



60 YEARS



COUNTER-FLOW

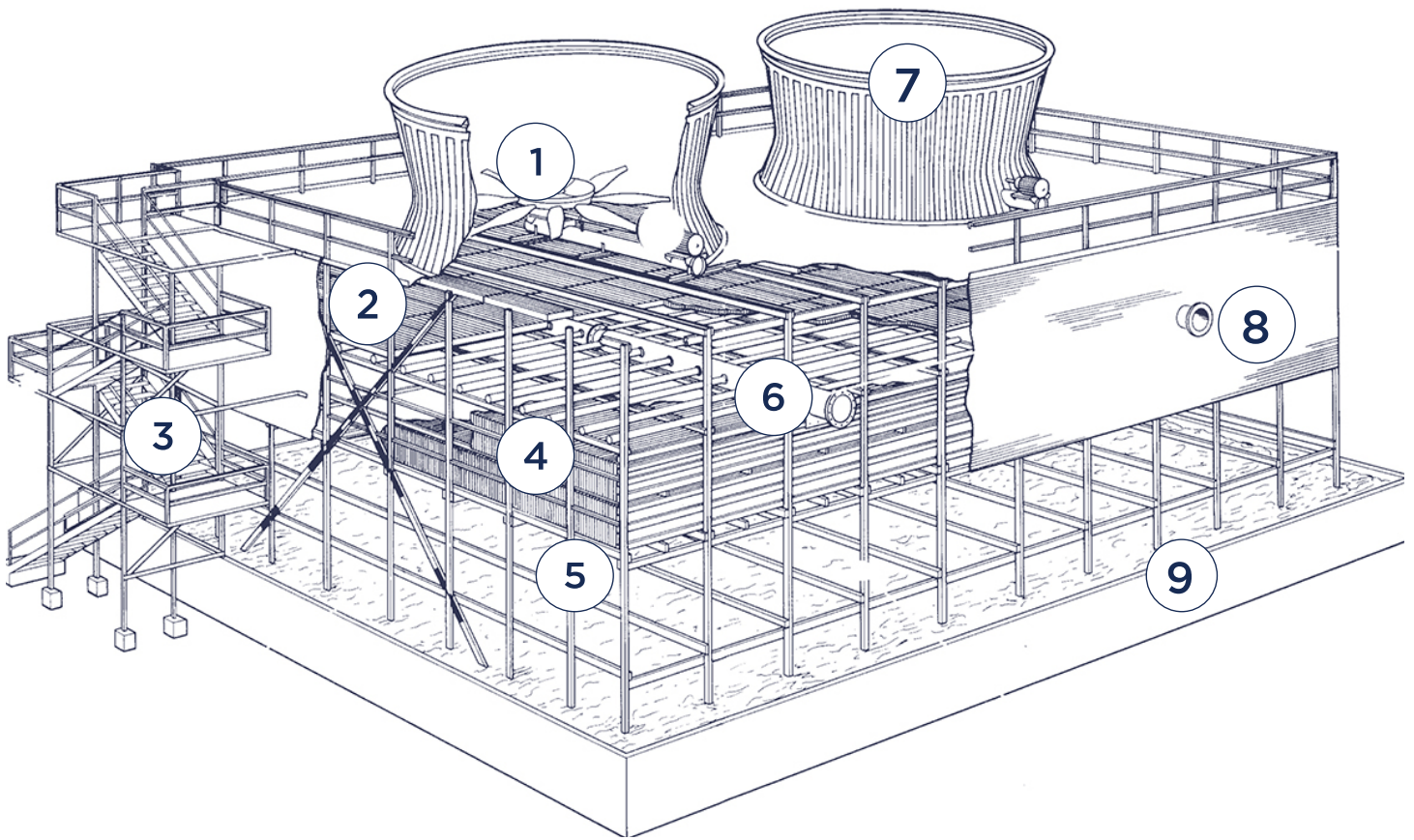
FIELD ERECTED TOWER

AVAILABLE IN:

- ✓ Wood
- ✓ Glass fiber
- ✓ Steel



More than 5,000 towers installed in México and the world



1 Mechanical Equipment

2 Drift Eliminators

3 Stairway and Safety

4 Fill Pack

5 Main Structure

6 Waster Distribution System

7 Recovery Fan Stacks

8 Casing

9 Cold Water Basin

FIELD ERECTED TOWER

COUNTER-FLOW

1

Mechanical Equipment

Selected for minimum energy consumption and with a wide range of service factors for continuous operation for industrial use. The fan, motor, reducer and shaft are assembled and aligned on a unit mechanical equipment support made from hot-dipped galvanized steel to ensure maximum stability of moving components. Epoxy coatings can be added for additional life if customer desires.

2

Drift Eliminators

Three-step spray removers built from thermo-formed PVC or Polypropylene sheet that retain up to 0.005% of entrainment, thereby decreasing the use of water to the maximum.

3

Stairway and Safety

IM® Towers are designed for a convenient operating routine and meet all required standards. They are built with stairways that provide access to the fan flow, a marine stairway and safety platform that provide access to the spray removal area, and a perimeter OSHA approved Rail Systems railing throughout the entire tower. With all rotating parts outside the ring being suitably protected to prevent any hazard. Stairways can be made from wood, fiberglass or steel.

4

Fill Pack

Fill Pack is a component used for thermal exchange by evaporation. Fill Pack is made up of thermo-formed PVC sheets that are assembled to form packets whose features include providing a broad damp surface area with a minimum air loss. The packing section is resistant to dirt and virtually insensitive to biological or chemical attacks, and only requires normal maintenance. Its thermal performance may be maintained throughout the operating life of the cooling tower.

5

Main Structure

Designed to resist major wind and earthquake loads according to Cooling Technology Institute standards, STD-

114 standard, for Douglas Fir pine. Wood is pressure treated using hydrosoluble salts in accordance with the C2-77 standard of the AWWA, to prevent the wood from decomposing. These structural requirements also apply when the main structure is made from fiberglass-extruded sheet or steel.

6

Water Distribution System

Counter-flow tower use a sealed water distribution system specially designed for low-pressure operation and easy maintenance. A type of sprinkler spray is used to distribute water on the packing area to the maximum, using side arms connected to the main head by gaskets. The complete distribution system may be disassembled easily and cleaned.

7

Recovery Fan Stacks

Made from polyester-resin reinforced fiberglass. Their construction is based on vertical reinforcing ribs that guarantee a solid and robust resistance to impact. Their aerodynamic design allows a major saving in energy by recovering outlet air speed. Their height varies from 6 feet to 18 feet, which reduces the nominal power of motors even more.

8

Casing

Made from flame-retardant fiberglass corrugated sheet, its flexibility, resistance and even finishing make it the best choice to use in cooling tower casings. Architectural panels are also available on demand.

9

Cold Water Basin

The foundation and concrete cold water tray (provided by the customer), designed on a single level and anchored at the transversal and longitudinal sides of the structure facilitate construction, and later on make draining and cleaning easier.

FIELD ERECTED TOWER COUNTER-FLOW



Fan Stacks

Fan stacks are made from fiberglass reinforced with an isophthalic gel coat with special additives to resist harsh weather, solar rays and constant dampness and water that the component must withstand throughout its operating life.

Built at a typical thickness of $\frac{1}{4}$ of an inch and thanks to the structural design that incorporates large reinforced ribs along the length and breadth of segments, an aerodynamic model is provided that allows the free passage of air without any restrictions, thus creating an efficient chimney effect to allow substantive recovery in static operating load of the fan. These fan stacks are built in a variety of diameters and at a height of 6, 10, 14 and 18 feet.



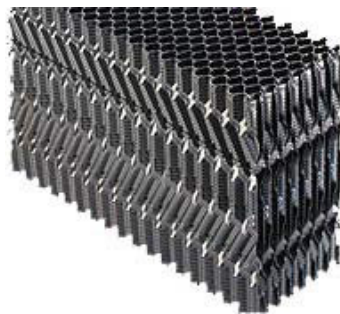
Drive Shafts and Couplings

The transmission shaft is made from epoxy-resin reinforced fiberglass. It is built on a single piece to guarantee transmission of power between the motor and the speed reducer, and with flexible fiberglass elements to absorb torsion vibration due to any possible misalignment. Each shaft is dynamically balanced in the factory and selected widely outside the critical fatigue speed.



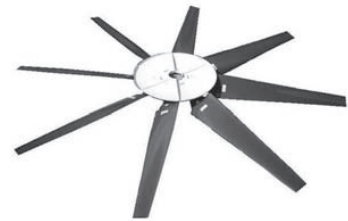
Speed Reducers

Right-angle speed reducers specifically designed for use in cooling towers. Its helicoidal conical gears and straight helicoidal gears are built in accordance with AGMA and CTI standards and are selected at a minimum service factor of 2.0, according to motor load. They are designed to operate in both directions.



Fill Pack

The fill pack consists of levels of packets formed by laminate PVC sheets, 19 millimeters thick. Resistant to corrosion and flame, may withstand biological attacks and deterioration by fungus, bacteria or any other. Different kinds of fill pack are available and are used depending on the characteristics of process water and the environment in which it operates.



Fans

Fan blades are made from reinforced fiberglass with epoxy resin. These vanes are very light as they are made with the most advanced technology available, thus providing a light weight fan blade that is highly resistant to the extremely harsh environments seen in a cooling tower application. The aerodynamic design of these blades achieves a highly efficient and low-energy load operation. Each vane is balanced individually and all are of the exact same size and weight. This provides for silent and vibration-free operation, and facilitates the exchanging of any ventilator blades for new ones without having to rebalance the system.

The main mass consists of two thick galvanized steel plates to which stainless-steel fittings and bolts are connected. The number of blades required depends on the specific use.

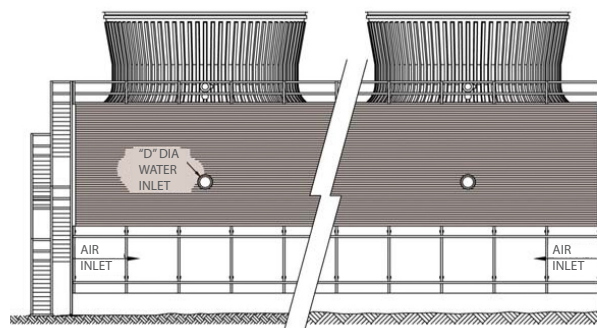


Mechanical Support Equipment

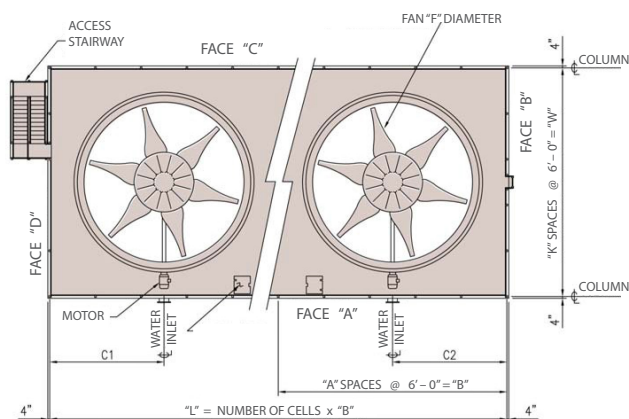
Made from a single hot-dipped galvanized tube. The support has been designed with a rigid structure to keep the motor-reductor-fan aligned and without vibration. Epoxy coatings can be added for additional life if customer desires.

ENGINEERING DETAILS

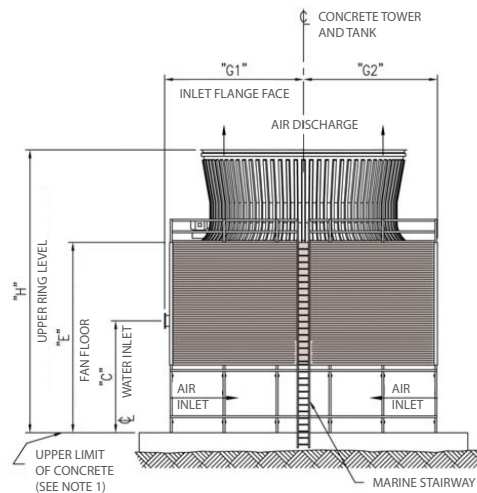
Typical Counter-Flow Tower Dimensions



ELEVATION SIDE "A"



PLANT VIEW



ELEVATION SIDE "B"

MODEL	K	W	A	B	D	F	C1	C2	G1	G2
CF-1818	3	18'-0"	3	18'-0"	12"	12'-0"	9'-0"	9'-0"	10'-0"	9'-0"
CF-1824	3	18'-0"	4	24'-0"	12"	12'-0"	15'-0"	9'-0"	10'-0"	9'-0"
CF-2418	4	24'-0"	3	18'-0"	12"	12'-0"	9'-0"	9'-0"	13'-0"	12'-0"
CF-2424	4	24'-0"	4	24'-0"	16"	16'-0"	15'-0"	9'-0"	13'-0"	12'-0"
CF-2430	4	24'-0"	5	30'-0"	18"	18'-0"	15'-0"	15'-0"	13'-0"	12'-0"
CF-3024	5	30'-0"	4	24'-0"	18"	18'-0"	15'-0"	9'-0"	16'-0"	15'-0"
CF-3030	5	30'-0"	5	30'-0"	18"	20'-0"	15'-0"	15'-0"	16'-0"	15'-0"
CF-3036	5	30'-0"	6	36'-0"	20"	22'-0"	21'-0"	15'-0"	16'-0"	15'-0"
CF-3630	6	36'-0"	5	30'-0"	20"	22'-0"	15'-0"	15'-0"	19'-0"	18'-0"
CF-3636	6	36'-0"	6	36'-0"	20"	22'-0"	21'-0"	15'-0"	19'-0"	18'-0"
CF-3642	6	36'-0"	7	42'-0"	24"	24'-0"	21'-0"	21'-0"	19'-0"	18'-0"
CF-4236	7	42'-0"	6	36'-0"	24"	24'-0"	21'-0"	15'-0"	22'-0"	21'-0"
CF-4242	7	42'-0"	7	42'-0"	24"	24'-0"	21'-0"	21'-0"	22'-0"	21'-0"
CF-4248	7	42'-0"	8	36'-0"	24"	28'-0"	27'-0"	21'-0"	22'-0"	21'-0"
CF-4842	8	48'-0"	7	42'-0"	24"	28'-0"	21'-0"	21'-0"	25'-0"	24'-0"
CF-4848	8	48'-0"	8	48'-0"	30"	28'-0"	27'-0"	21'-0"	25'-0"	24'-0"
CF-4854	8	48'-0"	9	54'-0"	30"	36'-0"	27'-0"	27'-0"	25'-0"	24'-0"
CF-5448	9	54'-0"	8	48'-0"	30"	36'-0"	27'-0"	21'-0"	28'-0"	27'-0"
CF-5454	9	54'-0"	9	54'-0"	30"	36'-0"	27'-0"	27'-0"	28'-0"	27'-0"

1.- Concrete deposit is made by others, not by Industrial Mexicana.

2.- Distribution pipe flange is supplied in accordance with ANSI B16.1-1975 for class 125, flat face.

3.- Pipes, other equipment or material not supplied by INDUSTRIAL MEXICANA must be supported independently. This has an influence on the stress that may be transferred to the cooling tower.

4.- "C", "D", "E", and "H" dimensions vary according to the required height of the air inlet and water flow.

ENGINEERING DETAILS

Typical Anchoring Counter-Flow Towers

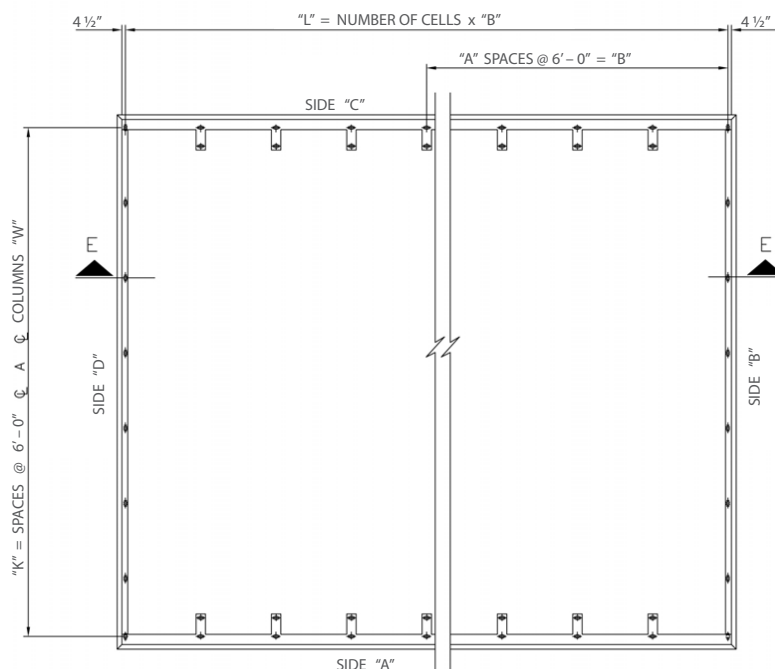
1.-The customer will design and build the concrete tanker, including anchoring bolts in accordance with the requirements and dimensions specified. The customer must also supply the pumping casing, overflow, drainage and ballcock.

2.- All anchoring bolts must be 1" diameter with 2" projection and 1½" of usable thread as a minimum, which must have a flat washer and an hexagonal bolt made from stainless steel. Maximum permitted tolerance in location and height must be ⅛".

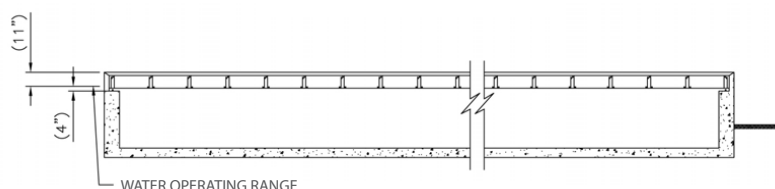
3.- The customer must consult Industrial Mexicana to establish the free space required around the cooling tower.

4.- Configuration of the concrete tank and location of anchoring bolts will specifically depend on the model selected.

Do not use these references for building. Please contact our office for certified dimensions.



PLANT VIEW



SECTION "E - E"

MODEL	K	W	A	B
CF-1818	3	18'-0"	18'-0"	12"
CF-1824	4	18'-0"	24'-0"	12"
CF-2418	3	24'-0"	18'-0"	12"
CF-2424	4	24'-0"	24'-0"	16"
CF-2430	5	24'-0"	30'-0"	18"
CF-3024	4	30'-0"	24'-0"	18"
CF-3030	5	30'-0"	30'-0"	18"
CF-3036	6	30'-0"	36'-0"	20"
CF-3630	5	36'-0"	30'-0"	20"
CF-3636	6	36'-0"	36'-0"	20"
CF-3642	7	36'-0"	42'-0"	24"
CF-4236	6	42'-0"	36'-0"	24"
CF-4242	7	42'-0"	42'-0"	24"
CF-4248	8	42'-0"	48'-0"	24"
CF-4842	7	48'-0"	42'-0"	24"
CF-4848	8	48'-0"	48'-0"	30"
CF-4854	9	48'-0"	54'-0"	30"
CF-5448	8	54'-0"	48'-0"	30"
CF-5454	9	54'-0"	54'-0"	30"

A solution for every situation

In Industrial Mexicana we offer the maintenance that your tower requires.

Basic Silver Bullet®

Basic Maintenance involves the installation of a Silver Bullet® equipment defined by the volume of water to be treated in the tower.

Plus Silver Bullet® + Mechanics

Plus Maintenance includes the installation of the Silver Bullet® equipment plus all mechanic maintenance for the tower.

Ultra Silver Bullet + Mechanics + Peripheral Equipment

Ultra Maintenance covers also peripheral equipment, such as loop pumps, boiler, hot water tanks, plate exchangers, among others.



Silver Bullet is a chemical-free water treatment system that prevents bacteria, incrustation of salts and corrosion in your tower, resulting in efficiency and energy savings.



Major repairs

Count with IM to get your tower going again. We make full repairs, from spare parts to mechanic service. Get in contact with our experts.

Spare Parts

We offer a wide variety of spare parts for IM towers and other brands.



In IM we work for you

Design & Innovation

We are involved in continuous research and develop unique solutions for cooling towers. Our efforts are always aimed at efficiency, performance and savings. This determination is what has gotten us so far.

Service & Experience

50 years of experience say it all. We have successfully worked in all industries, and we are capable of solving any situation. Our mission is to produce the best towers and keep them working with efficiency.

Applied Engineering

With the support of the engineering department, we develop turnkey projects, integrating our thermal dissipation equipment to the different equipment or processes owned by the client.

Automation & Energy Saving

Automation is the future and, at IM, we have developed forefront controllers in order for your towers to work in the most efficient way possible all the time, thereby producing energy savings that benefit us all.

Leaders in the industry through innovation



Saving water

Industry currently uses a large quantity of water just for cooling. Cooling towers use the evaporation principle so that water may be recycled, thereby reducing the demand for natural and local water.

IM® cooling towers incorporate major features to reduce waste of water and treatment chemicals, using the most modern material and components to reduce the risk of splashing and water entrainment.



Saving energy

As energy costs continue rising, greater emphasis has been placed on reducing the use of energy in industrial equipment. IM® cooling towers have been designed to achieve a maximum thermal performance capacity by unit, both in terms of saving energy and the use of energy of the recirculation pump, on incorporating the lowest static pumping load on the market.



Long operational life

Cooling towers must operate at their maximum capacity in a wide range of operating conditions, including sudden changes in temperature, a wide variety of water quality, wind and seismic loads. IM® has taken a leading technological position in the chemical treatment of wood, and in the design of robust structures. We utilize high quality materials, engineered to meet critical standards desired by our customers to enable a long-lasting operational life of this equipment.