

# Scalemaster Adlam Pvt. Ltd.

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## **SCALEMASTER ECO FRIENDLY WATER TREATMENT**

We appreciate your interest in our "Scalemaster" anti scaling units manufactured by us in technical collaboration from Canada.

We enclose the following documents for you perusal,

- ❖ The principle of non-chemical water treatment
- ❖ Magnetic field and its reaction in water
- ❖ Frequently asked questions (FAQ)
- ❖ Scalemaster installation drawings in boilers and circulating systems
- ❖ Price list

If you have any further questions please contact us.

Regards,

A. Prabhaker Rao  
Managing Director

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## **THE PRINCIPLE OF NON-CHEMICAL WATER TREATMENT**

### **Conventional water treatment:**

Conventional water treatment works with chemicals. The addition of chemicals in water reduces the total hardness by substituting the hardness causing compounds with other compounds that do not cause scale formation. The hardness levels are reduced but the TDS is not reduced. On the contrary the TDS level goes up because of the addition of chemicals. In chemical treatment chemical changes take place in the water. These changes reflect in the water analysis report. The treatment effected to the water prevents scale formation.

### **Non-Chemical water treatment:**

In non-chemical water treatment neither the TDS value nor the hardness value is reduced. There is no addition or deletion of any compound in the water. The treatment effected to water imparts physical changes to the scale forming compounds of calcium and magnesium. The physical changes incapacitate the scale forming compounds. These incapacitated compounds are kept in suspension and they flow in the water as harmless compounds. When the calcium and magnesium compounds are incapacitated, they lose the characteristics of scale formation. The unique feature in non-chemical water treatment is that while the scale is prevented the existing deposit in the pipelines gets descaled in course of time. The physical changes effected to the compounds in the water do not get reflected in water analysis report.

The scale forming compounds which are in suspension keep flowing in the water and when they get into the tank tend to settle down at the bottom of the tank. Obviously the bottom portion of the water has higher concentration of compounds than the water above. In view of daily addition of make up water to the tank because of evaporation losses, the concentration in the tank keeps on increasing day by day. If the concentration level goes beyond a certain level, the effectiveness of the Scalemaster unit keeps coming down proportionately. To dilute the water for better performance of the unit, it is recommended that at least once in 3 months the water in the tank should be replaced. If water is a scarce commodity, siphoning of at least 4" of water from the bottom of the tank should be resorted to.

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## **MAGNETIC FIELD AND ITS REACTION IN WATER**

1. Magnetic field reduces the kinetics of crystallization processes and the freedom of movement of charged particles. The limitation of the motion of charged particles in the field results in an increase in the number of collisions and the formation of crystallization centers.
2. Algae such as normally grown on coolers in the open air and in swimming pools, die rapidly under the effects of the controlled magnetic treatment.
3. When water is magnetically charged, it electrically takes on a greater ionic charge than the minerals, which creates a natural magnetic attraction between the two. The magnetization then attracts and locks the dissolved minerals into the water creating healthy and cost free descaling.
4. Softening and better taste occurs from an actual reduction in the size of the water molecule. It is similar to bucketful of rocks the size of pebbles vs the size of the sand. The pebbles will bang around like rocks while the sand will pour like water. The small magnetized water molecules has a greater solvency and a magnetic attraction that results in cleaner bathing and washing which cleans and washes like soft water. The smaller molecular size also has less evaporative surface area which magnetically and dramatically reduces the gases and foul taste of sulphur, chlorine and chloride etc.
5. Acid neutralization occurs from the physical restructuring of the water molecules. The acid taste is reduced while the copper leaching is stopped and the green acid stains eventually and completely wash away.
6. Interaction between magnetic fields and charged particles in fluids can cause profound changes in the behaviour of the fluids. This appears to be true of the interaction between magnetic fields and the highly surface charged nuclei, which are the pre cursors to precipitation and crystallization phenomenon.
7. The magnetic field can create changes in particle size, in crystallinity, in crystal morphology, in crystal phase and in the solubility or level of super saturation of the precipitate in the fluid.
8. The changes that are observed in a given system are specific to that system because every crystallization is a unique process.
9. In course of operation with Watertech, the TDS level of the water keeps increasing due to descaling process. Once the old scale is removed and the concentration from the tank is siphoned of, the TDS level will come back drastically down.
10. The effect of descaling and subsequent scale prevention, results in energy conservation of the pumps.
11. Magnetic water treatment does not reduce hardness like in a demineralisation plant. However water is functionally softened i.e. Although water is hard, the effects of soft water are enjoyed. The changes effected are physical and do not reflect in water analysis. The physical changes incapacitate the scale forming compounds thus achieving the objective by a different principle altogether.
12. Conventional softeners only prevent scale formation whereas magnetic units start descaling the existing deposits while preventing the scale formation.
13. The magnetic water treatment reduces the surface tension of water.

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## **FREQUENTLY ASKED QUESTIONS (FAQ'S):**

### **What is Scalemaster?**

It is a precision-engineered online device that applies force field technology to the conditions of water.

### **What does it do?**

The unit prevents scale formation and also descales the existing deposits in course of time. The unit also reduces the TDS.

### **How does it work?**

The Scalemaster unit accelerates the suspended particles in the water through an intensified controlled magnetic force field and alters the character of these solids so that they are no longer attracted to hard surfaces (pipes) thereby controlling the scale.

### **How does it descaled the pipes?**

Although the descaling process starts on the day the unit is in stalled, depending on the type and thickness of the scale, it may take anywhere from 15 days to 90 days to find good results.

### **What are the expenses involved?**

Except the initial cost, there is no further expense. Not even after sales or recurring expenses. Even the initial cost of the system is ridiculously low compared to the other existing systems either chemical or non-chemical.

### **Where does the scale go?**

The scale is dissolved and is carried away with the water to the tank where it tends to settle down. This will keep increasing the concentration in the water in the tank and necessitates replacing the water at least once in a month. If the water is scarce, siphoning may be done to remove at least three inches of water from the bottom of the tank

### **What are the applications where it can be installed?**

Water cooled air conditioning, arc furnaces, boilers, chillers, compressors, condensers, continuous casting, electro slag refining furnaces, engine cooling, evaporators, gen. Sets. Heat exchangers, humidifiers, rubber masticators, induction furnaces, mill bearings cooling system. Moulding, panes cooling, refrigeration systems, turbine cooling, vacuum pumps, and where ever scaling is a phenomenon. The applications can be extended to Agriculture, Poultry and other live stock, fruit juices, sugar cane, fountains, fuel saving and so on.

### **How and where it the unit in stalled?**

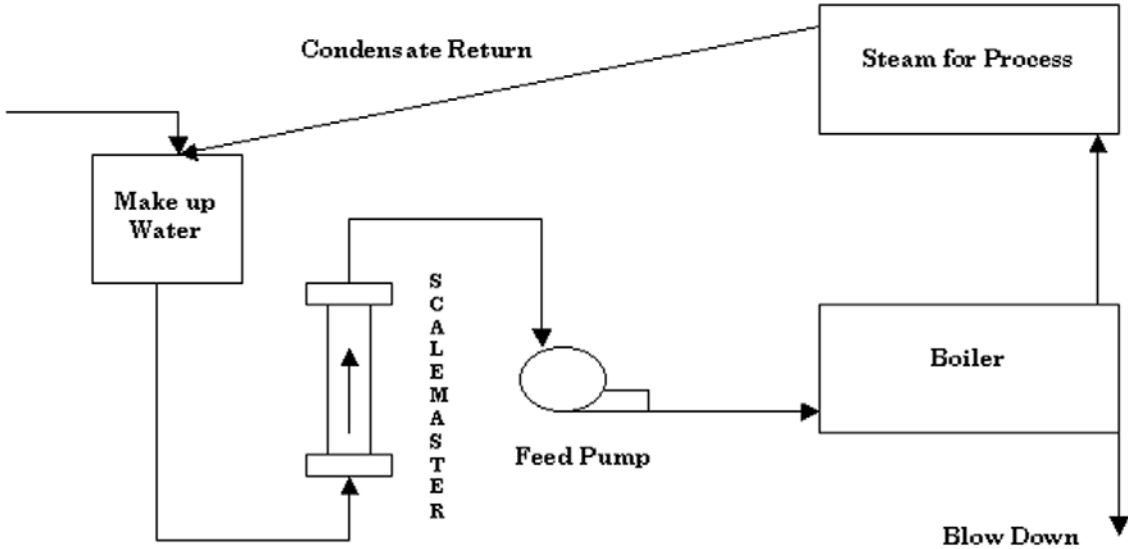
Scalemaster is an ONLINE unit and is easy to install. Just get it fixed by a plumber in the existing pipeline.

### **What is the material of Construction?**

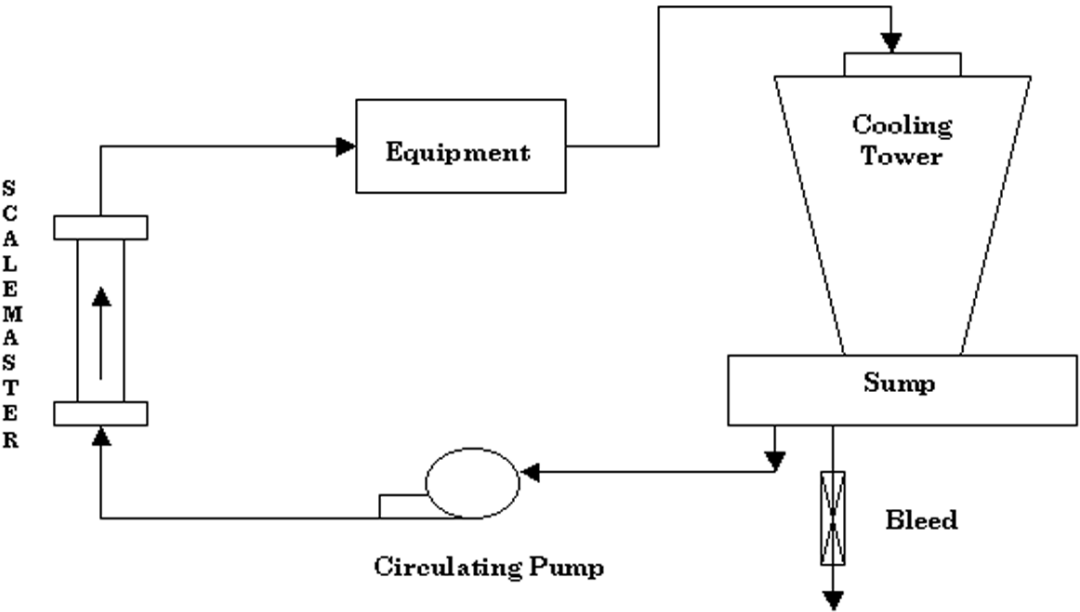
All industrial units are made in stainless steel 304L schedule 10. Domestic units are of steel pipe for water flow encased in polypropylene.

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## Scalemaster Installation on Boiler feed water:



## Scalemaster installation on Circulating System:



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**Scalemaster dimensions:**

The length for all the industrial units remains the same. Diameter "D" is as per the model in the chart.

