DeCaIon™

ULTIMATE SOLUTIONS FOR COOLING WATER MANAGEMENT

PATENTED!

Without descaling chemicals,
biocides and corrosion inhibitor

SINGAPORE GREEN BUILDING PRODUCT
SGBC
EXCELLENT
SGBP 3116

Revolutionary Approach to Cooling Water Management through Patented Chemical Free DeCaIon™

DeCaIon™ (DCI)

DeCaIon™ (DCI) is a revolutionary approach to eliminating scale, preventing corrosion and bio-fouling automatically in cooling water systems. Through applied electro-chemistry and an intelligent controller, DCI removes water hardness from cooling systems without the need for hazardous chemicals. The innovation provides a green technology solution to scaling and corrosion in large building HVAC systems and industrial chiller circuits. The DCI system removes existing scale deposits and prevents further scale formation by driving a non-spontaneous redox reaction which precipitates $CaCO_3$ and $Mg(OH)_2$ at the cathode. The main causes of scaling, Ca^{2+} and $Mg^{2+,}$ can then be dumped off the recirculating cooling water. SiO_2 is also removed. The system operates continuously so design heat transfer efficiency is maintained at all times and the requirement for routine shut downs and chemical descaling is no longer required. Water blow-down quantities are also substantially reduced.

Conventional method uses eco unfriendly 100% chemical approach. But scale deposits still build up on heat exchanger tubes, pipes and cooling towers which will then require hazardous chemical cleaning and waste disposal. The blow-down containing chemicals from cooling tower pollutes the waterways. On the other hand, pseudo scientific Non Chemical Devices yield unsatisfactory results.

This compromised situation cannot be solved by continuing the same practice. This is why eco friendly **DeCaIon™ (DCI)** System enhanced by **CataGreen™ (CG)** is now introduced to circumvent the problems of the above approaches.

BIO mutation which is a common phenomenon when chemicals are used to kill the microbes is now history.

A badly scaled/fouled heat exchanger

A well maintained heat exchanger

The Ultimate Solution to Scaling, Corrosion and Fouling Problem

DCI empowered by CG, removes scales by electrolysis according to:

- $Ca^{2+} + HCO_3^- + OH^- = CaCO_3 + H_2O$
- $Mg^{2+} + 2OH^- = Mg(OH)_2$

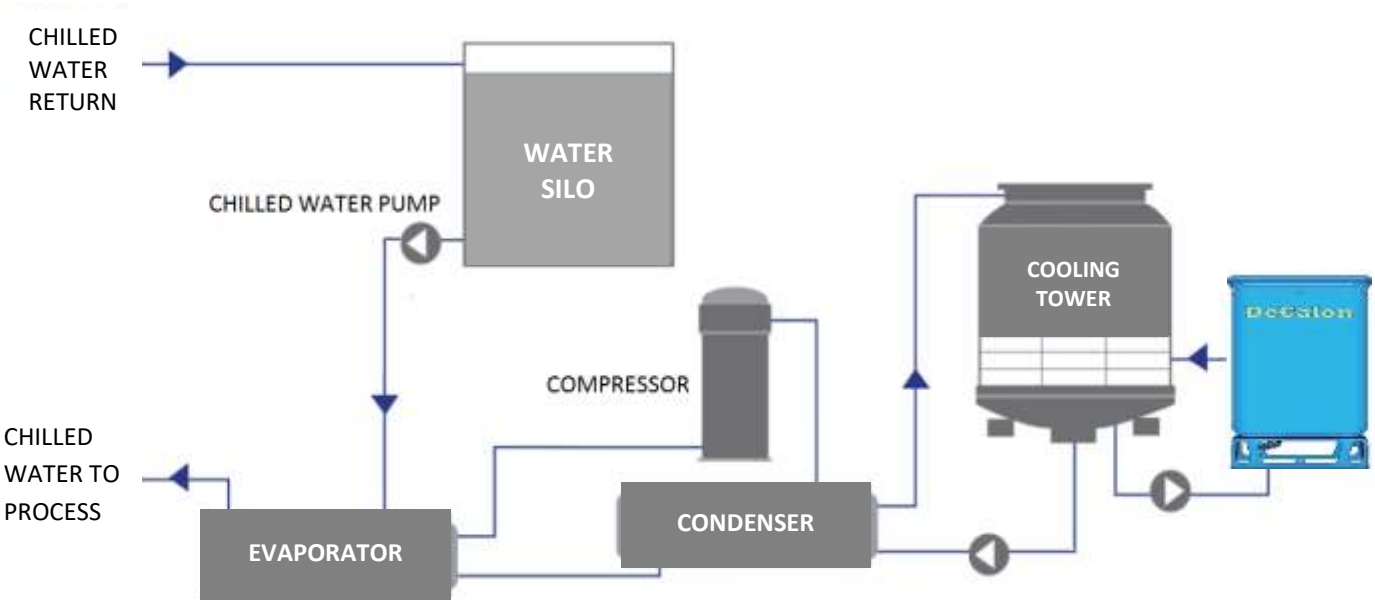
The main scaling culprits in water system i.e. Mg^{2+} and Ca^{2+} are dissolved from the pipes, heat exchanger and cooling tower, deposited on cathodes, dislodged and blown down automatically. Disinfectant is also produced. Anti-scalant, biocides and corrosion inhibitor are no longer needed. CataGreen™ and DCI act in concert to provide a **CHEMICAL FREE APPROACH!** In addition, hard, glass-like SiO_2 scale can now be removed and prevented.

What does DCI do?

- DCI dissolves and removes existing hardness and silica scales and prevents future occurrence continuously.
- DCI+CG enhances the overall performance by preventing bio-fouling effectively.
- DCI removes Dissolved Oxygen and reduces ORP.
- DCI creates an alkaline environment to control corrosion and also to increase Silica solubility.

Industrial Chiller

Scale removal in industrial condensers and cooling towers reduces energy, water, maintenance and chemical costs.

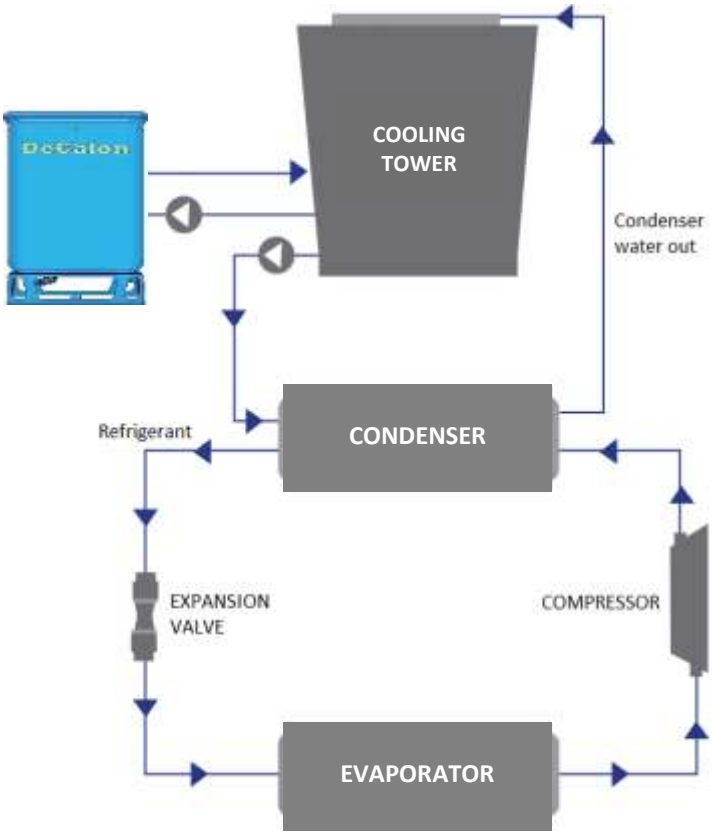


Water Cooled HVAC Systems

A significant improvement in heat transfer and lower condenser approach temperatures leading to increased chiller efficiency.

Easy to use Automation

- The intelligent controller auto regenerates and maintains electrode performance
- Auto Scale Dislodge and Discharge
- Auto Conductivity Control
- Auto Amperage Control
- Communication Capabilities

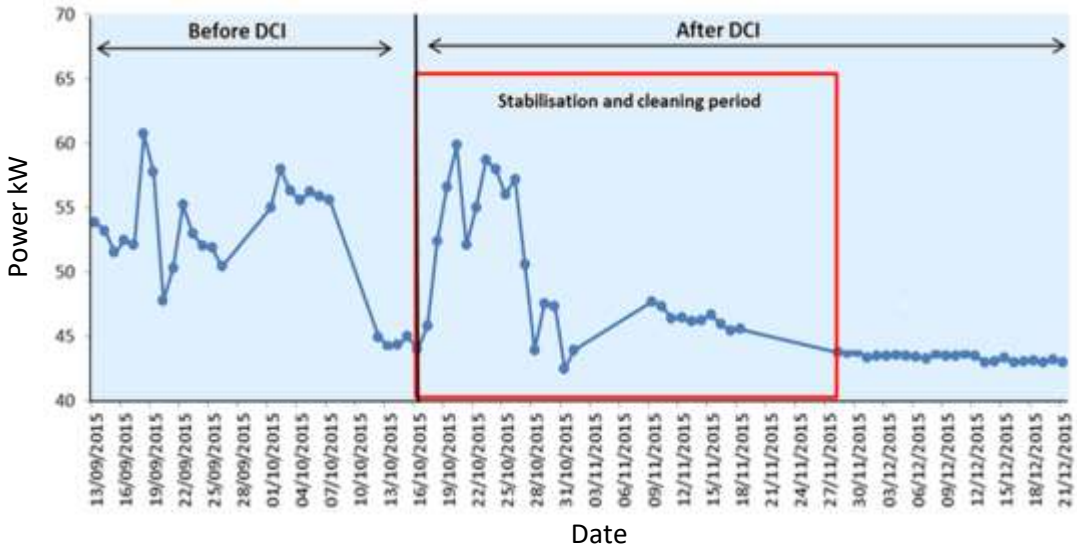


Site Performance

SIMTech-A*STAR Singapore

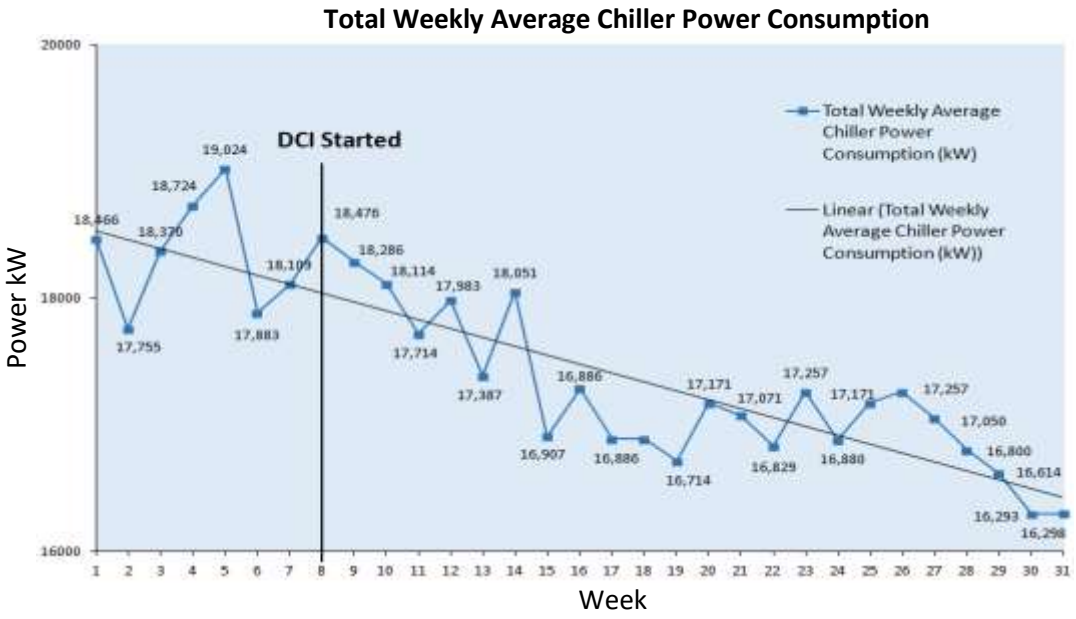
An independent party, SIMTech-A*STAR Singapore (Website: www.a-star.edu.sg) was engaged to evaluate the performance of DCI (Case Study Code: I15-E-125W). The followings were prepared and presented by them.

Total Power Consumption of the 2 Cooling Packages



Power Saving - 17.5%

A Semi-conductor Factory in Philippines

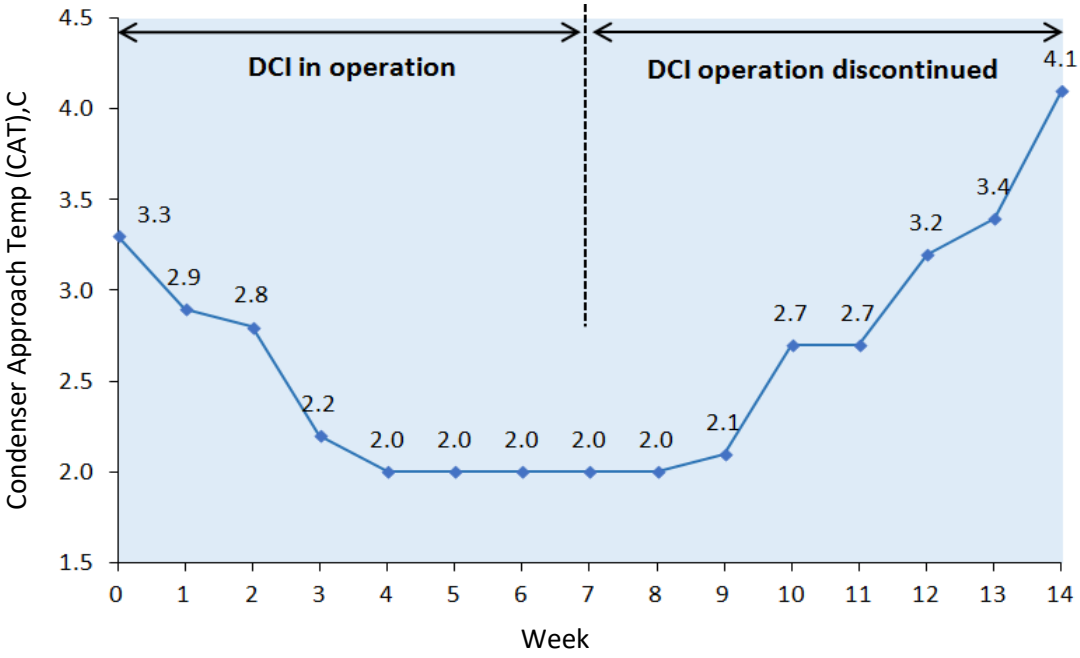


Power Savings - 11.2%

Water Savings - 27%

Chemical Savings - 70% (without CataGreen)

A Syrup Factory in Malaysia



Power Savings - 16.9%

Water Savings - 88%

Chemical Savings - 100%

Benefits of DeCalon™ (DCI)

General Specifications

Dimension (mm) – overall	W = 700 D = 380 H = 1300
Weight	~55kg
Max Power Consumption	~600W
Max Operating Amp (DC)	15 A auto adjustable
Max Flow	2.25m³/h
Operating Pressure	1 bar
Input Power Source	Single Phase AC 110/240V, 50/60Hz

Specifications subject to change without notice.

For more information, please contact:

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