

# SCALE-AQUA

A NON-CHEMICAL WATER TREATMENT

A Fit & Forget System



**SHRI RAM ENTERPRISES**

**SCALE AQUA INDUSTRIES**

- No Chemical Required.
- No Softening plants required.
- Use Ro Rejected Water.
- Use ETP Treated Water.

## Our Vision

Our Vision is to help industry in generating more production per unit of water and to be pioneer in preventing water Pollution and saving it to be used for productive purpose

**SHRI RAM ENTERPRISES** was established in 2009 with is office at Nasik manufacturing setup at Indore with a vision of providing a Non-Chemical online solution for the Hard Water Scaling Problems in Transfer Areas. The company today has established itself in the market and is known for Operational Efficiency, Functional capability, Unbeatable Design & Workmanship.

We manufacture **SCALE-AQUA** A NON-CHEMICAL WATER TREATMENT equipment which prevents deposition of hard water scale in the deat transfer area. It can also be fitted in existing pipeline with absolutely no changes in the pipeline Scale-Aqua is tested at water hardness of 5000 PPM & TDS of 20,000 PPM. With suce a vast range to operate,

**SCALE-AQUA** gives excellent water saving beside total prevention of scales in heat exchanger/ condensers in cooling water service in power / chemical/ solvent extraction/ paper/ sugar/ steel &dairy industries etc.

## Engineering Data

MODEL	ABC01	ABC02	ABC03	ABC04	ABC05	ABC06	ABC07	ABC08	ABC09	ABC10	ABC11	ABC12	ABC13	ABC14
PIPE DIAMETER (INCE.)	1	2	2.12	3	4	5	6	8	10	12	14	16	18	20
MINIMUM FLOW (M3/HR)	3.0	12.0	19.0	25.0	40.0	85.0	133	198	260	565	820	1135	1490	1880
MAXIMUM FLOW (M3/HR)	4.8	21.0	27.5	44.0	93.0	143	210	375	590	850	1170	1530	1940	2400

## Saving Achieved by SCALE-AQUA in Dfferent Applications

### Power Plant

- No softening of water required
- Excellent water saving due to reduced blow down with high COC
- Constant Vacuum.
- Chemical Savings.

### Solvent Extraction

- Increase in Hexane recovery.
- Use of Ro reject / ETP treated.
- Spent lease water as make up in cooling tower.

### Dairy/Ice/Cold Storage/A.C. Plants

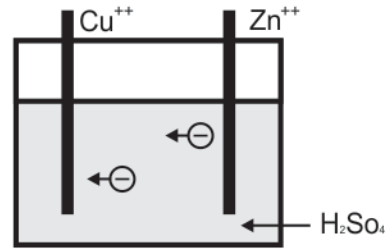
- Constant Cooling of ammonic / freongases.
- Reduced power consumption of compressors due to constant head pressure.



# HOW DOES SCALE-AQUA PREVENT SCALING YOUR EQUIPMENT ?

The working principle of SCALE-AQUA is very simple and proven. It incorporates use of the galvanic principle, Chemical Characteristics of water and fluid Dynamics SCALE-AQUA exploits solubility Characteristics of Calcium and Magnesium salts in water with change in its pH value. SCALE-AQUA locally increases the pH value of water before it reaches high temperature zone and then precipitates out hardness causing salts as water flows through.

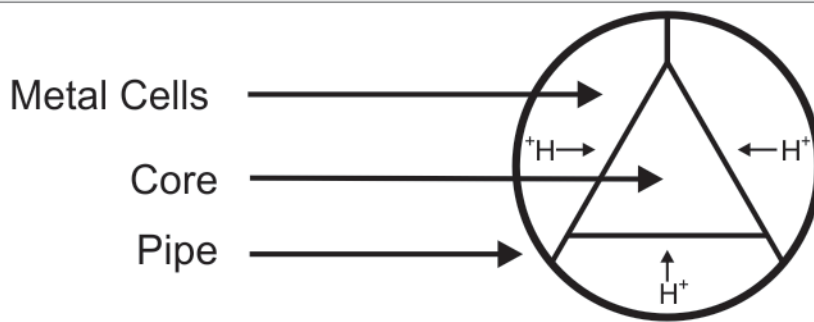
## The Galvanic Principle



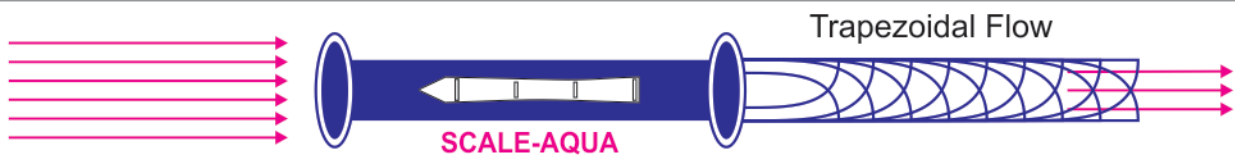
# HOW DOES SCALE-AQUA EXPLOIT THESE PRINCIPLES AND CHEMICAL CHARACTERISTICS ? THE FUNCTIONING OF SCALE-AQUA ? THE FUNCTIONING OF SCALE-AQUA

As water passes through SCALE-AQUA the whole core inside gets negatively charged, since water itself acts as an electrolyte within the equipment. This negatively charged core attracts  $H^+$  from water, which are the lightest ions. The relationship between pH of water and  $H^+$  is expressed by the formula  $pH = 1/H^+$ .

Thus with the  $H^+$  becoming less and less. pH value of water increases, thereby precipitation hardness causing Calcium and Magnesium salts.



There could be a doubt in mind regarding formation of scales within itself and that the equipment itself might get choked after sometime. However, this is not the case since the shape of core is trapezoidal, which creates turbulence in the water and the scale particles being very small, the flow of water carries away these colloidal particles with it and the equipment remains completely clean forever.



## The savings achievable by installing SCALE-AQUA are as under :

1. Softener / RO is not required as raw water from bore well or river can be directly used as feed water to cooling tower.
2. Descaling chemicals is not required in cooling water.
3. As our equipment is tested to run at high hardness ( 5000 ppm ) and TDS ( 20,000 ppm ) in cooling tower without any risk of deposition, cooling water can be run at high COC of 20 to 25 as against 5 to 7 with chemical treatment, so blow down from cooling tower is negligible.
4. RO reject water can be used as make up water in cooling tower to achieve substantial saving in water while reducing the load to effluent treatment plant.
5. There is zero scale in condenser and other coolers
6. No Shutdown of plant is required for cleaning of condenser tubes in power plant.
7. Due to repeated cleaning of the hard scales in tubes with rod, the tube surface becomes weak and prone the leak. Any leakage in condenser / cooler causes shutdown of minimum three days.
8. Vacuum ins condenser in power plant remains on higher side (+0.9 ata) which gives good efficiency of plant and less coal consumption.
9. Vacuum in condenser in Power plant remains steady which gives long life to machinery.
10. Ours is a fit and forgets equipment having a guaranteed maintenance free life of 20 years consuming no power.
11. Payback is maximum one year.

We assure for the savings said and request to give as the opportunity to prove by installing **SCALE-AQUA** at your existing plants and also incorporate the same in your new plant.

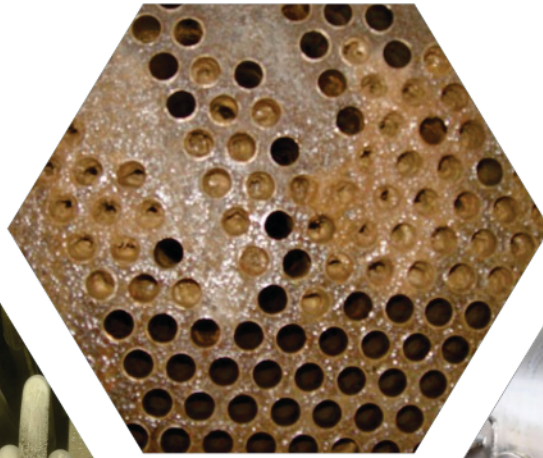
We are sure a versatile consultant like you will give due cognizance to afore said facts and shall recommend the installation of **SCALE-AQUA** whenever your advice is sought regarding scale formation on the heating surface areas of Condenser / Heat Exchanger and its impact on the efficiency of connected Equipments.

We will be happy if you kindly spare your time on and date suiting to your convenience so that we may visit your office for further discussion.

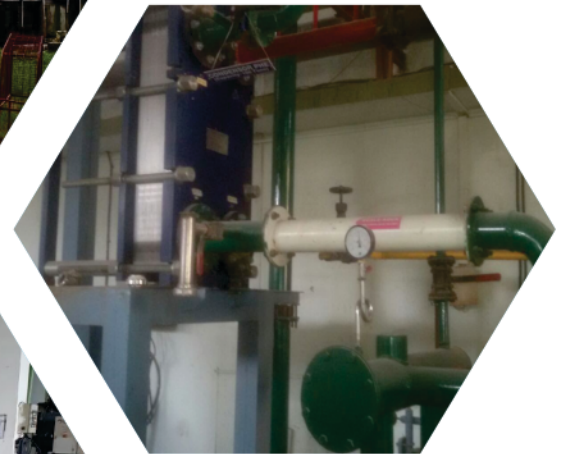
An article on “**IMPROVE STEAM TURBINE EFFICIENCY**” is attached here with for your kind perusal.



Before



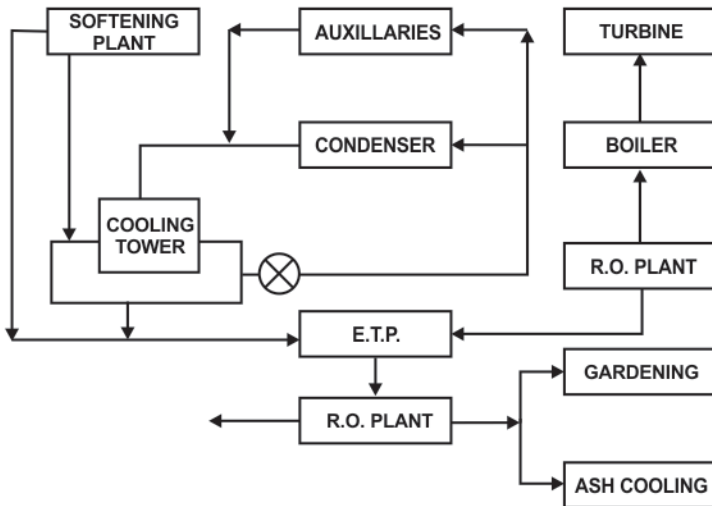
Scale Aqua After



# Power Plant

## A COMPARISON WITH CONVENTIONAL WATER TREATMENT SYSTEM

### COMMONLY ADOPTED CONVENTIONAL WATER TREATMENT SYSTEM FOR ZERO DISCHARGE IN POWER PLANTS.



Works only on Soft/RO water.

Limitation of Hardness & TDS.

Recurring Expenses for preparation of Soft water as make up water in Cooling Tower.

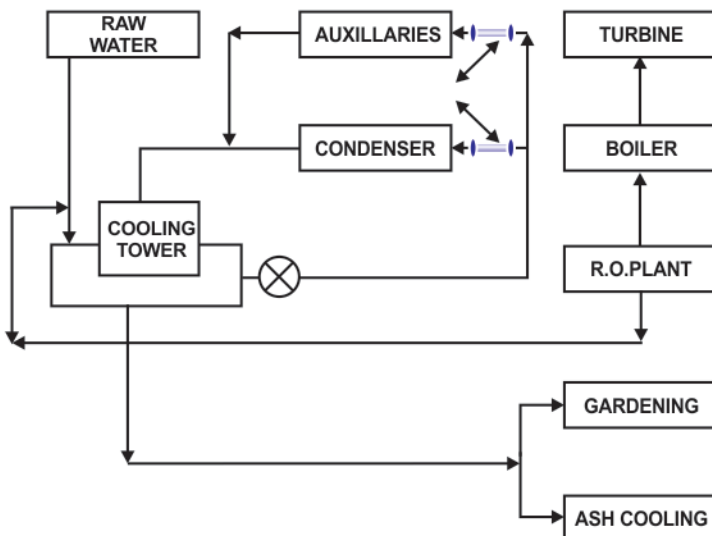
Despite use of Soft Water scale is formed in Heat Exchange Areas.

Cooling Efficiency loss and poor vacuum due to scale formation.

Reduced power generation due to scale formation.

No Guarantee against scale formation.

### INSTALLATION OF SCALE-AQUA TO REVOLUTIONIZES POWER PLANTS FOR ZERO DISCHARGE



Can work on Raw/R.O. Reject/ETP treated/Sea/ Bore water.

Can work up to 5000 ppm Hardness and 20,000 ppm TDS.

No Recurring Expenses as direct raw water can be used as make-up water.

Tremendous SAVING of water as our equipment works on higher COC's.

ZERO SCALE Guarantee in heat exchange Areas.

No efficiency loss and maintained vacuum due to ZERO SCALE.

Optimum power generation.

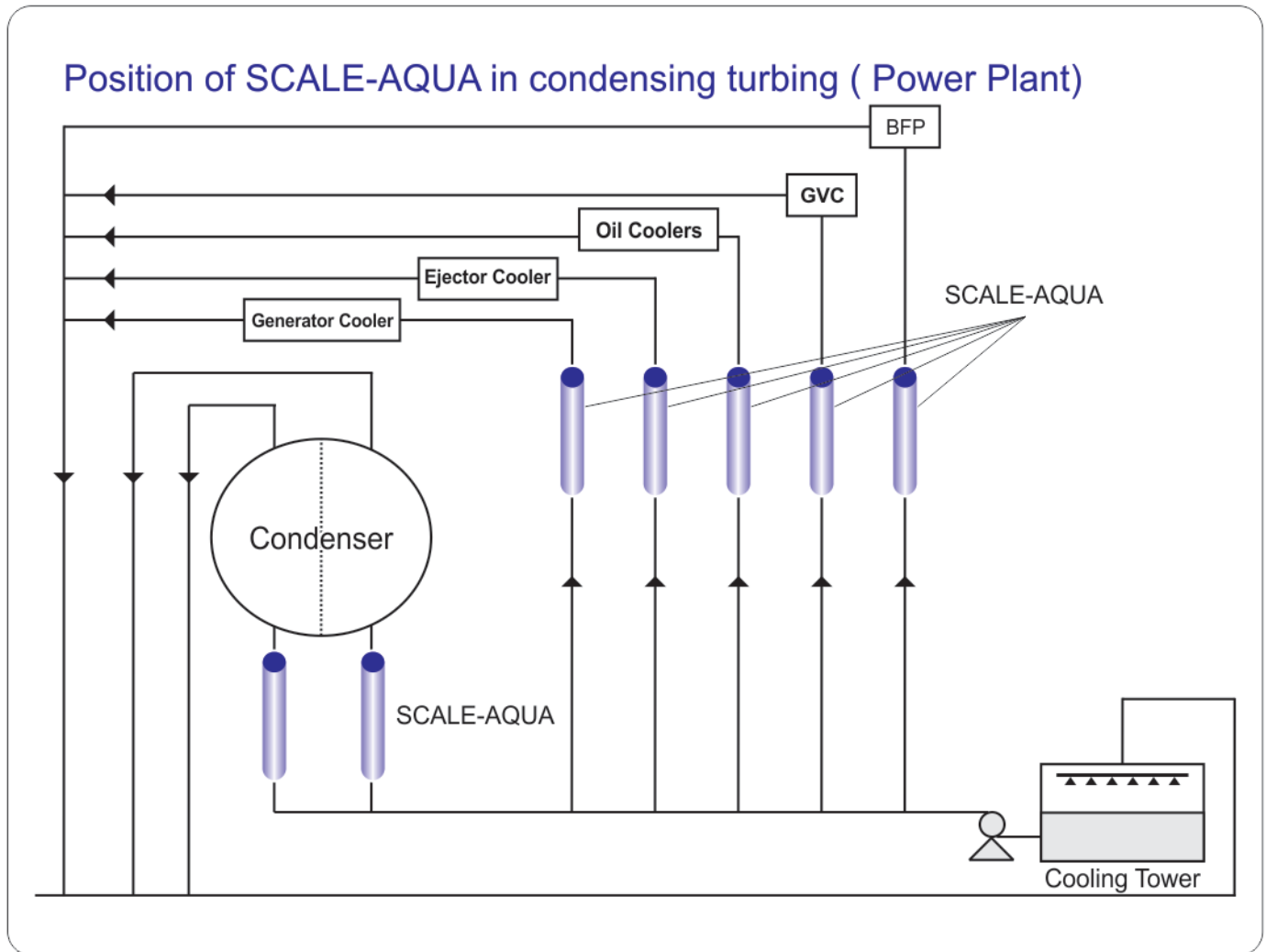
20 Years Performance Guarantee for Zero Scale.



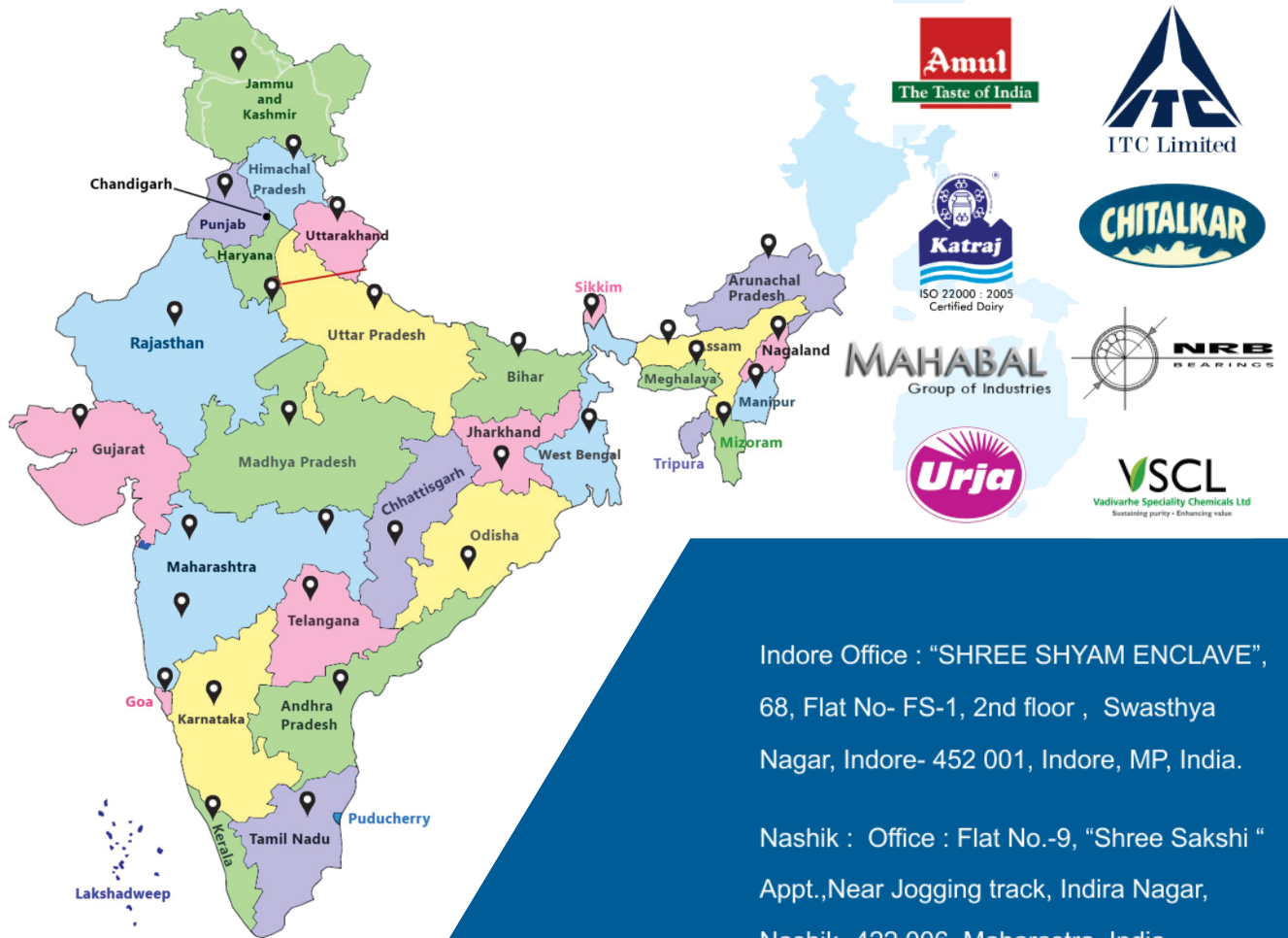
## Selection :

**SCALE-AQUA** is typically installed after the pumps and before the heat transfer areas. The actual installation, however, shall vary according to site conditions.

There should not be any static take or other zero velocity zone between **SCALE-AQUA** and equipment to be protected. The customers are however requested to consult the manufacturer or their authorized dealers/ agents before installation.



## CUSTOMER LOCATION



Indore Office : "SHREE SHYAM ENCLAVE",  
68, Flat No- FS-1, 2nd floor , Swasthya  
Nagar, Indore- 452 001, Indore, MP, India.

Nashik : Office : Flat No.-9, "Shree Sakshi "  
Appt.,Near Jogging track, Indira Nagar,  
Nashik- 422 006, Maharastra, India.

Mob. : 099264 71258, 80870 34003.

Web.: [www.scaleaqua.com](http://www.scaleaqua.com)

email : [ratul2003@gmail.com](mailto:ratul2003@gmail.com)

[scaleaqua1@gmail.com](mailto:scaleaqua1@gmail.com)

### Common Application

- Power Plant • A. C. Plants • Chemical Reactors • Chilling Plants • Compressors • Injection Molding
- Electric Furnaces • Evaporative Condensers • Gas Turbines • Gear Box Cooling
- Generator Sets • Heat Exchanges • Induction Furnaces • S.E.P. Condensers • Steam Turbines