MELFRANK
COOLING TOWER EXPERTS

MELFRANK COOLING TOWER

Design, Energy Saving & Automation to reduce carbon footprint

Melfrank Cooling Towers are engineered for efficiency, featuring advanced automation that ensures unmatched reliability, significant energy savings, and real-time monitoring. With reduced maintenance frequency, your cooling tower operations stay smooth, hassle-free, and optimized for peak performance.

About Our Company

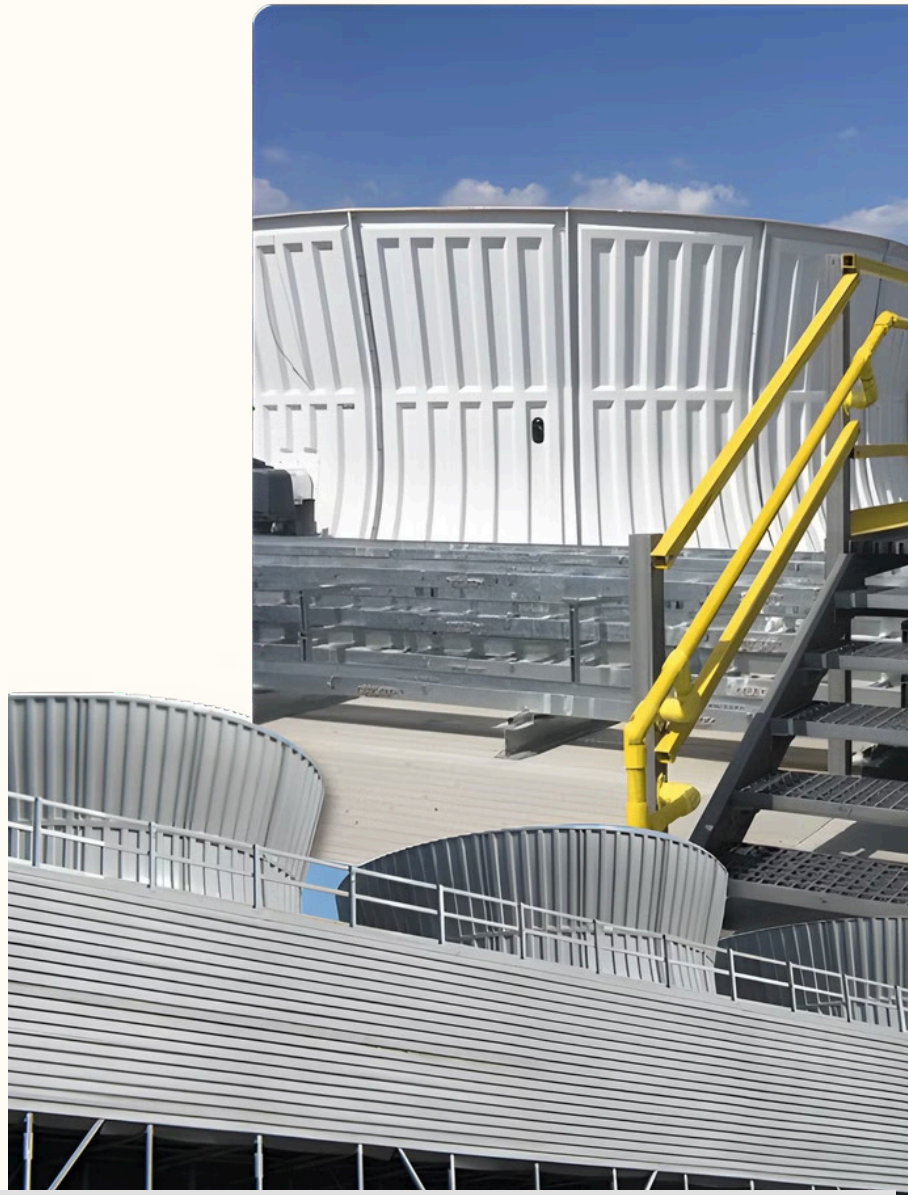
Melfrank is a Pioneer in cooling towers business carrying a legacy of more than 30+ years of presence in domestic and international market. Melfrank Designs ,Manufacture, Converts, Retrofit, Install- Dismantle, Service and Maintain Cooling Towers of different capacities from 10 CMH to 4500 CMH Per Cell built in Timber, Pultruded material and FRP in both counterflow and crossflow design.

Melfrank is the first company in India to retrofit Energy saving EC fans in cooling towers with it’s approach based specially designed Controller. Melfrank provides the smart cooling towers that ensures sustainability, efficiency, services and performance.

**** India's first Cooling Tower with EC Fan Technology has been installed in Mahindra & Mahindra - Kandivali, Mumbai.***

Melfrank's Strength

- **Design & Manufacture**: Induced draft cooling tower, ranging from 150 TR to 7500 TR with or without conventional mechanical assembly.
- **Structure design:** Follows Cooling Tower Institute (CTI) Standard Codes,
- **EC Technology:** New pultruded FRP Cooling Tower with energy saving Electronically Commutated (EC) Fan Motor Module.
- **Retrofit :** with EC Fans and Pultruded structure for energy savings and Enhancing existing cooling towers strength.
- **Controllers**: closeloop controller optimise the cooling tower performance and power consumption as per real time ambient and heat load condition.
- **Components:** Use of premium fills, drift eliminators, nozzles, mechanical components, etc.
- **Repair and Maintenance** : Supply of spares and overhauling of exisiting cooling tower.
- **Domestic & International Presence**: Trusted for 30 Years of Successfully executing projects across various industries and domains.



Sourcing with best partners

BRENTWOOD

ZIEHL-ABEGG

Reliance
Industries Limited

REXNORD

Amarillo
Gear
Company LLC

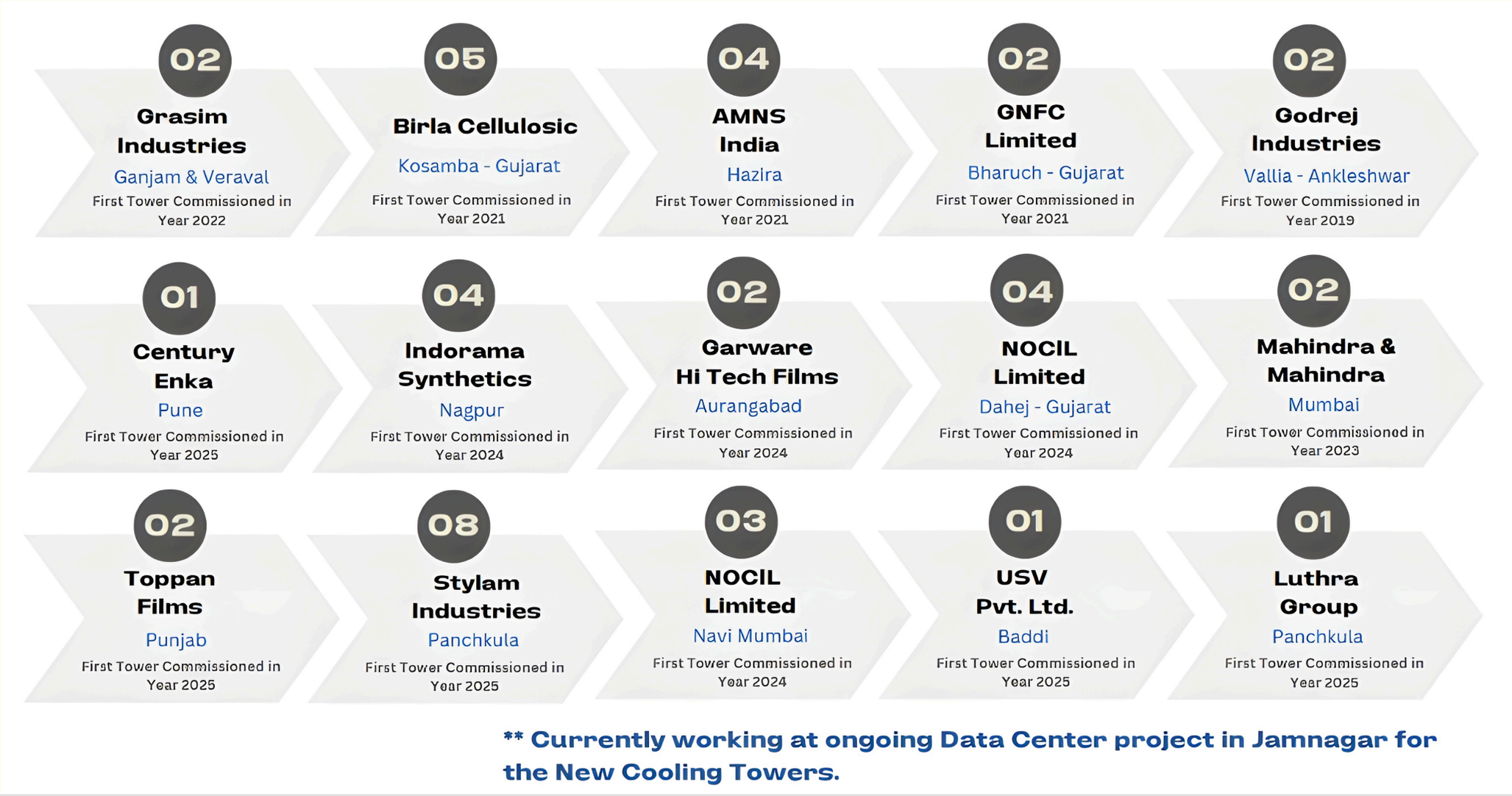
COSIMCO

Schneider
Electric

SIEMENS

LAPP

Designing & Supply of New Cooling Towers in FRP and Timber



**** Currently working at ongoing Data Center project in Jamnagar for the New Cooling Towers.**

Conversion of cooling towers from Timber to FRP Pultruded at Various Locations

and still counting….

Retrofit of CT with EC Technology & Automation

Conventional System Upgraded to Electronically Commutated System

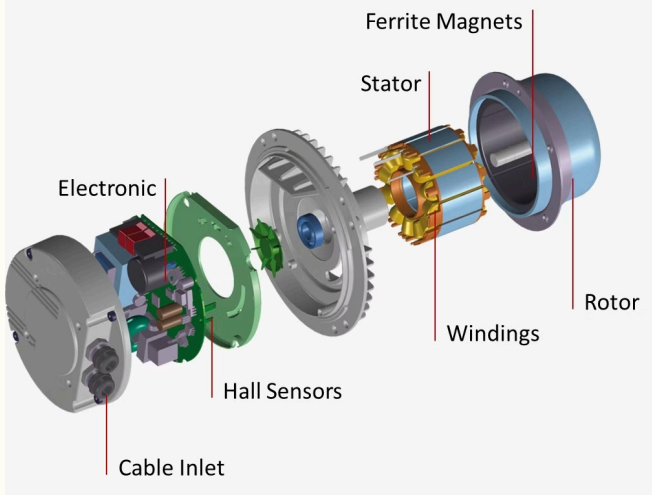
Retrofit of CT with EC Technology & Automation

Conventional System Upgraded to Electronically Commutated System

EC Technology & Automations

Enhancing overall efficiency 40% - 60% in cooling towers

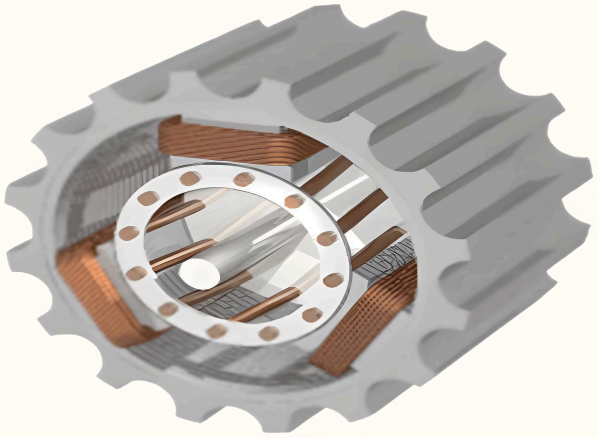
What is EC Technology ?



EC Technology stands for Electronically Commutated and combines AC and DC voltages, which is essentially a fan with a brushless DC motor, bringing the best of both technologies.

- High efficiency motor (IE5)
- Lower mechanical & Electrical transmission losses
- Low power consumption
- Inbuilt motor speed control
- Low maintenance

Working Philosophy

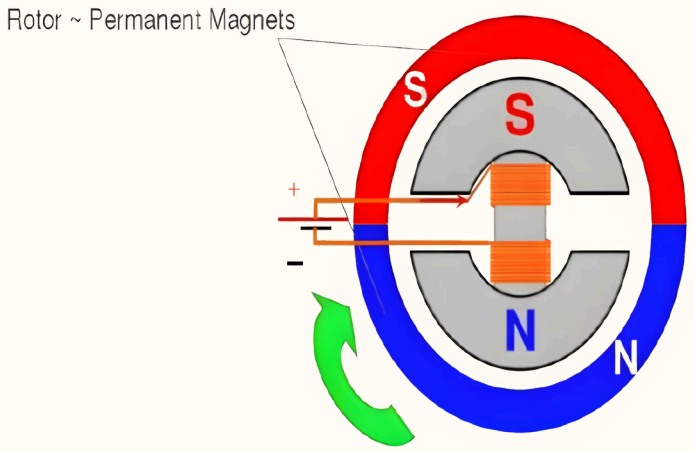


AC Induction Motor

Motor Efficiency at varying load 70-80%

Motor Efficiency full load 80 -95%

Power Factor at drive level 0.6 to 0.8



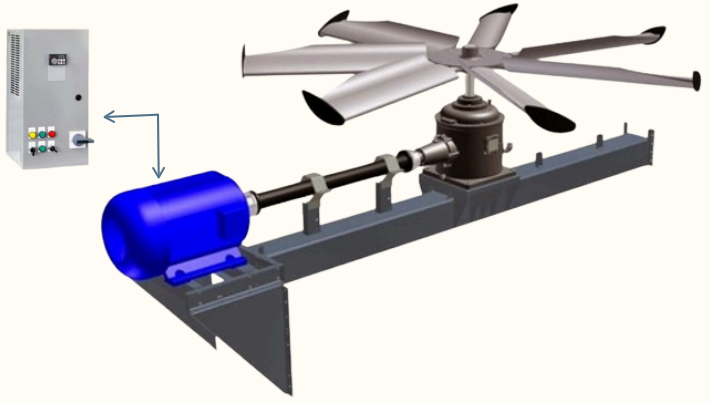
EC Motor

Motor Efficiency at varying load 92-95%

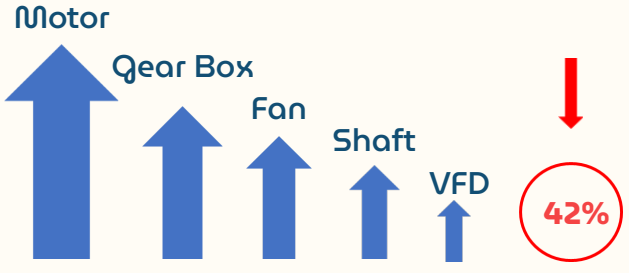
Motor Efficiency full load >95%

Power Factor at drive level Close to unity

Overall Efficiency Improvement

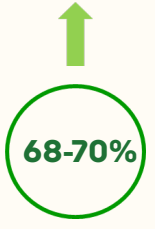


AC AXIAL FAN SYSTEM



EC AXIAL FAN SYSTEM

AC Induction Motor, Gear Box, Drive Shaft, Torque Tube, VFD, Mechanical Hub and Fan Hood Not Required



Cooling Tower Automation

Association

Melfrank in partnership with AADTECH and German based company **ZIEHL-ABEGG** (100+ years) would like to introduce AUTOMATION in Cooling Towers with approach based Specifically design Web based Software , Sensor based Controller Hardware - and Electronically commuted Energy saving motors.

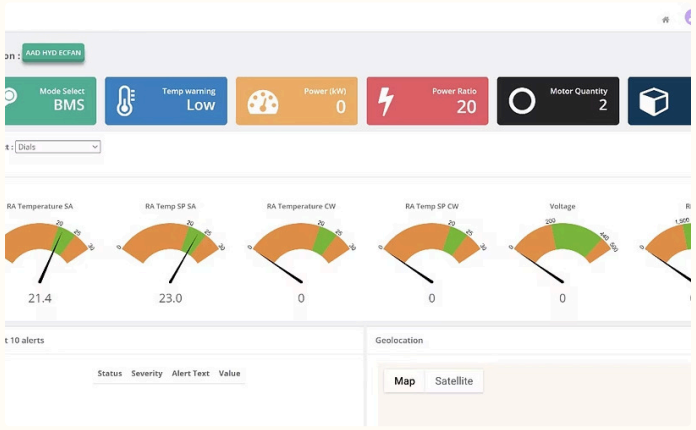
Attainment

This is to achieve cloud based automation and monitoring of cooling tower to ensure better APPROACH , Better EFFICIENCY and ENERGY SAVINGS UPTO 50% through new BLDC technology and near zero maintenance German based IE -5 rating EC Motors.

How Our Solution Works

Hardware

Sensor-based controller hardware for data acquisition and processing.



Software

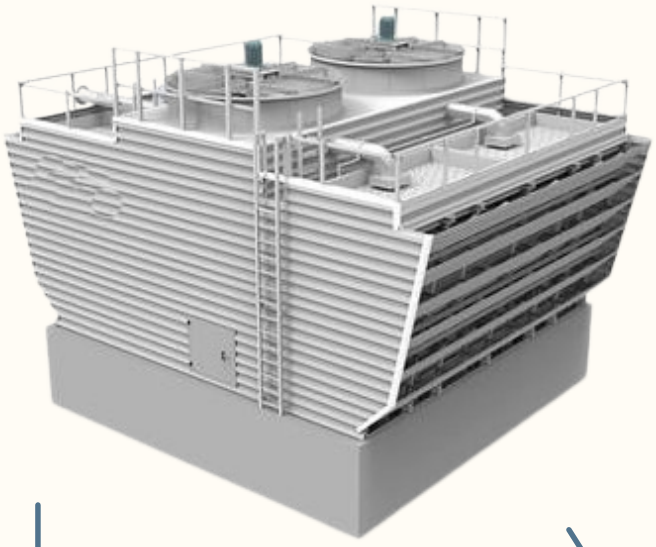
Web-based customised software and application for monitoring and control.

EC Fans

Energy-saving specialised designed motors for improving efficiency and reducing maintenance

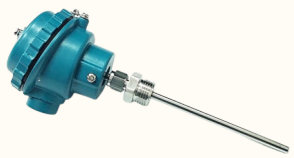
Hardware

Sensor-based controller hardware for data acquisition and processing.



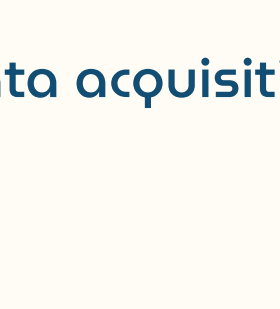
Cooling Tower

Relative Humidity Sensor



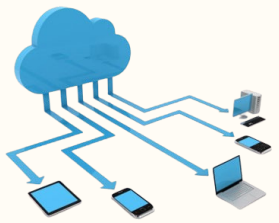
Temperature Sensor

Total Depost Solid Sensor



EC Fan Controller

Local Server



Cloud Monitoring

DCS

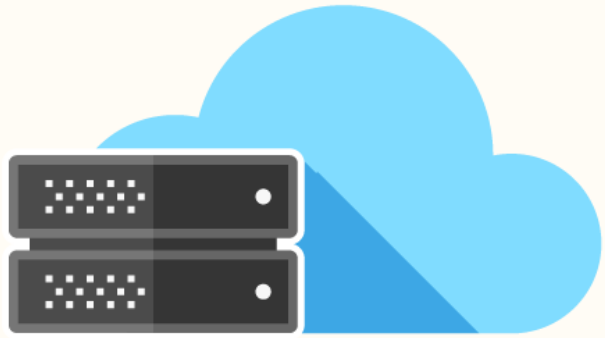
Software

Cloud Solution

Command Center

User 01

User 02



Cloud Server

Analytics

Storage

Web Portal

Reports

Alerts

E-Mails

IOT Gateway / Router

BLE Controller

EC Fan

Sensor

Energy Meter

Humidity Sensor

Benefits of Automation in Cooling Towers

1

Constant Approach

Approach can be maintained consistantly in real-time basis on dynamic weather conditions and heat load on the cooling tower by smart algortihm.

2

Optimised Efficiency

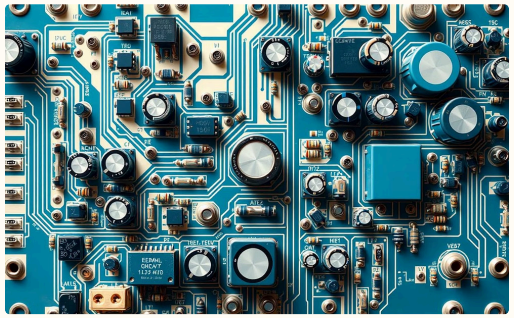
The efficiency of the cooling tower is optimized automatically by synchronizing the fan RPM with the actual thermal parameters.

3

Enhanced Sustainability

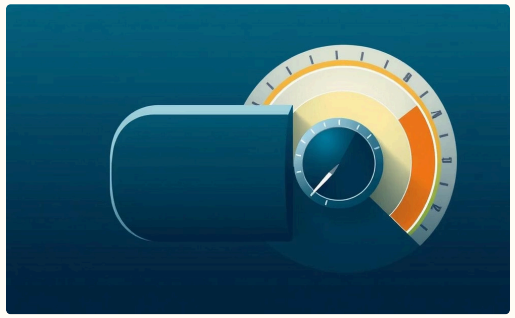
Reduces maintenance needs, cut downs energy consumption and effectively lowers carbon footprints.

Framework of Automation

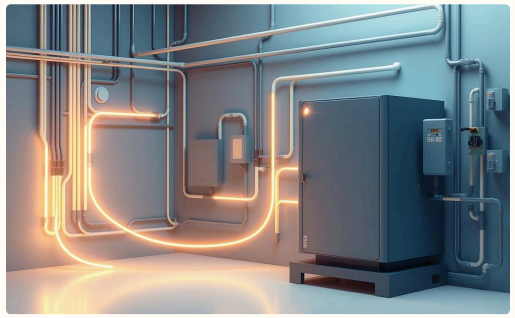


Integrated Power Electronics

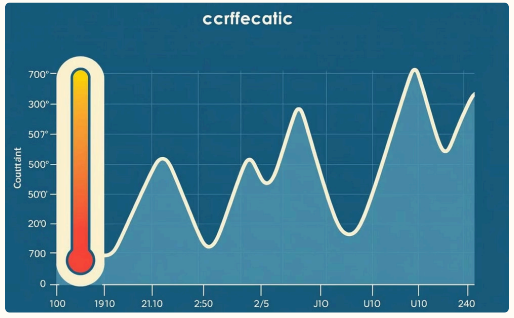
Integrated Motor Protection System



Continuous Speed Control

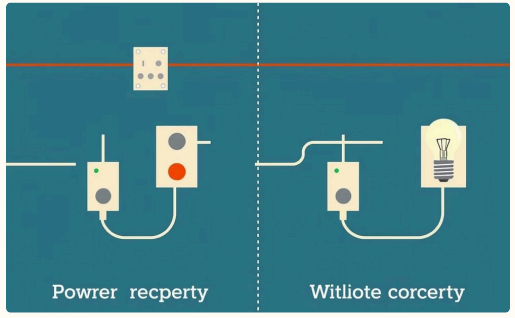


Outstanding Efficiency



Active Temperature Management

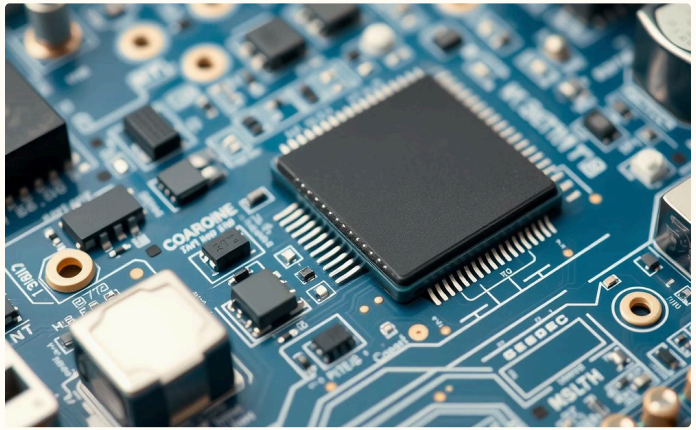
Wireless Communication



Close to Unity Power Factor

Plug and Play

Outcome



Automatic Control

This system offers both automatic adjustments of fan speeds.

Energy Savings

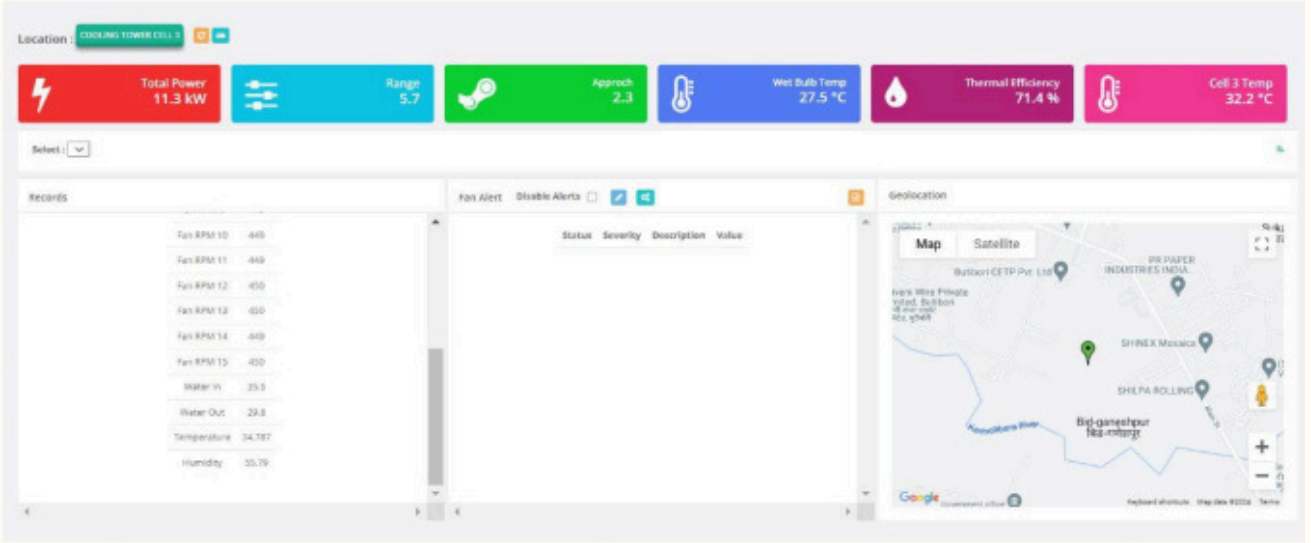
Our system can achieve energy savings of 30% to 50%.

Low Maintenance

EC Fan System with minimal maintenance requirements.

Case Studies

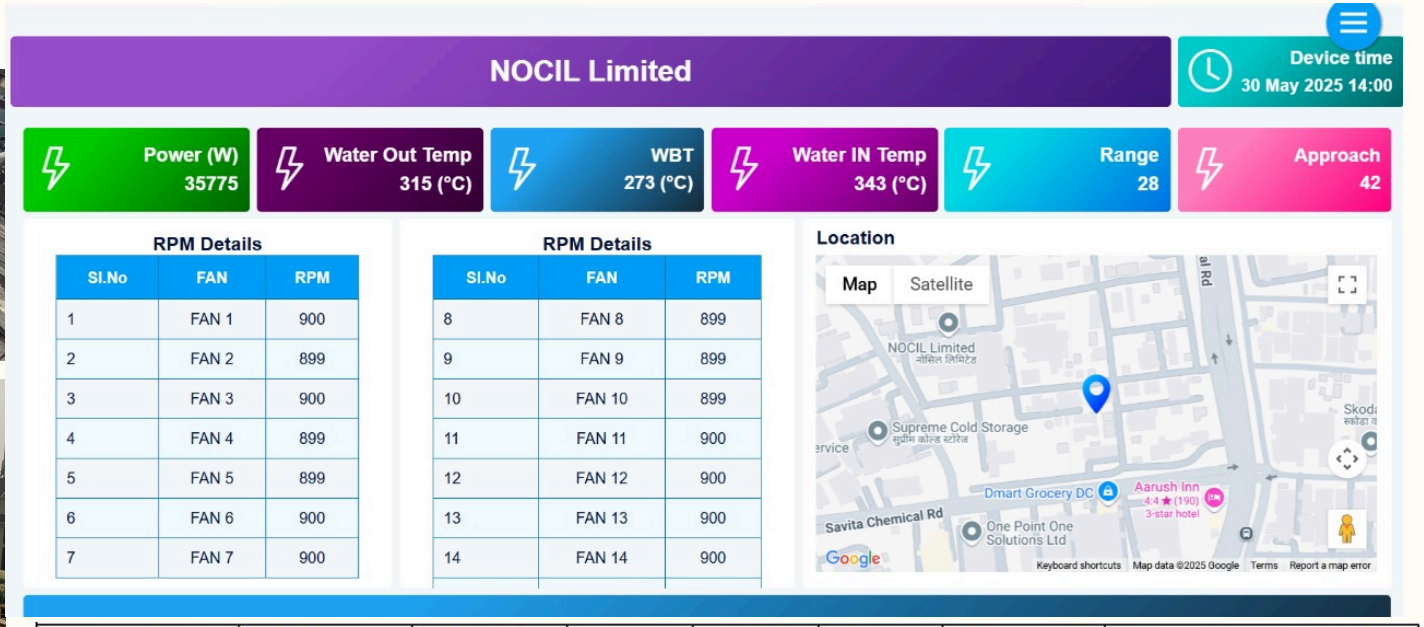
Indorama - Nagpur



Parameters	Water Flow	HWT	CWT	WBT	Range	Approach	Power Consumption
Unit	CMH	°C	°C	°C	°C	°C	kW
Design	2150	37	32	28	5	4	37
Before	1800	35.7	30.6	26.4	5.1	4.2	25.9
After	1800	35.5	29.8	27.5	5.7	2.3	11.3

Case Studies

NOCIL - Dahej



Parameters	Water flow	HWT	CWT	WBT	Range	Approach	Power Consumption
Unit	CMH	°C	°C	°C	°C	°C	kW
Design	300	37	32	28	5	4	11
Before	300	36.1	31.2	26.5	4.9	4.7	8
After	300	34.2	30.8	27.2	3.4	3.6	3.8

Case Studies

Amazon - Hyderabad

Power consumption Data

	Before	After							
	50Hz	800 RPM			1000 RPM			Varience - 800 to 1000 RPM	Total Savings (KWH)
	Consumption (KWH)	Intial (MWH)	Final (MWH)	Consumption (KWH)	Intial (MWH)	Final (MWH)	Consumption (KWH)		
WCC-4	535.6	4071.2296	4071.7652	535.6	4071.7652	4072.2252	460	-75.6	75.6
CT-01 CELL-1	34.96	245.89676	245.908	11.24	245.908	245.9235	15.5	4.26	19.46
CT-01 CELL-2	16.55	262.76282	262.77414	11.32	262.77414	262.789	14.86	3.54	1.69
	587.11			**558.16**			**490.36**	**67.8**	**96.75**

Case Studies

Maruti Suzuki - Gurugram

Sr. No.	Cooling Tower Name	Design CFM	Actual Data Comparision		Actual Data Comparision		Savings	Savings %
			CFM Before	CFM After	Power Before	Power After	in KW	
1	Cooling Tower 09	336000	221686	226611	48.60	26.51	22.09	45.46%
2	Cooling Tower 01	336000	289281	329375	64.50	37.80	26.70	41.40%
3	Cooling Tower 02	336000	314330	325014	46.24	25.09	21.15	45.74%
4	Cooling Tower 05	336000	262511	270669	55.80	31.50	24.30	43.55%
5	Cooling Tower 06	336000	247543	269949	50.80	28.40	22.40	44.09%
TOTAL					265.94	149.30	116.64	43.86%

Case Studies

Mondelez - Baddi, Himachal Pradesh

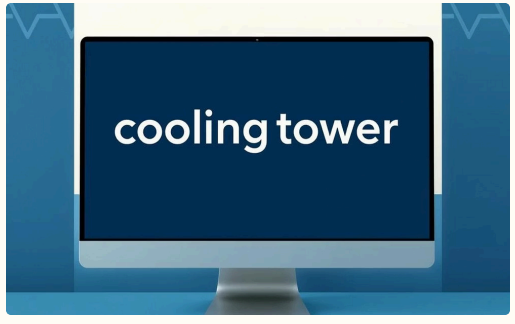
Sr. No.	Cooling Tower Name	Design CFM	Actual Data Comparision		Actual Data Comparision		Savings in KW	Savings %
			CFM Before	CFM After	Power Before	Power After		
1	Unit -1 Frick Cooling Tower-1	80000	52503	53211	7.82	4.35	3.47	44.37%
2	Unit -1 Frick Cooing Tower-2	80000	55572	56477	8.86	4.72	4.14	46.73%
3	Unit -1 Daikin Cooling Tower-1	80000	67681	68094	9.35	5.02	4.33	46.31%
4	Unit -1 Daikin Cooling Tower-2	80000	71148	72304	9.73	5.38	4.35	44.71%
5	Unit -2 Geams Cooling Tower-1	80000	61176	62348	9.44	5.21	4.23	44.81%
6	Unit -1 Frick 0 Deg. Cooling Tower	160000	130969	132639	17.43	9.34	8.09	46.41%
7	Unit -2 Crumb Cooling Tower-1	80000	62975	63167	9.58	5.28	4.3	44.89%
8	Unit -2 Frick Cooling Tower-1	80000	57631	59997	8.49	4.64	3.85	45.35%
9	Unit -2 Frick Cooling Tower-2	80000	61717	62476	8.89	4.68	4.21	47.36%
10	Unit -2 Carrier Cooling Tower-1	80000	64754	64756	9.02	4.8	4.22	46.78%
11	Unit -2 Daikin Cooling Tower-6	80000	67795	68116	8.17	4.59	3.58	43.82%
12	Unit -2 Frick Cooling Tower-3	80000	58556	59727	7.68	4.38	3.3	42.97%
TOTAL			812477	823312	114.46	62.39	52.07	45.38%

Our Address

A-Wing, 804, Kanakia Wall Street Building, Near Chakala, Andheri (E), Mumbai - 400093

Contact Number

022 6239 6049



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