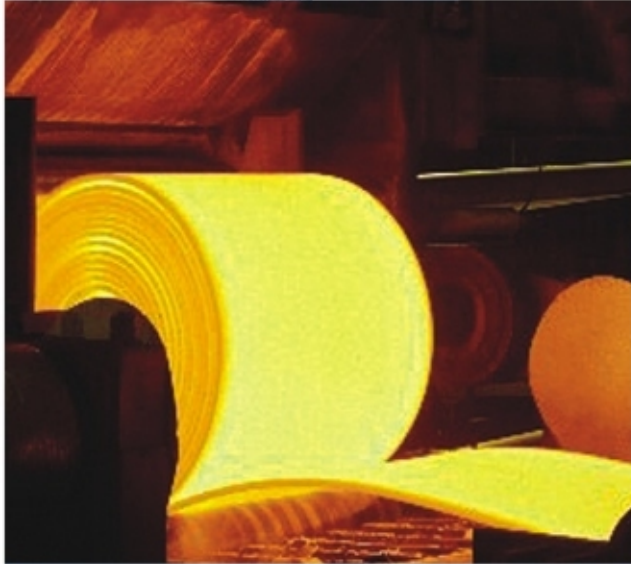




## FORGING STEEL WITH WATER





## TOTAL WATER MANAGEMENT FOR THE STEEL SECTOR



Water is the lifeblood of a steel plant. If it doesn't flow, production stops. If process water quality changes, quality of production is affected.

Ion Exchange (India) Ltd. leverages over four decades of pioneering specialisation in total water and environment management, to offer the steel sector advanced solutions for the entire water circuit. Meeting the industry's critical need for continuous, large volumes of required quality water, consistently, and providing the cutting edge of reliability and efficiency for optimal performance.

With our comprehensive range of technological solutions for water and waste water treatment, quality products, superior application knowledge and outstanding service support, we have the mettle to help you make better steel.

## Total Solutions Provider, Concept To Completion Capability

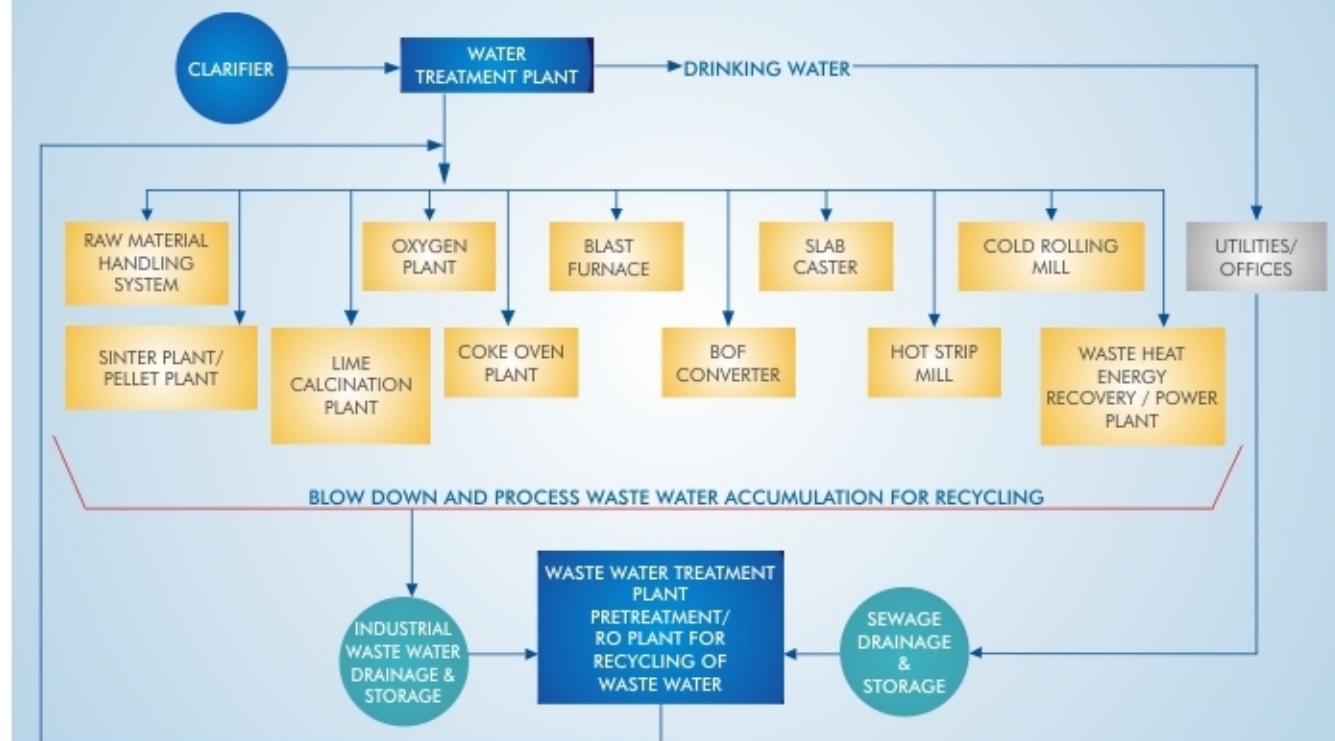
Ion Exchange India offers full spectrum capabilities for the steel sector. Amply proven by the numerous projects we have undertaken in India and worldwide - extending from survey, consultancy and audit of total water circuits for water balancing and optimisation of water consumption in each plant, design and engineering of water and effluent treatment plants to operation, maintenance and management of the entire water circuit.

We undertook the total water management for steel giants like Tata Steel and JSW Steel, thus freeing these companies to focus on their core business, while achieving superior price performance ratios and production efficiencies.



Management of complete water circuit at JSW Steel

### Typical Water Flow Diagram For A Semi-Integrated Steel Plant





## Centralised Water Treatment Plant

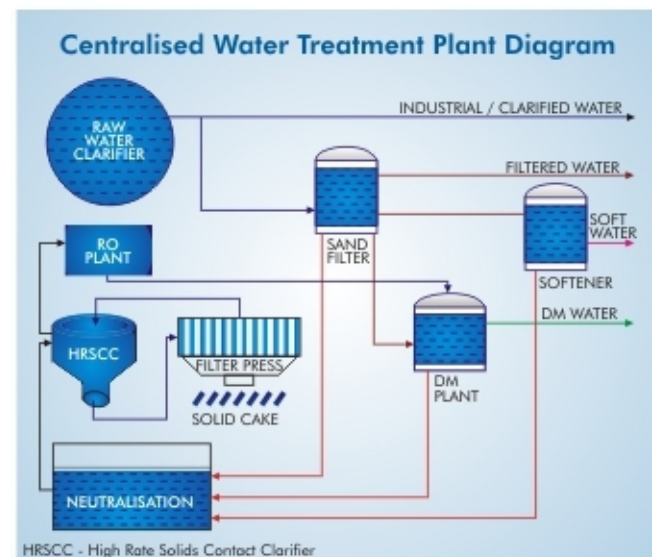
A centralised water treatment plant that produces purified water for the use of the entire steel plant is a new concept that optimises costs and provides better handling of waste water for recycle. We have supplied such a complete system, as a package, to Bhushan Steel and Strips Limited.



Part of water treatment system supplied to Bhushan Steel and Strips Limited

## Blast Furnace Water System

- Auto valveless gravity filter (AVGF) for cooling tower side stream filtration
- Demineralisation (DM) plant for turbo-blower boiler make-up
- Softening plant for soft water cooling circuit
- Cooling water treatment chemicals
- Boiler water treatment chemicals
- Flocculants for GCP circuit

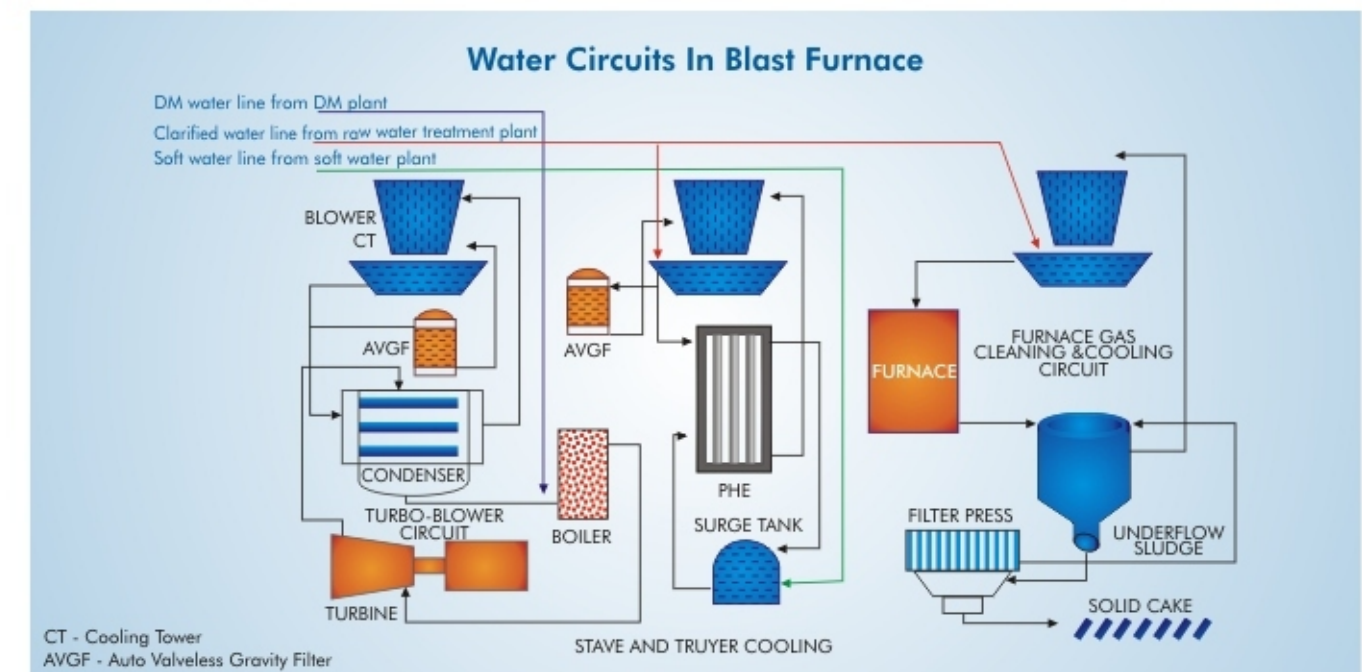


## Raw Material Handling Plant

- Wetting agent for wagon trippers
- Auxiliary cooling water treatment chemicals
- Soft water plant for closed circuits.

## Coke Oven Plant, Sinter Plant and Pellet Plant

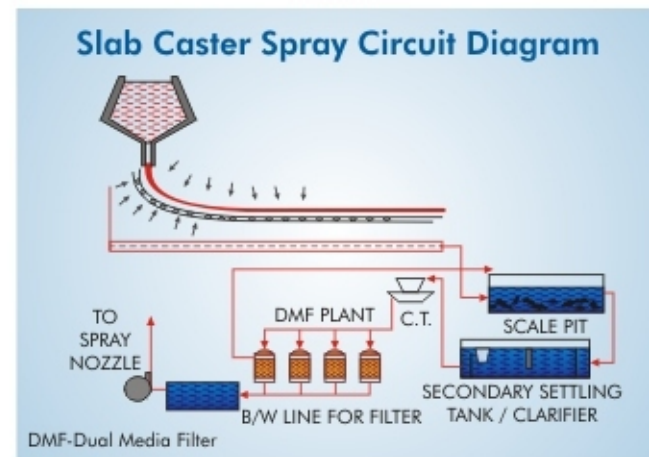
- Soft water plant for low pressure boilers, distillation process
- Cooling water treatment chemicals
- Boiler water treatment chemicals
- Sand filters for various applications



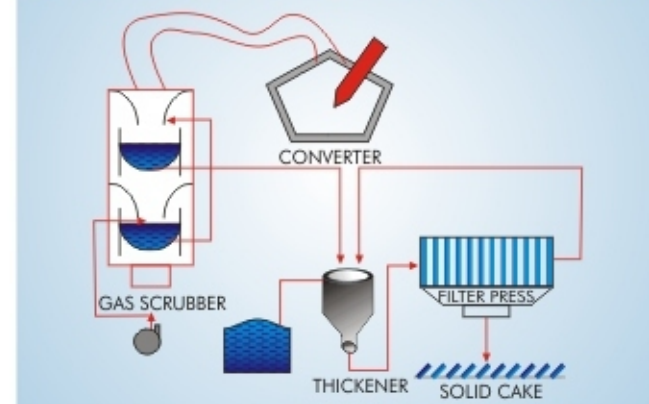


## SMS (BOF/LD) Water System

- Softening plant for primary circuit.
- Dual media filter for spray circuit
- AVGF for cooling water filtration
- Pressure sand filter for HMPU gas cleaning water.
- Cooling water treatment chemicals.
- Boiler water treatment chemicals
- Mist forming chemicals for GCP.
- Flocculants for GCP thickener.
- Oil dispersant for spray circuit and filter media cleaning



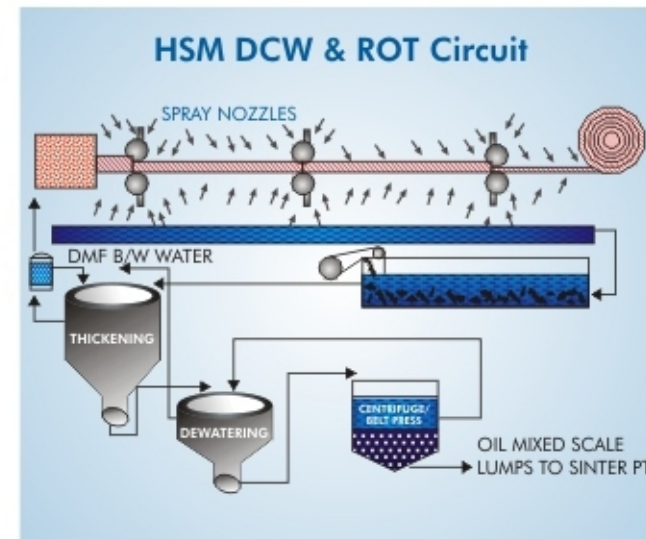
## BOF/LD Converter (GCP Circuit) Diagram



ARP - Acid Regeneration Plant • BOF - Basic Oxygen Furnace • DCW - Direct Cooling Water • ECL - Electrolytic Cleaning Line  
 GCP - Gas Cleaning Plant • HMPU - Hot Metal Processing Unit • HSM - Hot Strip Mill • ICW - Indirect Cooling Water  
 LD - Linz-Donawitz PLTCM - Pickling Line Tandem Casting Mill • ROT - Run Out Table • SMS - Steel Melt Shop

## Hot Strip Mill Water Circuit

- Dual media filter for DCW and ROT circuit.
- Continuous/DynaSand filter for oily water filtration for ROT
- AVGF for ICW water and side stream filtration
- Cooling water treatment chemicals.
- Flocculants for DCW thickener.
- Oil dispersant for DCW and ROT circuit filter media cleaning



## Cold Rolling Mill Water System

- Multi grade filter for incoming water filtration.
- AVGF for ICW water and side stream filtration.
- DM plant for pickling line high quality water supply
- Softening plant for ARP low pressure boiler water feed
- Effluent treatment plant for acid alkali waste & oily waste from PLTCM and ECL plant
- Cooling water treatment chemicals
- De-oiling polymer for oil emulsion breaking
- Flocculants for thickener application

## Waste Water Recycle & Zero Discharge

Waste water recycle gives significant economical and environmental benefits, by conserving large quantities of fresh water, reducing cost of water, enabling compliance with pollution control regulations and protecting the environment. Our advanced, cost-effective recycle technologies integrate physico-chemical, biological and membrane separation processes for optimum water recovery, enabling upto 90% reduction in raw water requirements.

## 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.

## Drinking Water Systems

A full range of point-of-use and centralised systems, incorporate latest technologies such as reverse osmosis and ultraviolet.

## Operation & Maintenance

Personnel trained and experienced in water and chemical treatment systems, stationed full time on site, ensure smooth running of all plants at optimal performance, eliminating downtime and production losses as well as expense and hassle of in-house supervision, manpower and maintenance.



Complete water and waste water treatment at Tata Steel

Thus, 360° total water and environmental management solutions enables Ion Exchange (India) Ltd. to add value across the entire process cycle of steel plants while comprehensive service support ensures high performance continuity. Single point responsibility for the entire water circuit enables our customers in the steel sector to focus on their core business of steel making, assures continuous supply and quality of water with superior price performance ratios and production efficiencies, lower costs and more effective use of capital employed.





# Supply, Maintenance & Management of Complete Water Circuit

Our comprehensive range of products and services for the steel industry includes:

## Water Treatment Systems

- Ultra high rate clarifier, lamella clarifier for raw and process water clarification.
- DynaSand continuous sand filter for mill scale filtration.
- Dual media filter.
- Multigrade sand filter for clarified water filtration.
- Auto valveless gravity side stream filtration for cooling towers.
- Softening plant for soft water cooling circuit.
- Demineralisation for boiler make-up and other high end use applications.
- Reverse osmosis for sea water desalination and for make-up or recycling of waste water for reuse.

## Boiler Water Treatment Chemicals

- Oxygen scavengers
- pH booster

- Anti-foaming agents
- Sludge conditioners

## Cooling Water Treatment Chemicals

- Corrosion inhibitors
- Scale inhibitors
- Dispersing polymers
- Biocides
- Coagulants
- Flocculants

## Services

- Total water management consultancy
- Water circuit surveys
- Water audits
- Servicing
- Operation & maintenance
- Operator training

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. Please contact our Regional Offices for current product specifications.

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Overseas - Bangladesh | Indonesia | Saudi Arabia | UAE

All India Service and Dealer Network

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