce resource. How we manage this precious life force is what makes the vital difference.

At Ion Exchange, we bring you total commitment in water management. We are among just a few companies across the globe to provide a complete range of water and waste water technologies, products and services. We are thus able to offer total solutions to industry, homes and communities.

Our expertise spans over four decades, with installations worldwide in diverse industries, including core sector - thermal and nuclear power stations, fertiliser factories, refineries and petrochemical plants. In USA, Europe, UK, India, Africa, the Middle East, Australia, the Far East, Japan and South East Asia, to name a few.

If we're at the forefront of the water management industry, it's because of three main factors. • A focus on technological advancement through R&D — innovation is our hallmark, as our numerous patents testify. • Our associations with the finest, specialist water treatment companies in the world. This puts us in a strategic position to offer customers the most optimal solutions. • And thirdly, our commitment to customer care that goes far beyond the sale. Technical service support is a key component of our solution offerings.

Integrating our incisive edge in process technology, design engineering and project management capability, we take end-to-end responsibility to address each customer's needs specifically and totally. Planning, integrating and managing water on supply, quantity, quality, discharge and environmental fronts.

By creating quantifiable benefits for our customers, we have demonstrated how efficient water management is a value investment.



Total Water Management Solutions

Our capability of 360° water management adds value across the entire water cycle. From influent supply and conservation, through production and

processes to effluent treatment and recycle for zero discharge. With comprehensive service support that ensures high performance continuity.



Polyelectrolyte flocculants



Inclined plate clarifier

COAGULATION & FLOCCULATION

Chemical Dosing Systems

RAW WATER

CLARIFICATION

Clariflocculators
Inclined Plate Clarifiers
High Rate Solids
Contact Clarifiers
Ultra High Rate Clarifiers
Precipitators

FILTRATION

Pressure and Gravity Filters
- Multi Grade Filters
- Single and Dual Media Filters
- Activated Carbon Filters
Continuous Sand Filters
Monovalve/Monoscour Filters
Auto Valveless Gravity Filters
Ultra Filtration Systems



Chemical dosing systems



High rate solids contact clarifier



Continuous sand filter



Fluoride removal unit



Drinking water purifiers

DRINKING WATER TREATMENT

Ultra Filtration
Reverse Osmosis
UV Sterilisers
Ozonation
Iodinated Resin Purifiers
Fluoride/Iron/Arsenic/
Nitrate Removal

MUNICIPALITIES

SEWAGE TREATMENT

GARDENING



Activated carbon filter



Contact stabilisation unit



Our creative and cost-effective solutions have helped major industries across the globe to manage water better. For new projects, from concept to commissioning and all the way to full-fledged after sales service; in existing projects, seamlessly integrating processes and changing technologies into current operations. All expandable to meet changing needs, demands and regulations.

Able supported by a network of multi-disciplinary technical experts, technocrats and R&D scientists. And complete technical support through an extensive service network.

Hallmarks of Value Creation

- Strategic concept to completion guidance and consultancy
- 360° turnkey water management
- Assured supply and quality
- Superior price performance ratios and production efficiencies
- Single point responsibility enables greater customer focus on core business
- Lower cost and effective use of capital employed
- Creative ownership options
- Environmentally responsive solutions



Meeting Needs of Diverse Industries, Globally

Industries Served

Automotive
Bio-pharma
Bio-tech
Brewery
Cement
Chemical
Fertiliser
Food & Beverage
Hotel
Pharmaceutical
Pulp & Paper
Refinery & Petrochemical
Semi-conductor &
Micro-electronics
Steel
Sugar
Textile
Thermal & Nuclear Power
.... and many more

Core Competencies

The Widest Range

Raw Water & Pre-treatment
Process Water & Liquid Treatment
Effluent & Sewage Treatment
Waste Water Recycle
Product Recovery
Membranes
Ion Exchange Resins
Speciality Chemicals
Water Quality Monitoring

Equipment & Project Expertise

Process Design
Detailed Engineering
Procurement
Project Management
Erection, Plant Testing & Commissioning

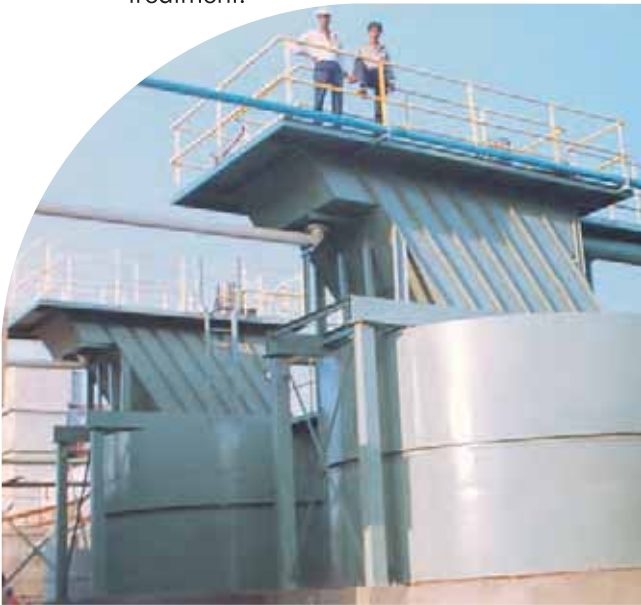
Technical & Support Services

Strategic Water Management Consultancy
Plant & Process Audits
Research & Development
Treatability & Pilot Plant Studies
Operator Training
Annual Maintenance & Servicing
Full Operation & Maintenance
Upgrading & Modernising
Project Financing, BOO/T
Environmental Management Systems &
ISO 14001 Consultancy



Clarification

We offer a wide range of inclined plate, high rate solids contact and ultra high rate clarifiers & ultra and micro filtration membrane systems for surface water treatment.



Inclined plate clarifiers for drinking water application



Ultra high rate clarifier



High rate solids contact clarifier for steel industry



Aerial view of high rate solids contact clarifiers for pulp & paper mill



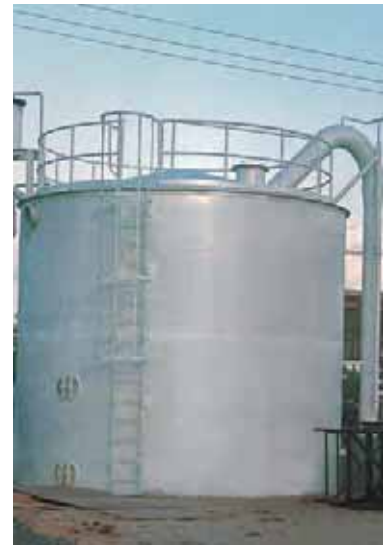
Filtration



Our range of filters includes multimedia pressure and gravity filters, auto valveless and continuous sand filters, and activated carbon filters for raw water filtration.



Continuous sand filters



Auto valveless gravity filter for side stream filtration



Pressure sand filters for city water supply



Process Water Treatment



Fully automatic SWIFT demineraliser for high purity water

We have an extensive range of standard packaged, industrial and custom-built softening, dealkalising and demineralising plants for boiler feed water, cooling water make-up and other process water applications.

We use high flow demineralisation with special regeneration techniques for treatment of turbine and process condensate in thermal, nuclear and process industries.



Brine softening plant for chlor alkali production



Condensate polishing units for thermal power station



PLC based automatic demineralisation plant for thermal power station



Membrane Separation



Advanced membrane separation processes include systems based on micro filtration, ultra filtration, nano filtration and reverse osmosis for sea water and brackish water desalination, industrial process water treatment and waste water recycle.

Using a combination of membrane processes and/or electrodeionisation, we offer ultrapure water systems to produce 10-18 Meg.ohm cm specific resistance water, catering to the needs of the pharmaceutical, electronics and semi-conductor industries.



Containerised reverse osmosis plant



Trailer mounted reverse osmosis system with pretreatment for army camps



Sea water desalination plant (reverse osmosis)



Ultra filtration system for raw water treatment



Waste Water Treatment



New generation packaged sewage treatment plant (NGPSTP) for hotels and residential complexes

Our state-of-the-art waste water treatment plants involve physico-chemical, biological and membrane processes. They are reliable, energy-efficient, flexible in operation and use minimum space and chemicals.

They incorporate conventional and innovative technologies to meet discharge regulations for residential, municipal and industrial applications.



Fluidised media reactor for sewage treatment



Sequential batch reactor for municipal sewage treatment



Membrane-bio reactor for sewage treatment at a civil contracting company



Common effluent treatment plant for industrial park



Sludge handling system



Textile waste water treatment plant



Water Recycle

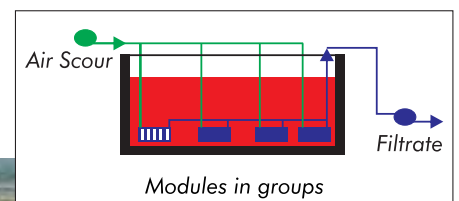


Effluent recycle for fertiliser industry

Our pioneering solutions achieve water management through water recycle and source reduction, and waste management through product recovery and waste minimisation.

These integrated systems use innovative energy-efficient, cost effective technologies for optimum water recovery. They include advanced effluent treatment processes, micro filtration, ultra filtration, nano filtration and reverse osmosis systems, membrane bio-reactors and advanced photo-chemical oxidation. They conserve water through recycle of waste water and recover valuable products for reuse, thus giving our customers a good return on investment while protecting the environment.

We select the most appropriate technologies and treatment schemes after bench scale and pilot plant studies, and detailed site surveys.



Membrane based zero discharge plant at petrochemical complex



Submerged membrane bio-reactor for recycle of industrial and municipal effluent



They are designed for the recovery and reuse of water and products, such as:

- Waste water from power plants, fertiliser, electronics, electroplating, textile, chemical and automobile industries
- Cooling tower blowdown
- Metal working oils
- Electrodeposition paint
- Fibre and water in the pulp and paper industry



Effluent recycle at metal finishing industry



INDION EcoServe (vehicle wash water recycle system)



Plating effluent recycle plant at auto ancillary unit



Waste water recycle plant for steel industry



Drinking Water Purification

For Communities, Institutions & Homes

To meet the requirements of communities, we offer a wide range of solutions for surface and ground water treatment for the removal of pollutants ranging from simple silt to contaminants such as arsenic, fluoride, nitrate and organics.



Fluoride removal hand pump attachment

Clarification technologies using inclined plate settlers are best suited for smaller systems while high rate solids contact clarifiers are ideal for large flows. The extremely compact ultra high rate clarifiers combine the benefits of both.

Our filtration solutions range from simple pressure sand filters to multi media pressure filters. Gravity filtration systems for large flows use state-of-the-art under drainage system designs.

Advanced membrane based systems treat surface and ground water. Ultra filtration processes remove all undissolved impurities including suspended solids, colloidal impurities, bacteria and viruses as well as a large number of organic compounds like pesticides and detergents. Reverse osmosis systems remove dissolved impurities (salts) from brackish water to produce potable water having low dissolved salts.

Our disinfection systems include chlorination, ozonation and UV radiation to suit various requirements of pre & final water disinfection.

We offer cost-effective solutions to treat ground water as well as surface water contaminants such as arsenic, iron, fluoride, nitrate, manganese, organics, brackishness and pathogens.

Features of our arsenic/iron/fluoride/nitrate/manganese/organic removal systems:

- Reduce contaminants to levels under EPA limits
- Effective over a wide range of influent water qualities
- Effective on surface water as well as ground water
- Media can selectively remove contaminants without changing water quality parameters
- Organic scavenger & nitrate removal media are NSF certified
- Organic scavenger media can selectively remove natural organics from water.

Some of these solutions are available as packaged systems for residential developments that may not be serviced by a municipality.

- Compact, easy to use and maintain
- Adaptable to remote locations



Brackish water treatment RO plant



Inclined plate clarifier



Fluoride removal unit



We have a range of Zero-B purifiers which provide the ideal remedy to drinking water problems. These use iodinated resin, reverse osmosis and ultra filtration membrane technologies, electro-chlorination or ozonation to purify water.

Our Zero-B water purifiers provide ultimate protection against waterborne diseases, by eliminating disease-causing micro-organisms.

They come in a wide range of attractive, convenient user-friendly devices to provide all consumer segments with safe drinking water.

For water conditioning we offer

- Softener and Ultimate Water Softener systems for continuous supply of soft water.
- D-Ferrous and Ultimate Iron Remover systems.



Zero B Water Station



Zero B Intello



Zero B Ultimate



Zero B Kitchen Mate (Under the counter)



Zero B EcoRO



Zero B Solar



Zero B Softener



Zero B New Generation Multigrade Filter



Synthetic polyelectrolytes



Activated carbon



Boiler water treatment

We manufacture speciality chemicals for a range of water and non-water applications:

Synthetic polyelectrolytes for treatment of industrial/potable water, effluent treatment, process treatment — sugar, paper etc.

Cooling water treatment chemicals for control of scale, corrosion, micro-biological growth and pH, scale and deposit removal.

Boiler water treatment chemicals for scale and corrosion control, improved boiler operation/steam generation, sludge conditioning and foam prevention.

Chemicals for closed circuit treatment in industry and in diesel engines.

Fireside chemicals and fuel oil additives for improving the combustion efficiency of boilers.

Speciality activated carbon — a wide range of premium grade, low leachability products for effective reduction of oil, organics and chlorine, decolourising and deodourising.



Cooling water treatment



Ion Exchange Resins



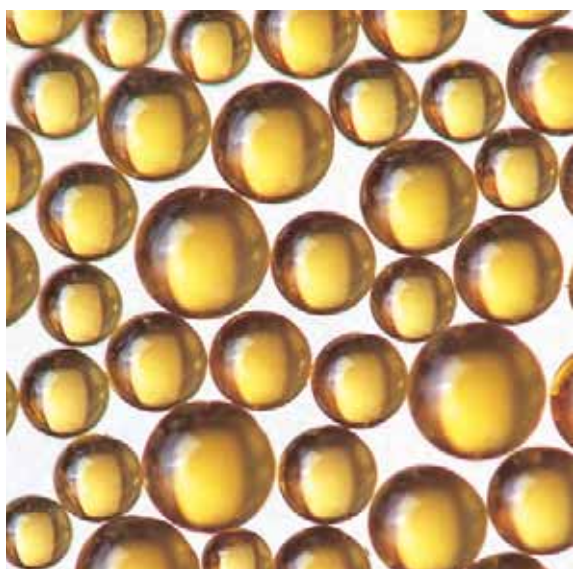
We manufacture a complete range of gel, isoporous and macroporous cation and anion exchange resins to international standards for water and waste water treatment as well as speciality applications.

Speciality products include:

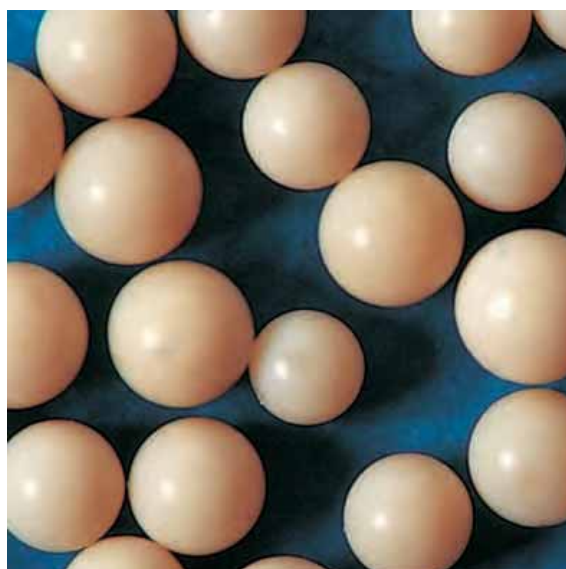
- Pharmaceuticals excipients
- Food, catalytic and nuclear grade resins
- Chelating resins for brine softening and metals removal
- Resins for sugar purification

In addition, we offer products for speciality applications such as:

- Removal and recovery of fluorides
- Removal of nitrates
- Recovery of plating shop rinse water
- Recovery of zinc from rayon spin bath
- Manufacture of silica sol from sodium silicate
- Deashing of glucose, dextrose and sorbital
- Conversion of organic salts to acids
- Recovery of tartaric acid from L2 aminobutanol tartrate
- Chromic acid recovery from electroplating bath
- Recovery of streptomycin from broth
- Purification of glycerine to pharmaceutical grade
- Tablet disintegration and sustained release of drugs
- Alkylation and esterification



Microscopic view of resins



Speciality ion exchange resins for decolorising



Standard Water Treatment Systems



Packaged reverse osmosis system



Reverse osmosis plant for packaged drinking water



SWIFT demineraliser for high purity water for pharma industry

Our packaged and pre-engineered range – softeners, filters, demineralisers and reverse osmosis systems, are engineered to meet the exacting process water quality requirements of different industries. These high performance, pre-tested and skid-mounted fast track delivery systems are quick to commission, and easy to use and maintain.

For example, specifically for the pharma industry we have a completely integrated package for purified/WFI water generation and distribution. These systems are prevalidated completely hot water sanitisable and are designed and manufactured as per cGMP, GAMP and ISPE guidelines, mandatorily run through FAT. The purified/WFI water produced through our water generation and distribution systems conforms to latest USP and pH EUR water standards.



RO-EDI system for pharma industry



Customer Service



Our total water management capability and comprehensive range of services supported by a highly trained experienced team of service engineers deliver the economic benefit and convenience of total solutions with single-point responsibility.

Spanning diverse industries in different countries, and varying plant conditions, our single-window services offer a complete package of benefits and a wealth of experience at work for our customers.

Our integrated service support includes:

- Consultancy
- Water Management Surveys
- Feasibility & Pilot Plant Studies
- Design & Engineering
- Project Management
- Inspection
- Erection & Commissioning
- Operation & Maintenance
- BOO/T Projects
- Operator Training
- Servicing
- Supply of Treated Water
- Supply of Fabricated Components & Consumables
- Training and consultancy in ISO 14000 & environment management systems



O&M services contract for water & waste water treatment plant for a steel mill



O&M services for RO installations for a major oil company in the Gulf



Annual maintenance of PLC based demineralisation plant at thermal power station



Service truck - USA



Successful multi-project execution to quality standards and stringent requirements of reputed EPC contractors and consultants has helped forge strong ties and long-term relationships.

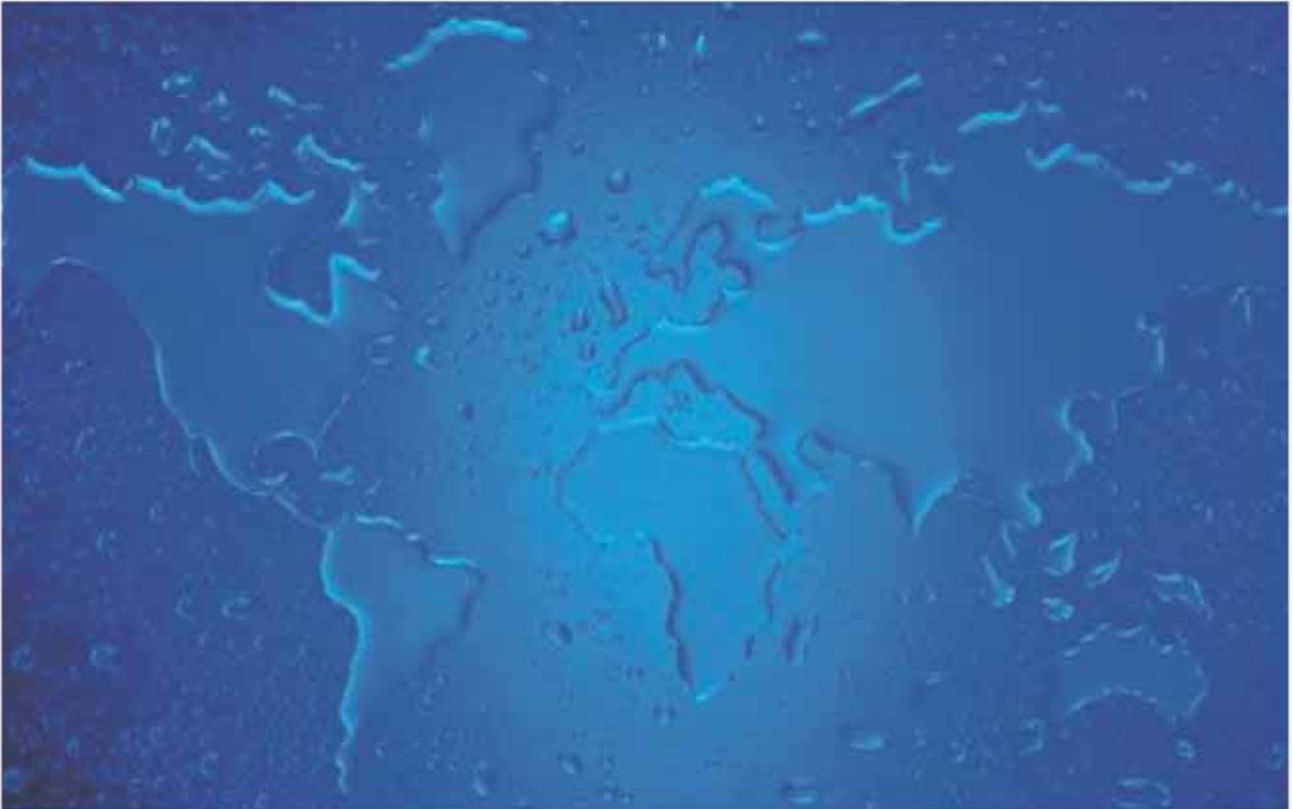
EPC Contractors...

- ABB Limited, Indonesia
- Alstom, Italy
- Daelim Engineering, Korea
- Hanjun Korea Heavy Industries & Construction Company Limited, Korea
- Hyundai Heavy Industries, South Korea
- JGC Corporation, Japan
- Kawasaki Heavy Industries, Japan
- Marubeni Corporation, Japan
- Mitsubishi Heavy Industries, Japan
- Stork Ketels, Netherlands
- Technip, France
- Kellogg Brown & Roots, USA
- Foster Wheeler, UK

Consultants...

- Bovis Lend Lease, UK
- Jaakko Poyry, Finland
- Kellogg & Co., USA
- Krebs Reseau Eurisys, France
- Lahmeyer International GmbH, Germany
- Preece Cardew & Rider, UK
- Snamprogetti, Italy
- Stone & Webster, UK
- Scott Wilson, Bahrain
- Worley Parsons, Oman





NO BOUNDARIES. JUST SOLUTIONS.

We have executed a large number of projects and plants, and supplied resins, membranes and chemicals to countries in every continent.

The world is our canvas. Water is the medium. Our water management solutions have evoked growing ripples of satisfaction among customers across the globe.



OVERSEAS OPERATIONS

Canada | USA

Nigeria | South Africa | Tanzania | Kenya

Saudi Arabia | Bahrain | UAE | Oman | Bangladesh

Indonesia | Thailand | Malaysia | Singapore



Corporate Office

Ion House, Dr. E. Moses Road, Mahalaxmi, Mumbai - 400 011, India
Tel: +91 22 3989 0909 Fax: +91 22 2493 8737
E-mail: ieil@ionexchange.co.in

International Division

R- 14, T.T.C. MIDC, Thane-Belapur Road, Rabale, Navi Mumbai - 400 701, India.
Tel: +91 22 3989 0909, 3913 2400 Fax: +91 22 2769 7918
Email: rabcrointl@ionexchange.co.in; export.sales@ionexchange.co.in

www.ionindia.com