



# FXT Cooling Tower

## TABLE OF CONTENTS

---

**B135 FXT COOLING TOWER**

---

**B138 CONSTRUCTION DETAILS**

---

**B139 CUSTOM FEATURES & OPTIONS**

---

**B144 ENGINEERING DATA**

---

**B146 STRUCTURAL SUPPORT**

**The FXT was BAC's first certified tower that features a horizontal design.** The FXT delivers performance, maintainability, low initial costs, and incorporates continuous improvements in design that have made it the industry work horse for over 40 years. With low energy consumption and capacities ranging from 58-257 nominal tons, this compact FXT can easily fulfill a wide range of projects with low tonnage requirements.



# The FXT: BAC's First Certified Tower

CTI Certified Capacities  
58 to 257 Tons in a Single Cell  
Up to 1,155 USGPM for Process Applications

Low Energy  
Consumption

Low  
Installed  
Costs

Easy to  
Maintain

Long  
Service  
Life

5-Year  
Mechanical  
Equipment  
Warranty



# FXT Benefits

## > Low Environmental Impact

### ▶ ENERGY EFFICIENT

- All units meet or exceed ASHRAE Standard 90.1 energy efficiency requirements
- Premium efficient VFD compatible fan motors
- High efficiency BACross® Fill
- Gravity distribution with low pump head requirements

## > Durable Construction

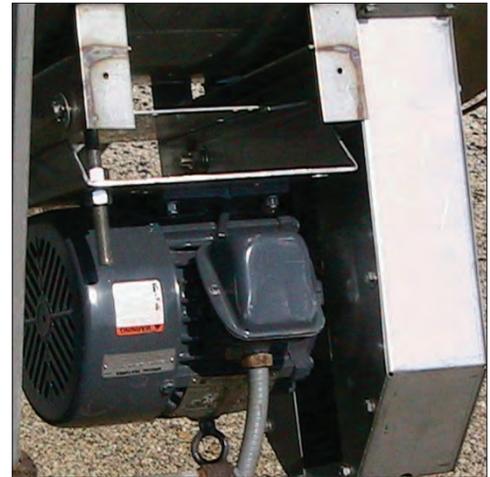
- ▶ Panels are constructed of rugged G-235 Galvanized Steel
- ▶ Forced draft design protects moving parts
- ▶ Various materials of construction are available to enhance longevity of the unit (see **page B139** for details)
- ▶ Cooling tower duty (TEFC) motors are backed by BAC's 5-year warranty
- ▶ Heavy duty bearings with a minimum  $L_{10}$  of 40,000 hours

## > Easy Maintenance

- ▶ The fan motor is located on the exterior of the unit for easy maintenance and belt adjustment
- ▶ Standard basin covers keep debris from entering the hot water basin
- ▶ Large gravity orifice nozzles prevent clogging and can easily be replaced while unit is in operation
- ▶ Access door allows for access to the interior of the unit
- ▶ Extended lubrication lines minimize maintenance of the bearings

## > Easy Installation

- ▶ Single piece lift
- ▶ Ships completely assembled, minimizing installation time and cost
  - No motors to mount
  - No sheaves to align
  - No belts to install
  - No make-up system to assemble



Premium Efficient Motor

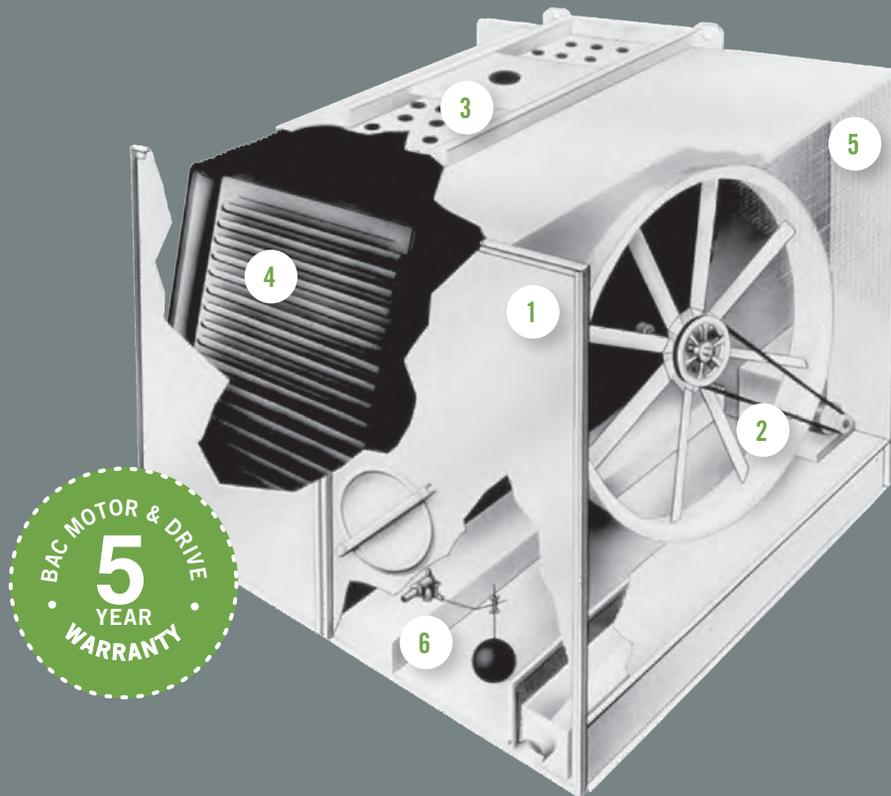


Single Piece Lift



Easy Access

# FXT Construction Details



## 1 Heavy-Duty Construction

- ▶ G-235 (Z700 metric) mill galvanized steel panels

## 2 Fan Drive System

- ▶ V-belt drive
- ▶ Heavy-duty bearings with a minimum  $L_{10}$  of 40,000 hours (280,000 hour average life)
- ▶ Extended lubrication lines
- ▶ Premium efficient/inverter duty motors as standard
- ▶ 5-year motor and drive warranty
- ▶ Low HP Axial Fan(s)
  - High efficiency
  - Corrosion resistant

## 3 Water Distribution System

- ▶ Non-clog nozzles
- ▶ Low pump head gravity distribution basin
- ▶ Steel distribution covers (not shown)

## 4 BACross® Fill with Integral Drift Eliminators

- ▶ High efficiency heat transfer surface
- ▶ Polyvinyl chloride (PVC)
- ▶ Impervious to rot, decay, and biological attack
- ▶ Flame spread rating of 5 per ASTM E84

## 5 Air Intake Screens

- ▶ Protection from moving parts
- ▶ Easily removed for access to fans, bearings, motor, and drives

## 6 Water Make-up Valve Assembly

- ▶ Corrosion resistant float valve
- ▶ Large diameter plastic float

# FXT

## Custom Features & Options

### ➤ Materials of Construction

Determining the appropriate material of construction for a project depends on several factors, including water quality, climate and environmental conditions, availability of time and manpower for maintenance, unit lifetime requirements, and budget. BAC provides the widest variety of material of construction options in the industry and has the ability to provide a solution to meet all conditions and budgets.



#### STANDARD CONSTRUCTION

G-235 mill galvanized steel is the heaviest commercially available galvanized steel, universally recognized for its strength and corrosion resistance. To assure long-life, G-235 mill galvanized steel is used as the standard material of construction for all units. All exposed cut edges are protected with a thick zinc coating after fabrication to ensure the thick zinc corrosion barrier is maintained for all over protection. With proper maintenance and water treatment, G-235 galvanized steel products will provide an excellent service life under the operating conditions normally encountered in comfort cooling and industrial applications.

#### ▶ THERMOSETTING HYBRID POLYMER (OPTION)

A thermosetting hybrid polymer coating, used to extend equipment life, is applied to select G-235 mill galvanized steel components of the unit. The polymerized coating is baked onto the galvanized steel and creates a barrier to the already corrosion resistant galvanized steel. The thermosetting hybrid polymer has been tested to withstand 6,000 hours in a 5% salt spray without blistering, chipping, or loss of adhesion.

#### ▶ STAINLESS STEEL COLD WATER BASIN (OPTION)

A stainless steel cold water basin is available. All steel panels and structural members of the cold water basin are constructed from stainless steel.



Standard Construction Installation



Thermosetting Hybrid Polymer



Standard Two Fan Construction



## › Drive System Options

The fan drive system provides the cooling air necessary to reject unwanted heat from the system to the atmosphere. All BAC drive systems use premium efficient cooling tower duty motors and include BAC's comprehensive 5-year motor and fan drive warranty. Cooling tower duty motors are specially designed for the harsh environment of a cooling tower and have permanently lubricated bearings, drastically decreasing the maintenance requirement of the motor. BAC belt drive systems are the most durable and maintenance friendly drive systems on the market, including single nut adjustment for belt tensioning to make belt tensioning simple.



### EXTERNAL V-BELT DRIVE

This BAC engineered external drive consists of axial fan(s), motor, and drive system located outside of the discharge airstream, protecting them from moisture, condensation, and icing. The drive system consists of specially designed belts, taper lock sheaves, and premium efficient cooling tower duty motor with extended lubricating lines to provide maximum performance. The drive system is backed by BAC's comprehensive 5-year motor and fan drive warranty.

#### ▶ STANDARD FAN

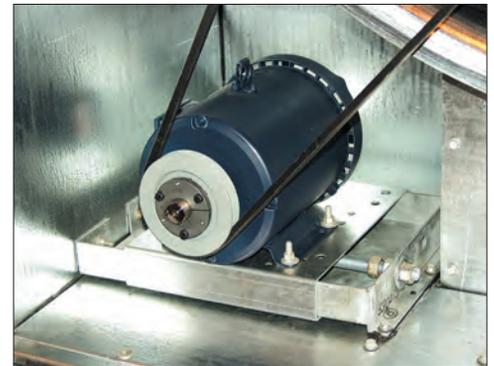
The low sound levels generated and high efficiency provided by BAC's standard fan make them suitable for installation in most environments.

#### ▶ EXTENDED LUBRICATION LINES

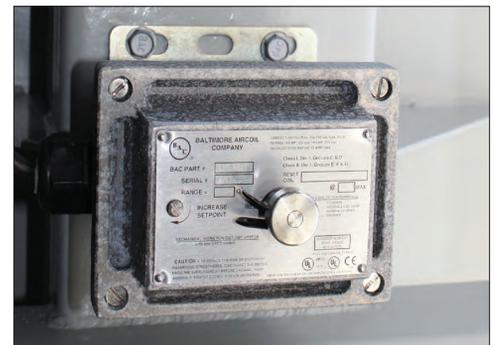
Extended lubrication lines are standard for lubrication of the fan shaft bearings. Fittings are extended to the outside of the unit.

#### ▶ VIBRATION CUTOFF SWITCH (OPTION)

A factory mounted vibration cutout switch is available to effectively protect against rotating equipment failure. BAC can provide either a mechanical or solid-state electronic vibration cutout switch in a NEMA 4 enclosure to ensure reliable protection. Additional contacts can be provided on either switch type to activate an alarm. Remote reset capability is also available on either switch type.



External V-Belt Drive



Vibration Cutout Switch

# FXT

## Custom Features & Options

### > Shipping and Rigging

BAC units are factory-assembled to ensure uniform quality with minimum field assembly. Each unit has been designed to rig in a single piece to minimize installation time.

#### ▶ SINGLE PIECE RIGGING

All single cell FXT Cooling Towers ship completely assembled, minimizing installation time and cost. There are no motors to mount, no sheaves to align, no belts to install, and no make-up system to assemble.



Single Piece Lift

### > Cold Water Basin

The cooling tower water collects in the cold water basin which provides the required head pressure for the cooling system pump.



Easy Access to the Mechanical Water Level Control



#### STANDARD MECHANICAL WATER LEVEL CONTROL

Mechanical make-up valves must operate continuously in the moist and turbulent environment existing within evaporative cooling equipment. Due to this environment, the operation of the valve must be simple, and the valve must be durable. BAC's high quality mechanical water level control assembly is standard with all units, and has been specially designed to provide the most reliable operation while being easy to maintain. This accessory is omitted for remote sump applications.

#### ▶ ELECTRIC WATER LEVEL CONTROL (OPTION)

BAC's Electric Water Level Control (EWLC) is a state-of-the-art conductivity actuated, probe type liquid level control. The hermetically sealed EWLC is engineered and manufactured specifically for use in evaporative cooling systems and is equipped with an error code LED which illuminates to indicate status, including when the water and/or probes are dirty. The EWLC option replaces the standard mechanical make-up valve, and includes a slow closing, solenoid activated valve in the make-up water line to minimize water hammer. EWLC is recommended when more precise water level control is required and in areas that experience sub-freezing conditions.



Electric Water Level Control



► **BASIN HEATERS (OPTION)**

Evaporative cooling equipment exposed to below freezing ambient temperatures require protection to prevent freezing of the water in the cold water basin when the unit is idle. Factory-installed electric immersion heaters, which maintain 40°F (4.4°C) water temperature, are a simple and inexpensive way of providing such protection.

**HEATER KW DATA**

Model Number	0°F (-17.8°C) Ambient Heaters		-20°F (-28.9°C) Ambient Heaters	
	Number of Heaters	kW per Heater	Number of Heaters	kW per Heater
FXT - 26 to 68	1	3	1	5
FXT - 74 to 95	1	4	1	6
FXT - 115 to 136	2	3	2	5
FXT - 160 to 257	2	4	2	6



**NOTE:** This table is based on 460V/3 phase/60 Hz power.

► **Fill**

BACross® Fill, BAC's patented crossflow hanging fill, was developed after years of extensive research. BACross® Fill is made of PVC and is optimized to provide the most efficient thermal capacity. PVC is virtually impervious to rot, decay, and biological attack. The fill is elevated above the cold water basin floor to facilitate cleaning and maintenance. The integral eliminators effectively strip entrained moisture from the leaving air stream with minimum pressure drop to prevent water loss with negligible impact on efficiency.



**STANDARD FILL**

BAC's standard fill is made of PVC and designed with maximized surface area to give the most efficient thermal capacity. Integral drift eliminators minimize the loss of water entrained in the airstream. PVC is virtually impervious to rot, decay, and biological attack. Standard fill can be used in applications with entering water temperatures up to 125°F (51.7°C). The fill and drift eliminators are formed from self-extinguishing PVC having a flame spread rating of 5 per ASTM E84.



Basin Heater



Standard Fill



Ships and Rigs in a Single Piece

# FXT

## Custom Features & Options

### ▶ HIGH TEMPERATURE FILL (OPTION)

An optional high temperature fill material is available which increases the maximum allowable entering water temperature as high as 140°F (60.0°C). The fill and drift eliminators are formed from self-extinguishing PVC having a flame spread rating of 5 per ASTM E84.

### > Air Intake Options

In a cooling tower, airborne debris can be entrained in the water through the unit's air intake. Reducing the amount of debris that enters the tower lowers maintenance requirements and helps to maintain thermal efficiency.

#### ▶ AIR INTAKE SCREENS

The standard 1" x 1" wire mesh screen is factory-installed to prevent debris from entering the tower.

#### ▶ AIR DISCHARGE SCREENS (OPTION)

1" x 1" wire mesh screens are available factory-installed over the unit discharge to prevent debris from entering the drift eliminators and cold water basin.

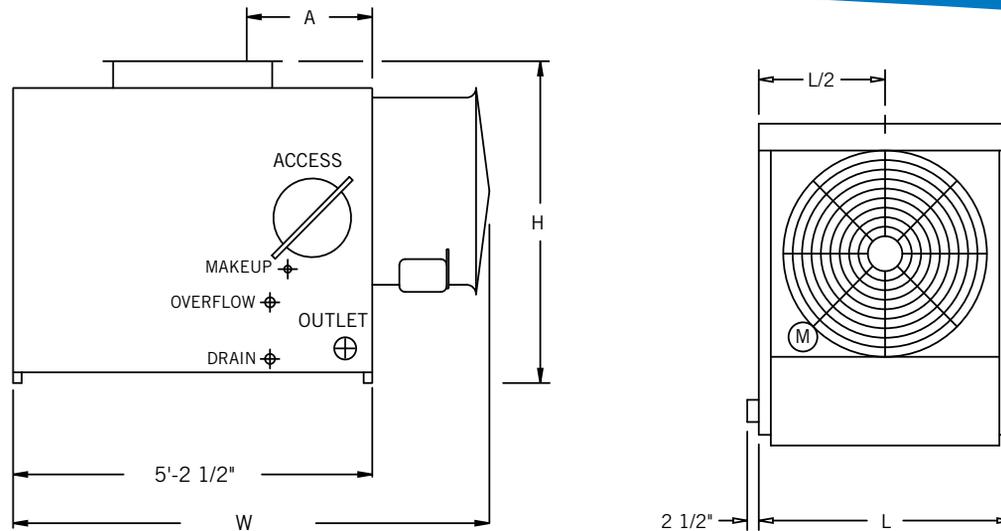


FXT Installation



Air Intake Screen

# FXT Engineering Data



Models FXT-58 and 68

Model Number	Nominal Tonnage	Motor HP	Airflow (CFM)	Dimensions				Weights (lbs)		Connection Sizes	
				L	W	H	A	Operating	Shipping	Inlet	Outlet
FXT-58	58	3	18,500	6'-1"	7'-4"	7'-4"	1'-5"	3,140	1,220	6"	6"
FXT-68	68	5	21,700	6'-1"	7'-4"	7'-4"	1'-5"	3,150	1,230	6"	6"
FXT-74	74	3	21,800	6'-1"	7'-4"	8'-4"	4'-2"	4,230	1,720	8"	8"
FXT-87	87	5	25,600	6'-1"	7'-4"	8'-4"	4'-2"	4,240	1,730	8"	8"
FXT-95	95	7.5	29,100	6'-1"	7'-8"	8'-4"	4'-2"	4,280	1,770	8"	8"
FXT-115	115	5	33,900	9'-2"	7'-4"	8'-4"	4'-2"	6,080	2,220	8"	8"
FXT-130	130	7.5	38,300	9'-2"	7'-4"	8'-4"	4'-2"	6,120	2,260	8"	8"
FXT-136	136	10	41,800	9'-2"	7'-8"	8'-4"	4'-2"	6,160	2,300	8"	8"
FXT-160	160	7.5	47,100	12'-1"	7'-4"	8'-4"	4'-2"	8,030	2,880	8"	8"
FXT-175	175	10	51,500	12'-1"	7'-4"	8'-4"	4'-2"	8,070	2,920	8"	8"
FXT-192	192	15	58,900	12'-1"	7'-8"	8'-4"	4'-2"	8,120	2,970	8"	8"
FXT-216	216	10	56,400	12'-1"	7'-4"	11'-0"	3'-8"	9,420	3,560	8"	8"
FXT-240	240	15	65,300	12'-1"	7'-8"	11'-0"	3'-8"	9,470	3,610	8"	8"
FXT-257	257	20	70,000	12'-1"	7'-8"	11'-0"	3'-8"	9,490	3,630	8"	8"

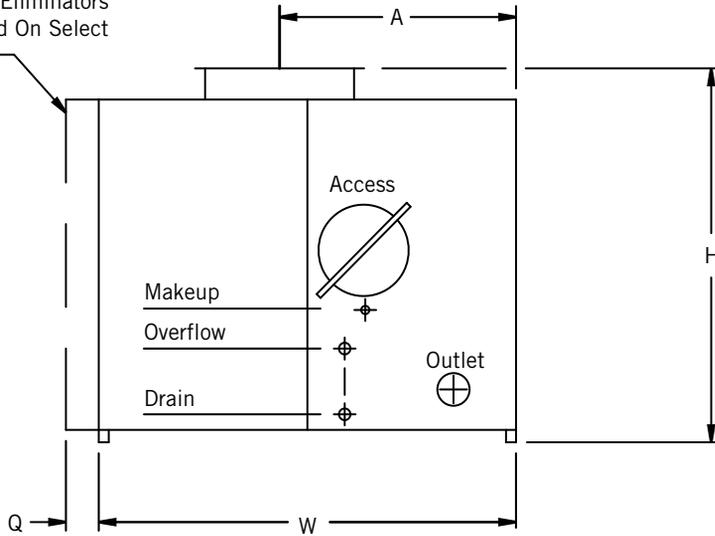
## NOTES:

1. Unless otherwise indicated, all connections 4" and smaller are MPT and connections 6" and larger are beveled for welding.
2. Operating weight is based on the water level in cold water basin at overflow height.
3. Nominal tons of cooling represents the capability to cool 3 USGPM of water from a 95°F entering water temperature to an 85°F leaving water temperature at a 78°F entering wet-bulb temperature.

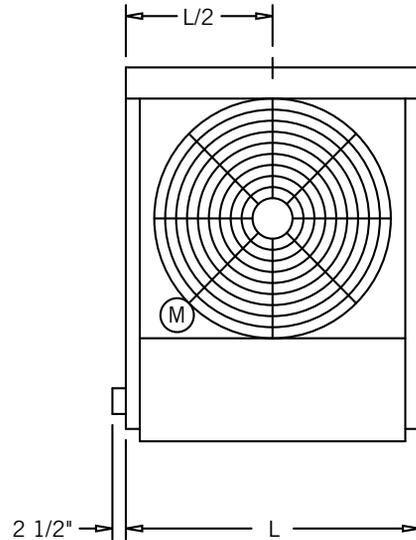
**Do not use for construction.** Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be reconfirmed at the time of purchase.

# FXT Engineering Data

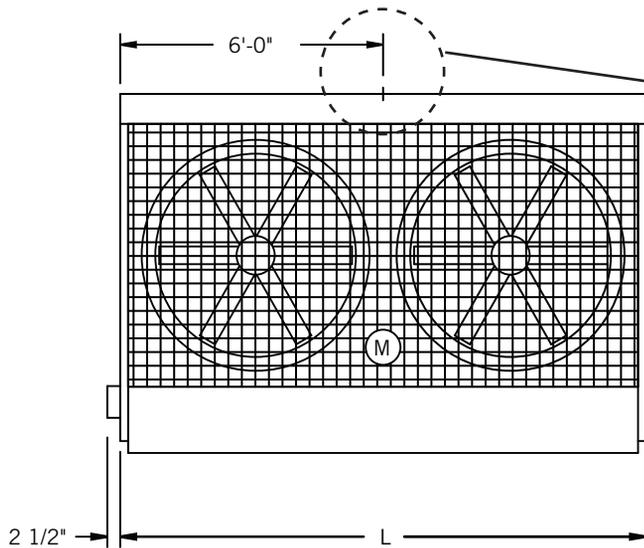
\*Double Eliminators  
Standard On Select  
Models



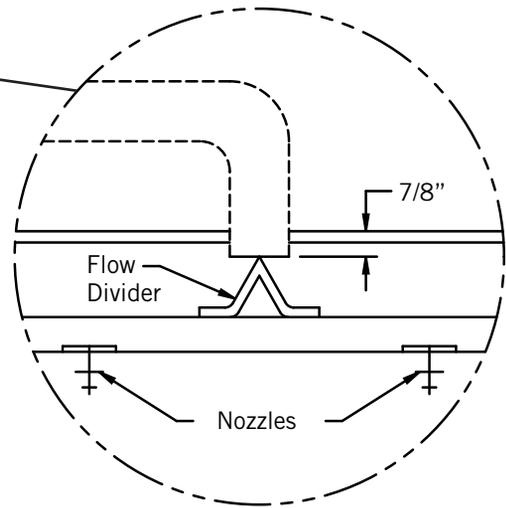
Models FXT 74-257



Models FXT 74-136



Models FXT 160-257

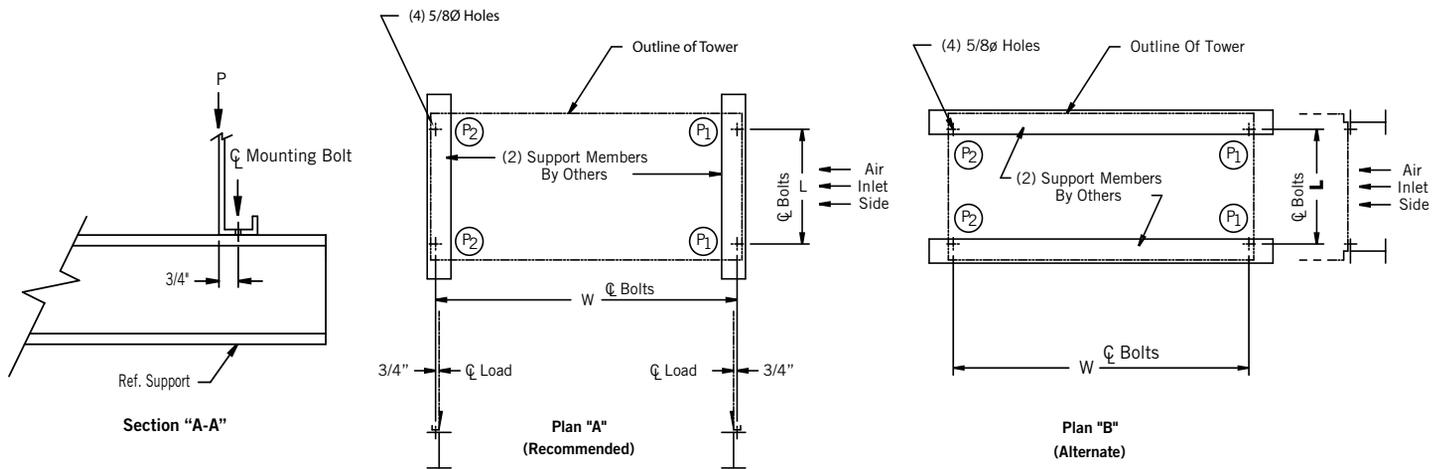


Flow Divider

# FXT Structural Support



The recommended support arrangement for the FXT Cooling Tower consists of parallel structural members positioned as shown in the drawings. In addition to providing adequate support, the members also serve to raise the unit above any solid foundation to assure access to the bottom of the tower. FXT towers may also be supported on columns at the anchor bolt locations shown, if required.



## STANDARD UNIT – STRUCTURAL SUPPORT

Model Number	Weight (lbs)		L	W	P1	P2
	Shipping	Operating				
FXT-58	1,220	3,140	5'	5'-1"	989	581
FXT-68	1,230	3,150	5'	5'-1"	992	583
FXT-74	1,720	4,230	5'	7'-1 7/8"	1,163	952
FXT-87	1,730	4,240	5'	7'-1 7/8"	1,166	954
FXT-95	1,770	4,280	5'	7'-1 7/8"	1,178	962
FXT-115	2,220	6,080	8'	7'-1 7/8"	1,672	1,368
FXT-130	2,260	6,120	8'	7'-1 7/8"	1,683	1,377
FXT-136	2,300	6,160	8'	7'-1 7/8"	1,695	1,385
FXT-160	2,880	8,030	11'	7'-1 7/8"	2,208	1,807
FXT-175	2,920	8,070	11'	7'-1 7/8"	2,219	1,816
FXT-192	2,970	8,120	11'	7'-1 7/8"	2,234	1,826
FXT-216	3,560	9,420	11'	7'-1 7/8"	2,543	2,167
FXT-240	3,610	9,470	11'	7'-1 7/8"	2,557	2,178
FXT-257	3,630	9,490	11'	7'-1 7/8"	2,563	2,182



### NOTES:

1. Support members and anchor bolts shall be designed, furnished, and installed by others.
2. Design of support members and anchor bolts shall be in accordance with the strength and serviceability requirements of the applicable building code and project specifications.
3. Support members shall be level at the top.
4. Refer to the certified unit support drawing for loading and additional support requirements.
5. Operating weight is based on the water level in cold water basin at overflow height.