



ENGINEERED FOR EFFICIENCY, BUILT FOR RELIABILITY

CROSS FLOW COOLING TOWERS



***“GLOBAL LEADER IN DESIGNING, MANUFACTURING & SUPPLY OF COOLING
TOWERS & ALLIED UTILITY SOLUTIONS”***



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BLUECHIP make crossflow cooling tower is a cooling system where water flows vertically downward through the fill media while air flows horizontally across it, creating a perpendicular heat exchange process. Hot water from process streams enters a distribution basin at the top of the tower, flowing downward through gravity, while air enters horizontally through louvers on the sides.

KEY FEATURES:

- **GRAVITY-BASED WATER DISTRIBUTION:** Eliminates the need for pressurized spray systems, simplifying maintenance.
- **AIRFLOW PATTERN:** Horizontal air movement across vertically falling water enables efficient heat transfer.
- **OPEN DESIGN:** Allows easier access for cleaning and maintenance.

ADVANTAGES:

- **ENERGY EFFICIENCY:** Gravity-fed water distribution reduces energy costs.
- **LOW MAINTENANCE:** Simplified design and easy access reduce operational expenses.
- **QUIET OPERATION:** Typically, quieter than counterflow designs.

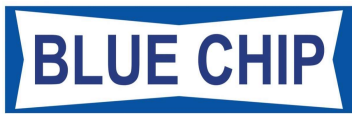
CONSIDERATIONS:

Crossflow Cooling Towers require more space compared to counter flow designs and may be more susceptible to environmental contaminants due to their open design.

This Type of Cooling Tower is favored for its efficiency and low operational costs in environments where space and water cleanliness are manageable concerns.

WHY CHOOSE A BLUECHIP MAKE CROSSFLOW COOLING TOWER?

Experience the ultimate in cooling tower technology with **BLUECHIP's** Cross Flow Cooling Towers, engineered for high efficiency, durability, and seamless performance. Perfectly suited for industrial, commercial, and HVAC applications, our cooling towers combine advanced design and top-grade materials to deliver superior results.



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KEY FEATURES:

- **OPTIMAL EFFICIENCY:** Engineered for effective thermal performance with reduced energy consumption.
- **RELIABLE DURABILITY:** Built with corrosion-resistant materials for long-term performance in demanding environments.
- **EASE OF MAINTENANCE:** Accessible design ensures straightforward servicing, reducing downtime and operational costs.
- **CUSTOMIZABLE DESIGN:** Tailored to meet your specific cooling requirements, with modular scalability.

TECHNICAL SPECIFICATIONS:

Specification	Details
Cooling Capacity	Customizable (50 – 5000+ TR) per cell capacity. MULTICELL CAPACITY AS PER USER NEEDS
Flow Rate	50 m3/h to 2,000 m3/h per cell capacity
Material Options	Treated Timber, Pultruded FRP
Noise Levels	Low-noise operation (<85 dBA)
Water Drift Loss	<0.005%
Operating Temperature Range	Suitable for extreme conditions (3 Degrees to 25 Degrees)

COMPONENTS THAT BUILT A BLUECHIP CROSSFLOW COOLING TOWER

1. FILL MEDIA AND FILL SUPPORT GRIDS

- **FILL MEDIA:**
 - **MATERIAL:** High-performance PVC or PP material for enhanced durability.
 - **FUNCTION:** Maximizes the surface area for efficient heat exchange between water and air.
 - **DESIGN:** Engineered to minimize clogging and ensure smooth operation.



- FILL SUPPORT GRIDS:**

- **MATERIAL OF CONSTRUCTION (MOC):** Available in FRP (Fiberglass Reinforced Plastic) or SS304 (Stainless Steel 304).
 - **PURPOSE:** Provides robust structural support for the fill media, ensuring stability and longevity.
 - **CORROSION RESISTANCE:** Designed to withstand harsh operating conditions, including exposure to water and chemicals.



2. WATER DISTRIBUTION SYSTEM

- **GRAVITY-FED BASIN:** An open, gravity-fed distribution basin ensures water flow across the fill media.
 - **NON-CLOG NOZZLES:** Strategically placed nozzles prevent clogging and ensure uniform water distribution.



3. DRIFT ELIMINATORS

- **PURPOSE:** Minimize water loss by achieving drift losses $<0.005\%$ reducing water losses
 - **EFFICIENCY:** Captures water droplets while allowing maximum airflow.

4. AIR INLET LOUVERS AND EXTERNAL CASING

- **MATERIAL:** FRP / ACB Corrosion-resistant louvers protect internal components.
 - **FUNCTION:** Prevent debris entry and optimize airflow across the tower.

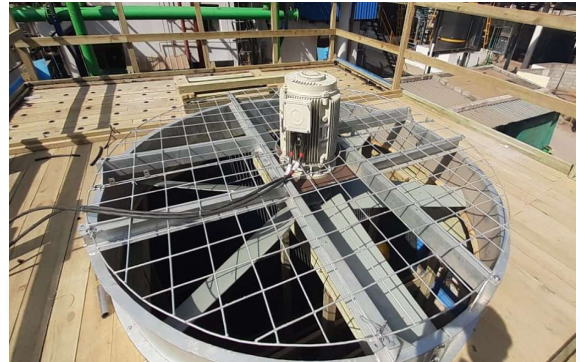


5. FANS AND MOTOR ASSEMBLY

- **FANS:** High-efficiency axial fans ensure smooth and quiet operation.
- **MOTORS:** Available in Direct Drive and Geared Driven systems for enhanced reliability and efficiency.

DIRECT DRIVE FAN MOTORS

- **ADVANTAGES:**
 - **REDUCED MECHANICAL COMPLEXITY:** Fewer moving parts compared to belt drive systems. Ideal for Small cooling towers
 - **HIGHER ENERGY EFFICIENCY:** Direct connection eliminates power losses from belts and gears.
 - **LOWER MAINTENANCE:** No belts to adjust or replace, elimination of gears and complex oil schedules, reducing downtime.



GEARED DRIVEN FAN MOTORS

- **ADVANTAGES:**
 - **HIGH TORQUE CAPABILITY:** Suitable for larger cooling tower fans with heavy loads.
 - **COMPACT DESIGN:** Efficient power transfer ensuring applicability in smaller footprint.
 - **DURABLE AND ROBUST:** Designed for demanding industrial applications.



COMPARISON WITH BELT DRIVE SYSTEMS

- **EFFICIENCY:** Direct drive and geared systems deliver higher efficiency by reducing energy losses inherent in belt-driven systems.
- **MAINTENANCE:** Eliminates the need for frequent belt adjustments or replacements.
- **LONGEVITY:** Reduces wear and tear on components, extending the lifespan of the motor and fan assembly.

6. STRUCTURAL FRAME

- **MATERIAL:** Treated Timber, Pultruded FRP for ultimate strength and corrosion resistance.
- **DESIGN:** Reinforced frame with cross tie ensures structural stability, even in adverse conditions.



COOLING TOWER SAFETY FEATURES

- **FAN GUARD:** Protects against accidental contact with fan blades during operation.
- **HANDRAIL:** Provides additional safety for personnel working on the tower.
- **LADDER WITH SAFETY CAGE:** Ensures secure access to elevated areas with enhanced safety.
- **ANTI-SLIP WALKWAYS:** Provide safe access for maintenance personnel.
- **SAFETY GUARDS:** Protect fan openings and other moving components.
- **MONITORING INSTRUMENTS:** Equipped with an oil level switch and a vibration limit switch for real-time monitoring of critical parameters.



FAN GUARD



HANDRAIL AND LADDER

COOLING TOWER ACCESSORIES

- **DOUBLE DECK STAIRCASE:** Provides safe and efficient access to multiple levels of the cooling tower.
- **HOT WATER BASIN COVER:** Prevents debris entry and reduces water evaporation.
- **DAVIT ARM:** Assists in lifting heavy components for maintenance or replacement, improving operational efficiency.

**DOUBLEDECK STAIRCASE****FRP HOT WATER BASIN COVER****DAVIT ARM AND DOUBLEDECK
STAIRCASE****INTERNAL WALKWAY**



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CUSTOMER SUPPORT AND SERVICES

- **CONSULTATION AND DESIGN:** Custom cooling solutions tailored to your specific needs.
- **INSTALLATION ASSISTANCE:** Expert installation and commissioning support.
- **MAINTENANCE PLANS:** Comprehensive service plans to ensure optimal performance.
- **24 / 7 TECHNICAL SUPPORT:** Our team is always ready to assist you.

APPLICATIONS

BLUECHIP Counter Flow Cooling Towers are versatile and ideal for:

Industrial Applications	Commercial Applications	Specialized Industries
Power Plants	HVAC Systems	Food And Beverage
Petrochemical And Refining	Data Centers And IT	Pharmaceutical And Chemical
Metal and Steel	Hospitals And Healthcare	Automotive And Aerospace

PRESTEGIOUS PROJECTS

CUSTOMER NAME	SITE IMAGES
Aarti Industries Ltd.	
	



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Aarti Drugs Ltd.



Valiant Advance Science



Calcimag Chemicals India



Alchemie Finchem Ltd.



Star Gases Pvt. Ltd.





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Diamines and Chemicals Ltd



Nanda Chemicals Ltd



Dynamic Products



Deepak Nitrite Ltd.



Kolhapur Oxygen



Prasol Chemicals



Inox Air Products





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LONG TERM ASSOCIATED CUSTOMERS & CONSULTANTS

Aarti Industries Ltd	Inox Air Products Ltd	Alfa Laval India
AWL Agri Business (Adani Wilmar)	Ishan Dyes & Chemical Ltd	JSW Steel
TATA Steel	Congo Oil and Derivatives	Grassland Industries
Deepak Nitrite Ltd	Coromandel International Ltd	Lupin India Ltd
Dorf Ketal India Ltd	Chemie Organics Ltd	UPL
Meghmani Organics Ltd	Sun Pharma Ltd	Zydus Lifesciences Ltd
IFFCO	Tata Steel India Ltd	Cipla Ltd
Pidilite India Ltd	Aditya Birla Group Ltd	Kumar Metal India
Servotech India	Valiant Organics Ltd	Anupam Rasayan Ltd
Valiant Advance Science Pvt Ltd	JRS Pharma	Goenka Group
Surface Wilmer	Alchemie Finchem Pvt. Ltd.	Calcimag Chemicals India
Deepak Phenolics Ltd	Aarti Drugs Ltd	Aarti Surfactants Ltd
Meghmani Finechem Ltd	Songwon India Ltd	ZCL Chemicals Ltd
Lubrizol India	Mitsuchem Plast Ltd	Hindustan Monomers Ltd
Hikal Ltd	Hetero India Ltd	Nath Industries Ltd
Institute of Chemical Technology (ICT), Mumbai	Associated Alcohol and Breweries Ltd (AABL)	Enmax Engineering India
Servotech India	Piramal Glass	Sajjan India Ltd
Kuwait Refinery	Mount Meru Millers	Alembic Pharma
Prasol Chemicals	Krishna Phoschem Ltd	Madhya Bharat Agro Ltd
Excelsource India	Time Technoplast Ltd	Chemie Organics Ltd
Indo Amines Ltd	Bluejet Healthcare Ltd	Echjay Industries Ltd

Toyo Engineering	Shroff Engineers	Lele Consultants
Technophil Consultants	TKT Consultants	Mott MacDonald
L&T Engineering	Jacobs	JNCE Engineering
Enmax Engineering	Universal MEP Projects and Engineering Services Limited (UMPESL)	Ketav Consultants
Zeppelin	Knexir	Aevitas

SPARES

BLUECHIP make Spares are designed to ensure seamless cooling tower operations with a comprehensive range of high-quality components, including fill media, fans, motors, drift eliminators, nozzles, and water distribution systems. Engineered for compatibility, reliability, & efficiency, BLUECHIP - approved spares minimize downtime and enhance performance, making them an essential choice for effective maintenance and extended service life. Trust BLUECHIP MAKE Spares to deliver unmatched quality and durability for your cooling tower needs.

MECHANICAL EQUIPMENT:

1. Aero foil - Type Fans:

- FRP/FRVE Blades with HDG Hub: Lightweight, energy-efficient, and available in multiple configurations.
- Aluminum Blades with Hub: Durable, low power consumption, and long-lasting.
- Plastic Blades with Aluminum Hub: Ideal for small cooling towers.

2. Gearboxes

- BLUECHIP make Spiral Bevel Right Angle Gearboxes: Factor ≥ 2.5 efficiency $\geq 98\%$ with robust design, minimal maintenance.

3. Drive Shafts

- Materials: HDG Steel, SS304, Carbon Fiber, SS316, Hastelloy Dynamically balanced for superior durability.

FILLS, DRIFT ELIMINATORS, AND FILL SUPPORTS:

1. Fills

- Splash Fills: Perfect for dirty water and high TSS/TDS applications.

2. Drift Eliminators

- BLUECHIP Designs: S-Type, Wave-Type, Herringbone for minimized water loss.

3. Fill Supports

- Materials: Pultruded FRP, GRP, and SS304 for durability and corrosion resistance.





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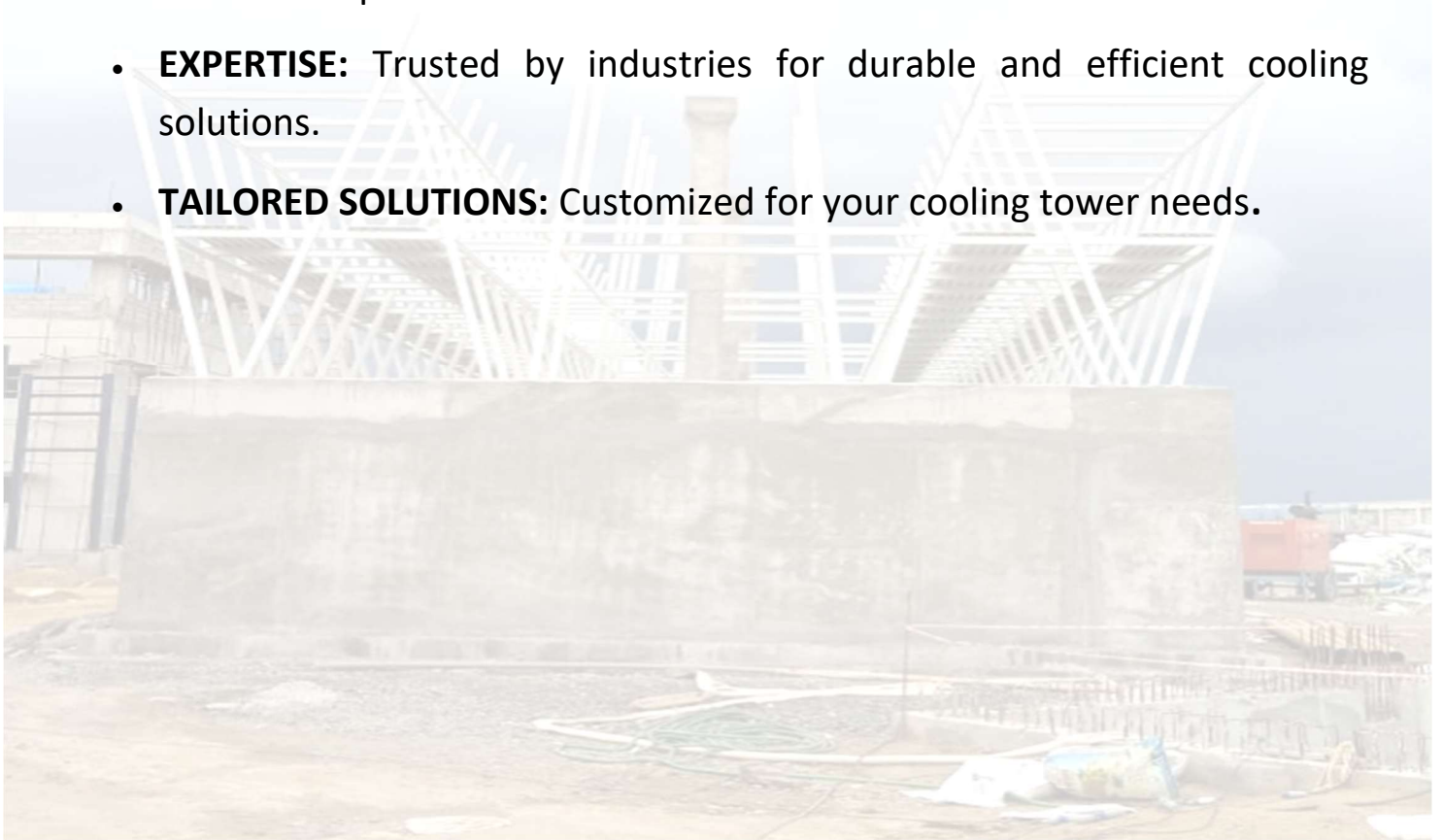


Water Distribution Systems

- Nozzles: PP / ABS precision-engineered for efficient water distribution.

Why Choose BLUECHIP Make Spares?

- **QUALITY ASSURANCE:** Premium materials and components for unmatched performance.
- **EXPERTISE:** Trusted by industries for durable and efficient cooling solutions.
- **TAILORED SOLUTIONS:** Customized for your cooling tower needs.



BLUE CHIP INDUSTRIES OFFERINGS / PRODUCTS

BLUECHIP

**MANUFACTURING AND
DESIGN OF COOLING
TOWER**

**INDUCED
DRAFT**

**COUNTER
FLOW TYPE**

MOULDED FRP

PULTRUDED FRP

TREATED
TIMBER

**CROSS FLOW
TYPE**

PULTRUDED FRP

TREATED
TIMBER

**NATURAL
DRAFT**

PULTRUDED FRP

TREATED
TIMBER

STEEL

**COOLING TOWER
MAINTENANCE**

SPARES

AMC

OLD COOLING
TOWER
OVERHAULING

**COOLING TOWER
UPGRADATION**

CONVERSION OF
COOLING TOWER
STRUCTURE FROM
TREATED TIMBER TO
PULTRUDED FRP

CONVERSION OF
DIRECT DRIVE FROM
GEARED DRIVE

CAPACITY
ENHANCEMENT

ENERGY
EFFICIENCY
IMPROVEMENT

Maximize your cooling efficiency and reduce operational costs with BLUECHIP's Counter Flow Cooling Towers. Let us help you achieve unparalleled performance for your industrial and commercial cooling needs.



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