



Series V Cooling Tower

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Series V Counterflow Cooling Towers have provided solutions to some of the most challenging cooling scenarios for nearly six decades. Suitable for applications where external duct work and other sources of external static pressure exist, the VTL, VT0, and VT1 Counterflow Cooling Towers can be used in indoor and outdoor applications. Series V Cooling Towers offer a wide range of capacities, minimal sound levels, low installation costs, year-round operating reliability, and are easy to maintain. With the addition of steel fill Series V Cooling Towers are also ideal for high temperature applications.



BAC's Series V Cooling Towers: Solution for Challenging Installations

Wide Range of Foot Prints and CTI Certified Capacities
12 to 1,335 Tons in a Single Cell
Up to 6,750 USGPM for Process Applications

- Easy to Maintain
- Indoor/Outdoor Flexibility
- Ideal for External Static Applications
- Low Environmental Impact
- Low Profile Available



Series V Benefits

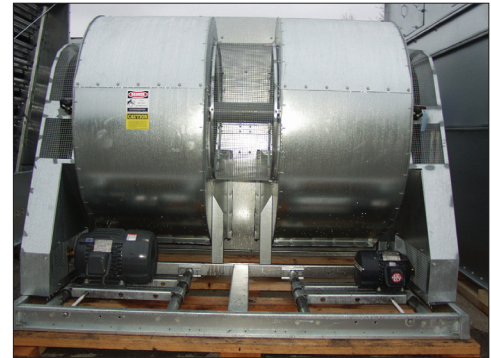
> Low Environmental Impact

▶ ENERGY EFFICIENT

- All units meet or exceed ASHRAE Standard 90.1 energy efficiency requirements
- Premium Efficient VFD compatible fan motors
- BALTIGUARD™ Fan System provides redundancy and energy savings by providing a pony motor (option)

▶ SOUND REDUCTION OPTIONS

- Centrifugal fans have inherently low sound characteristics
- Factory designed sound attenuation is available for both the air intake and discharge (option)
- Sound sensitive areas can be accommodated by facing the quiet blankoff panel to the sound sensitive direction



BALTIGUARD™ Fan System

> Durable Construction

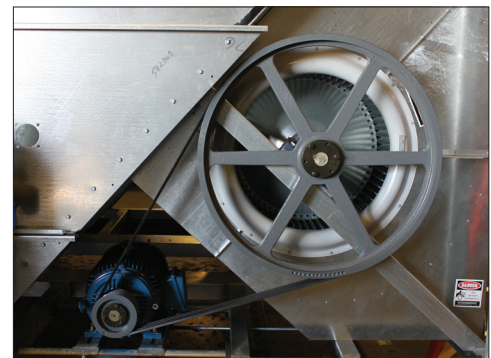
- ▶ Panels are constructed of rugged G-235 hot-dip galvanized steel
- ▶ Forced draft design protects moving parts
- ▶ Various materials of construction are available to enhance longevity of the unit (see **page B101** for details)
- ▶ PVC drift eliminators are impervious to rot, decay, and biological attack
- ▶ Steel fill is available for high temperature applications (option)



Unit with Intake and Discharge Sound Attenuation

> Reliable Year-Round Operation

- ▶ 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
- ▶ V-Belt Drive System – Fan(s), motor(s), and drive(s) are located outside the air stream protecting them from moisture, condensation, and icing



External V-Belt Drive System (Shown Here with Panel Removed)



> Easy Maintenance

- ▶ All moving parts are located near the base of the unit within easy reach for cleaning, lubrication, or adjustments
- ▶ Grommeted nozzles are non-clogging to simplify the nozzle change and reduce maintenance time
- ▶ Split fan housing for easy air moving component replacement
- ▶ Extended lubrication lines minimize routine maintenance of the bearings (option)
- ▶ Handrail packages, ladders, safety cages, and safety gates to access the top of the unit (option)



The Water Level Control is Easily Reached From the Access Door

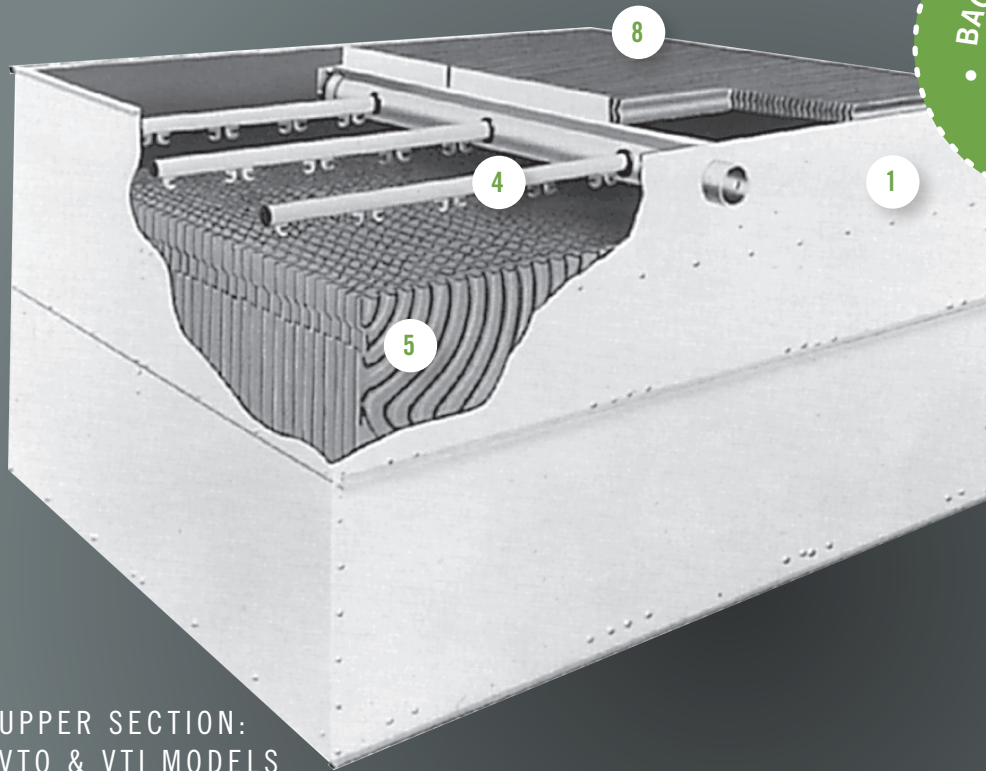
> Easy Installation

- ▶ Centrifugal fans are suitable for applications where external duct work and other sources of external static pressures exist
- ▶ All Series V units can be located indoors
- ▶ Low Profile (VTL) models can fit in mechanical rooms with low ceilings and are easily hidden behind louvered walls on buildings
- ▶ Modular design allows larger units to ship in sections minimizing the size and weight of the heaviest lift
- ▶ All models mount with ease on two parallel support I-beams
- ▶ Low Profile (VTL) and some VTO models can ship and rig in a single piece

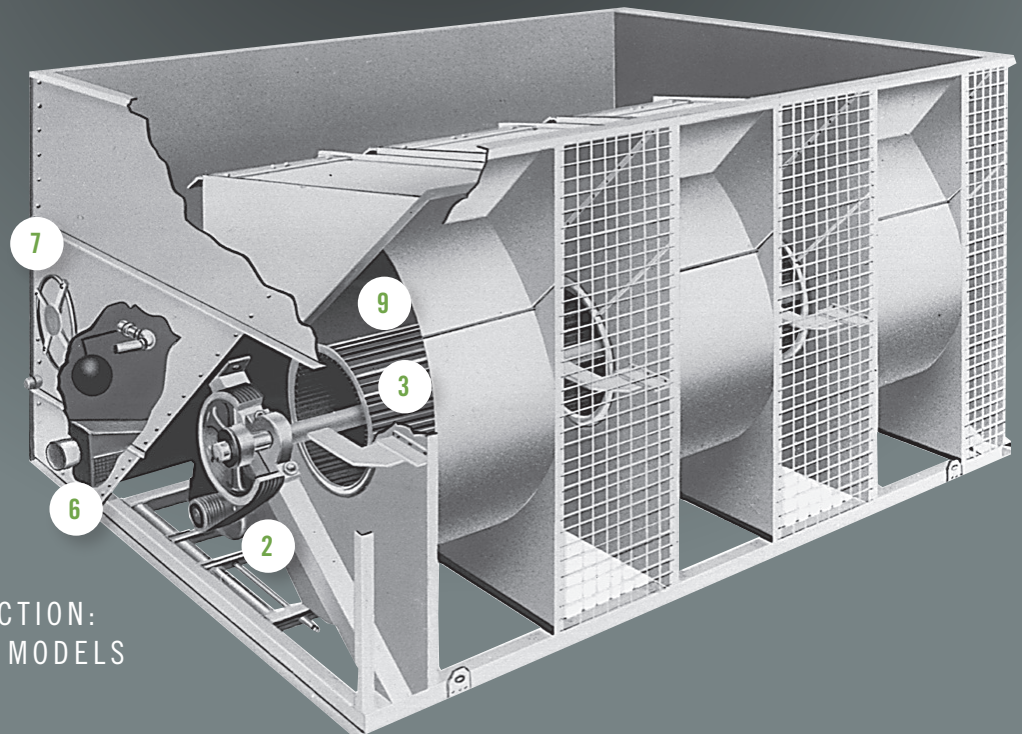


Low Profile Unit Shown in Contrast to a Standard Unit of a Similar Capacity

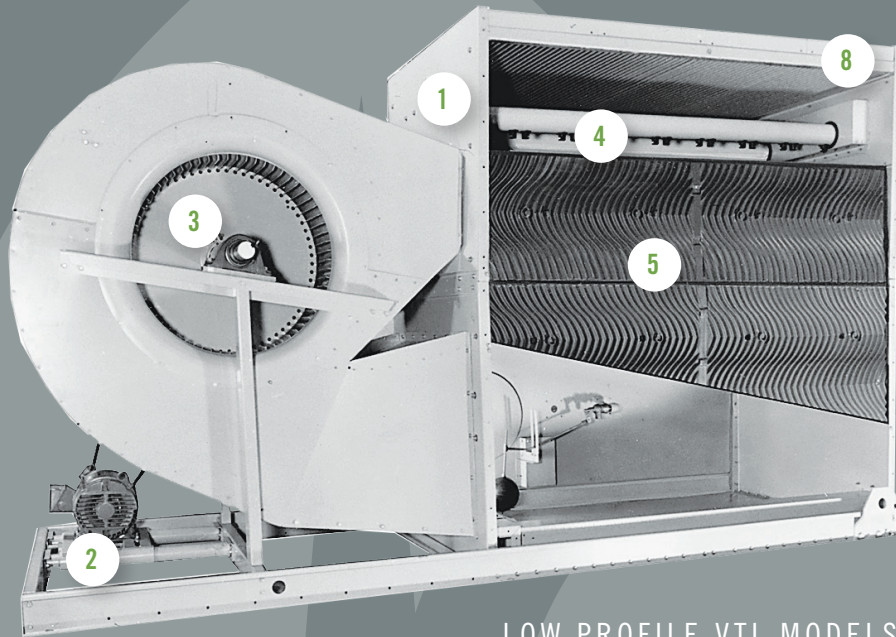
Series V Construction Details



UPPER SECTION:
VTO & VTI MODELS



LOWER SECTION:
VTO & VTI MODELS



LOW PROFILE VTL MODELS

1 Heavy-Duty Construction

- ▶ Heavy-gauge G-235 (Z700 Metric) hot-dip galvanized steel

2 Fan Drive System

- ▶ V-belt drive
- ▶ Heavy-duty bearings L₁₀ 40,000 hours (280,000 hour average life)
- ▶ Premium efficient, cooling tower duty motors fit for VFD applications
- ▶ 5-year motor and drive warranty

3 Low Sound Centrifugal Fan(s)

- ▶ Quiet operation

4 Water Distribution System

- ▶ Schedule 40 PVC spray header and branches
- ▶ Large orifice, non-clog nozzles
- ▶ Grommets for easy removal

5 BACount® Fill

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

6 Strainer

- ▶ Anti-vortexing design to prevent air entrainment

7 Access Door

- ▶ Interior of unit is easily accessible

8 Drift Eliminators

- ▶ Polyvinyl chloride (PVC)
- ▶ Impervious to rot, decay, and biological attack
- ▶ Flame spread rating of 5 per ASTM E84
- ▶ Assembled in easy to handle sections

Series V

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 hot-dip galvanized steel is the heaviest commercially available galvanized steel, universally recognized for its strength and corrosion resistance. To assure long-life, G-235 hot-dip 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 hot-dip 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 (OPTIONS)

For applications where severe corrosive conditions exist or where exceptionally long equipment life is required, several material of construction options utilizing Type 304 stainless steel are available.

- **WATER CONTACT TYPE 304 STAINLESS STEEL COLD WATER BASIN**
The cold water basin components below the overflow level are constructed of Type 304 stainless steel.

- **WATER CONTACT TYPE 304 STAINLESS STEEL UNIT**
The basin and water-contacted components below the overflow level in the basin are constructed of Type 304 stainless steel. All principal steel components in the casing section will be constructed of galvanized steel as standard.



Standard Construction Installation



Thermosetting Hybrid Polymer



Stainless Steel Construction



- **ALL TYPE 304 STAINLESS STEEL CONSTRUCTION**

All steel panels and structural elements are constructed of Type 304 stainless steel. Fans are protected with a thermosetting hybrid polymer.

> 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 efficiency cooling tower duty motors and include BAC's comprehensive 5-year motor and 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 centrifugal fan(s), motor(s), and drive system(s) located outside of the discharge airstream, protecting them from moisture, condensation, and icing. The drive system consists of a specially designed belts, taper lock sheaves, and premium efficient cooling tower duty motor to provide maximum performance.



External V-Belt Drive



BALTIGUARD™ FAN SYSTEM (OPTION)

The BALTIGUARD™ Fan System consists of two standard single-speed fan motor and drive assemblies. One drive assembly is sized for full speed and load, and the other is sized approximately 2/3 speed and consumes only 1/3 the design horsepower. This configuration allows the reserve capacity of a standby motor in the event of failure. As a minimum, approximately 70% capacity will be available from the low horsepower motor, even on a design wet-bulb day. Controls and wiring are the same as those required for a two-speed, two-winding motor. Redundant motors are available by increasing the size of the standby fan motor of the BALTIGUARD™ Fan System to the size of the main motor, providing 100% motor redundancy (Applicability dependant on motor size and model. Contact your local BAC Representative for more information).



BALTIGUARD™ Fan System

Series V

Custom Features & Options

▶ **BALTIGUARD PLUS™ FAN SYSTEM (OPTION)**

The BALTIGUARD PLUS™ Fan System builds on the advantages of the BALTIGUARD™ Fan System by adding a VFD to either the pony or the main motor, depending on system requirements. This offers the benefits of additional capacity control and energy savings, along with the redundancy offered by the BALTIGUARD™ Fan System. Alternatively, a VFD can be added to BOTH the pony and main motor for complete capacity control and redundancy under any load.

▶ **VIBRATION CUTOUT 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.

▶ **EXTENDED LUBRICATION LINES (OPTION)**

Extended lubrication lines are available for lubrication of the fan shaft bearings. Fittings are located on the exterior casing panel, outside the fan section.



BALTIGUARD PLUS™ Fan System



Vibration Cutout Switch

> **Cold Water Basin**

The cooling tower water collects in the cold water basin which provides the required head pressure for the cooling system pump. The Series V cold water basin includes the “V” sloped cold water basin design. During operation, this design eliminates any stagnant water zones, which are susceptible to biological growth.

▶ **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.



Standard Mechanical Water Level Control



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.

▶ **SIDE OUTLET DEPRESSED SUMP BOX (OPTION)**

A side outlet depressed sump box is available for field installation below the base of the tower. This option facilitates horizontal piping below the basin, and is a compact alternative to using an elbow in the piping arrangement, saving on both installation time and cost. The outlet connection is designed to mate with an ASME Class 150 flat face flange. See the "Connection Guide" on **page J176** for more information on standard and optional unit connection types.

▶ **STEAM COIL AND STEAM INJECTOR BASIN FREEZE PROTECTION (OPTION)**

Steam coils and steam injectors are available to provide basin freeze protection.

▶ **BASIN SWEEPER PIPING (OPTION)**

Basin sweeper piping is an effective method of reducing sediment that may collect in the cold water basin of the unit. A piping system is provided in the cold water basin to connect to side stream filtration equipment (provided by others). For more information on filtration systems, consult the "Filtration Guide" found on **page J233**.

▶ **LOW AND HIGH LEVEL ALARMS (OPTION)**

Low and high level alarm float switches are available to provide added control to your equipment operation. Level alarms can alert operators to an abnormal operating condition to ensure the highest system efficiency with minimal water usage.



Electric Water Level Control



NOTE: All VTO Models are provided with filter connections only since the turbulence in the cold water basin keeps particles in suspension.

Series V Custom Features & Options



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.



Basin Heater

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
VTL-016-E thru 039-H	1	2	1	2
VTL-045-H thru 079-K	1	3	1	4
VTL-082-K thru 095-K	1	4	1	5
VTL-103-K thru 137-M	1	5	1	7
VTL-152-M thru 227-O	1	7	1	9
VTL-245-P thru 272-P	1	9	1	12
VT0-12-E thru 57-K	1	2	1	2
VT0-65-J thru 88-L	1	2	1	3
VT0-102-L thru 176-O	1	3	1	5
VT1-N209-P thru N255-P	1	5	1	7
VT1-N301-Q thru N395-R	1	7	1	10
VT1-N418-P thru N510-P	2	5	2	7
VT1-275-P thru 415-R	1	8	1	10
VT1-416-O thru 600-P	1	12	2	7
VT1-550-P thru 830-R	2	8	2	10
VT1-825-P thru 1335-S	3	8	3	10



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

> Multi-Cell Unit Options

Special care must be taken for multi-cell installations to ensure balanced water levels in the cold water basins across cells. If measures are not put in place to ensure balanced basin water levels, a potential exists that one basin may overflow and dump water, while the water level in another tower goes low and requires make-up. This leads to unnecessary water waste.

▶ EQUALIZER (OPTION)

Equalizer connections are available as an option for multi-cell cooling towers. Use of an equalizer allows for easy isolation of a cell for winter operation, maintenance, or inspection while continuing system operation. See “Cooling Towers in Parallel!” on **page J167** for more information.



> Fill

BACount® Fill is made of PVC making it virtually impervious to rot, decay, and biological attack.



STANDARD FILL

Standard fill can be used in applications with entering water temperature up to 130°F (54.4°C). The fill and drift eliminators are formed from self-extinguishing PVC having a flame spread rating of 5 per ASTM E84.

▶ HIGH TEMPERATURE FILL (OPTION)

An optional high temperature fill material is available which increases the maximum allowable entering water temperature as high to 150°F (65.5°C).

▶ GALVANIZED STEEL FILL (OPTION)

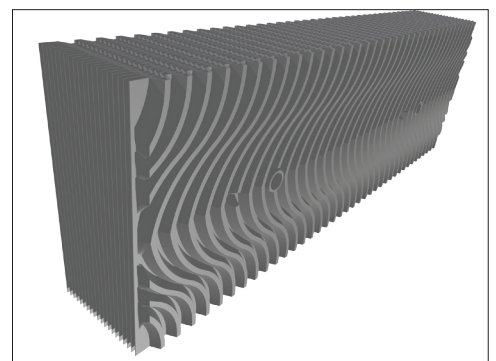
Galvanized steel fill is available for high temperature, dirty water applications up to 170°F (76.6°C). The greater spacing between fill sheets allows for debris to pass through the fill section without clogging the heat transfer section. Steel fill also allows for pressure cleaning, as necessary.

▶ STAINLESS STEEL FILL (OPTION)

Stainless steel fill is a great option for high temperature, dirty water applications up to 170°F (76.6°C) or in corrosive environments that are not suitable for galvanized steel.



BACount® Fill Manufacturing



BACount® Fill

> Shipping and Rigging

BAC units are factory-assembled to ensure uniform quality with minimum field assembly. Each unit has been designed with rigging and assembly in mind and includes features to minimize the number of tools required and installation time. Low Profile (VTL) and some VTO models also can ship and rig in a single piece.

Series V Custom Features & Options

▶ **KNOCKDOWN UNITS (OPTION)**

For the most demanding and inflexible rigging situations, all BAC units are available as knockdown units. Although these units ship disassembled, materials of construction and design features are exactly the same as those of a factory assembled unit. Knockdown units are available for jobs where access to the cooling tower location is limited by elevators, doorways, or similar obstacles, where lifting methods impose very strict weight limits, or where the shipping cost of a fully assembled tower is excessive.



Single Piece Lift of a VTO Cooling Tower

> **Sound Options**

The low sound levels generated by Series V Cooling Towers make them suitable for most installations. The panel opposite the air intake, called the blankoff panel, is inherently quiet. Positioning the blankoff panel towards the sound sensitive direction insulates sensitive areas from higher sound levels.



Intake Sound Attenuation



STANDARD FAN

The standard centrifugal fan provided on Series V Cooling Towers is inherently quiet and is selected to optimize low sound levels.

▶ **SOUND ATTENUATION (OPTION)**

For extremely sound sensitive installations, factory designed, tested, and rated sound attenuation options are available for both the air intake and discharge. Consult your local BAC Representative regarding available options.

> **Air Intake Options**

In a cooling tower, airborne debris can be entrained in the water through the unit's air intake. The Series V has several options for air intake accessories that prevent debris from entering the system and maintain even unobstructed air flow through the unit. Reducing the amount of debris that enters the tower lowers maintenance requirements and helps to maintain thermal efficiency.



Intake and Discharge Attenuation



▶ **AIR INTAKE SCREENS**

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

▶ **BOTTOM INTAKE SCREENS (OPTION)**

Series V Cooling Towers are available with factory-installed wire mesh screens over the bottom openings to prevent unauthorized access.

▶ **SOLID BOTTOM PANELS (OPTION)**

Factory-installed bottom panels are required when intake air is ducted to the unit.

> Air Discharge Options

BAC offers a full line of standard discharge hoods that are built, tested, and rated specifically for all Series V Cooling Towers.

▶ **DISCHARGE HOODS (OPTION)**

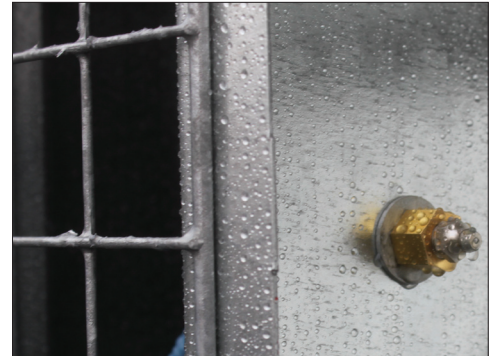
The tapered discharge hoods are designed to increase the discharge air velocity to avoid recirculation in extremely tight enclosures. Tapered hoods can be used to elevate the unit discharge above adjacent walls. A larger fan motor may be necessary when this option is provided.

> Access Options

BAC's evaporative equipment is designed to be the most easily maintained for sustaining capacity over a longer life. All access options are OSHA compliant to ensure personnel safety and code compliance.

▶ **HANDRAIL PACKAGES AND LADDERS (OPTION)**

Handrail packages and ladders are available to provide safe access to the top of the unit for maintenance to the distribution system. Galvanized steel eliminators provide a safe walking surface on top of the unit. Handrails, ladders, safety gates, and safety cages can be added at the time of order or as an aftermarket item.



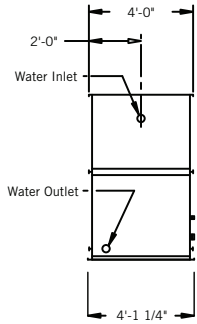
Air Intake Screens and Lube Line Connection



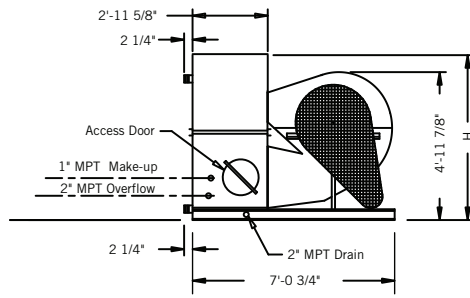
Handrail and Ladder Package

Series V Engineering Data

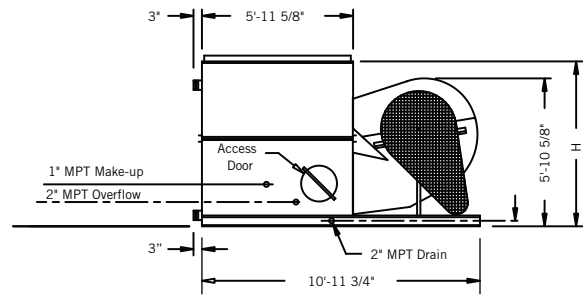
VTL MODELS



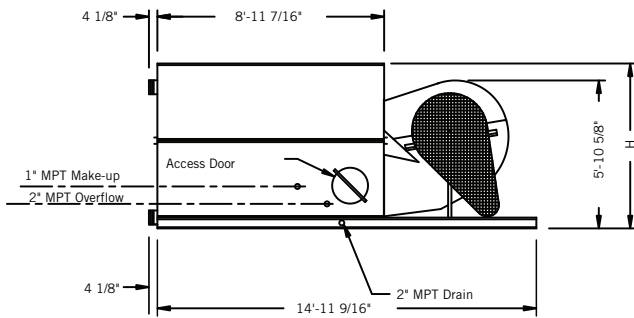
Models VTL-016-E to 137-M



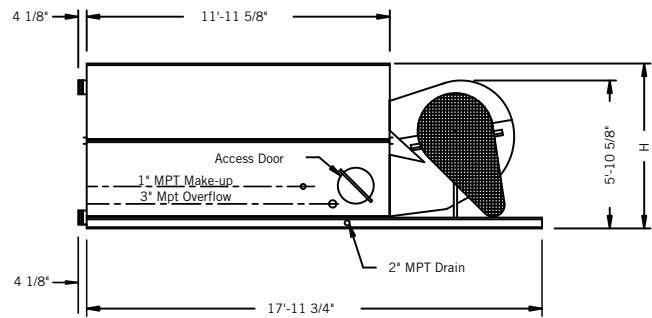
Models VTL-016-E to 039-H



Models VTL-045-H to 079-K




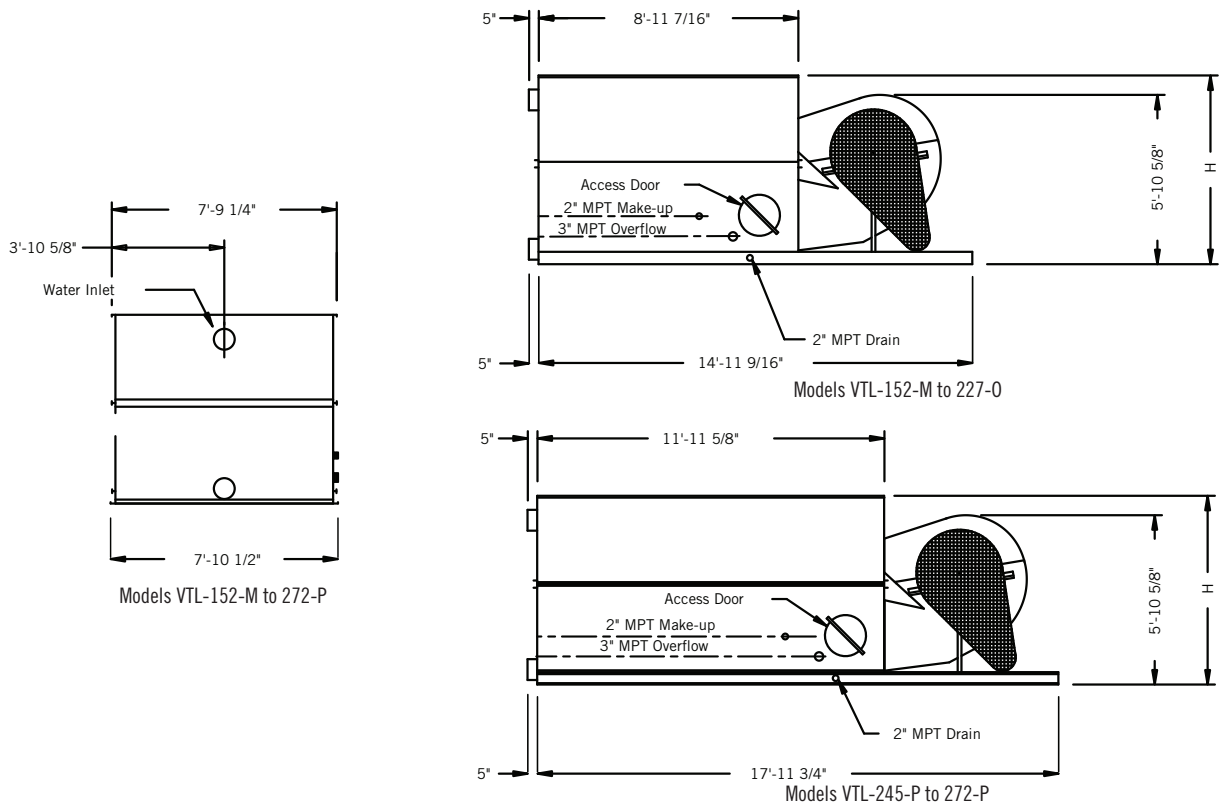
Models VTL-082-K to 095-K



Models VTL-103-K to 137-M

Model Number	Nominal Tonnage ⁽¹⁾	Motor HP ⁽²⁾	Airflow (CFM)	Weights (lbs)		H	Connections ⁽⁴⁾		
				Operating ⁽³⁾	Shipping		Inlet	Outlet	Overflow
VTL-016-E	16	1.5	7,680	1,620	1,100	5'-2"	3"	3"	2"
VTL-021-F	21	2	8,150	1,660	1,140	5'-2"	3"	3"	2"
VTL-027-F	27	2	7,370	1,740	1,220	6'-7"	3"	3"	2"
VTL-030-G	30	3	8,270	1,770	1,250	6'-7"	3"	3"	2"
VTL-034-H	34	5	9,420	1,810	1,290	6'-7"	3"	3"	2"
VTL-039-H	39	5	8,860	1,910	1,390	8'-2"	3"	3"	2"
VTL-045-H	45	5	16,910	2,710	1,650	5'-2"	4"	4"	2"
VTL-051-G	51	3	13,350	2,810	1,750	6'-7"	4"	4"	2"
VTL-059-H	59	5	15,490	2,830	1,770	6'-7"	4"	4"	2"
VTL-066-J	66	7.5	17,210	2,900	1,840	6'-7"	4"	4"	2"
VTL-072-K	72	10	18,690	2,930	1,870	6'-7"	4"	4"	2"
VTL-079-K	79	10	17,500	3,100	2,040	8'-2"	4"	4"	2"
VTL-082-K	82	10	22,400	3,810	2,260	6'-7"	6"	6"	2"
VTL-092-L	92	15	24,980	3,940	2,390	6'-7"	6"	6"	2"
VTL-095-K	95	10	21,150	4,650	2,490	8'-2"	6"	6"	2"
VTL-103-K	103	10	24,990	4,740	2,680	6'-7"	6"	6"	3"
VTL-116-L	116	15	28,200	4,800	2,740	6'-7"	6"	6"	3"
VTL-126-M	126	20	30,700	4,810	2,750	6'-7"	6"	6"	3"
VTL-137-M	137	20	29,560	5,120	3,060	8'-2"	6"	6"	3"

 **NOTE:** Up-to-date engineering data, free product selection software, and more can be found at www.BaltimoreAircoil.com.



Model Number	Nominal Tonnage ⁽¹⁾	Motor HP ⁽²⁾	Airflow (CFM)	Weights (lbs)		H	Connections ⁽⁴⁾		
				Operating ⁽³⁾	Shipping		Inlet	Outlet	Overflow
VTL-152-M	152	20	45,870	6,580	3,440	5'-2"	8"	8"	3"
VTL-171-L	171	15	39,940	6,820	3,680	6'-7"	8"	8"	3"
VTL-185-M	185	20	43,150	6,960	3,820	6'-7"	8"	8"	3"
VTL-198-N	198	25	46,090	7,000	3,860	6'-7"	8"	8"	3"
VTL-209-O	209	30	48,630	7,040	3,900	6'-7"	8"	8"	3"
VTL-227-O	227	30	46,550	7,470	4,330	8'-2"	8"	8"	3"
VTL-245-P	245	40	58,820	8,970	4,790	6'-7"	8"	8"	3"
VTL-272-P	272	40	56,760	9,490	5,310	8'-2"	8"	8"	3"



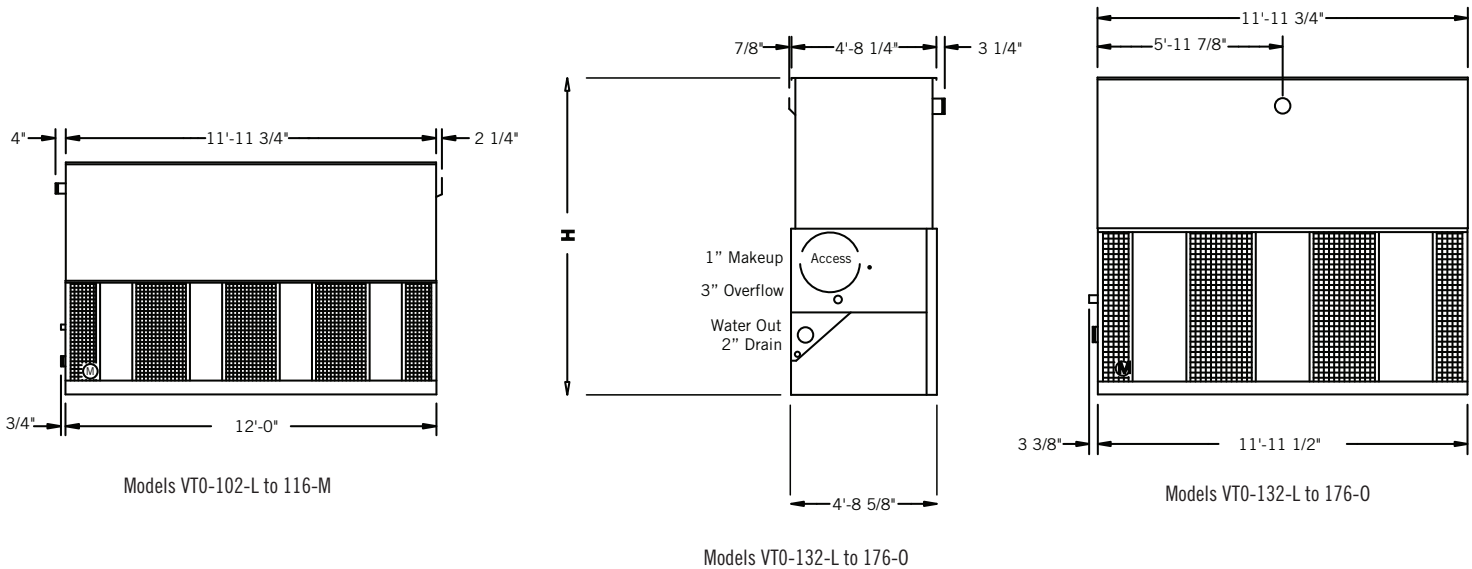
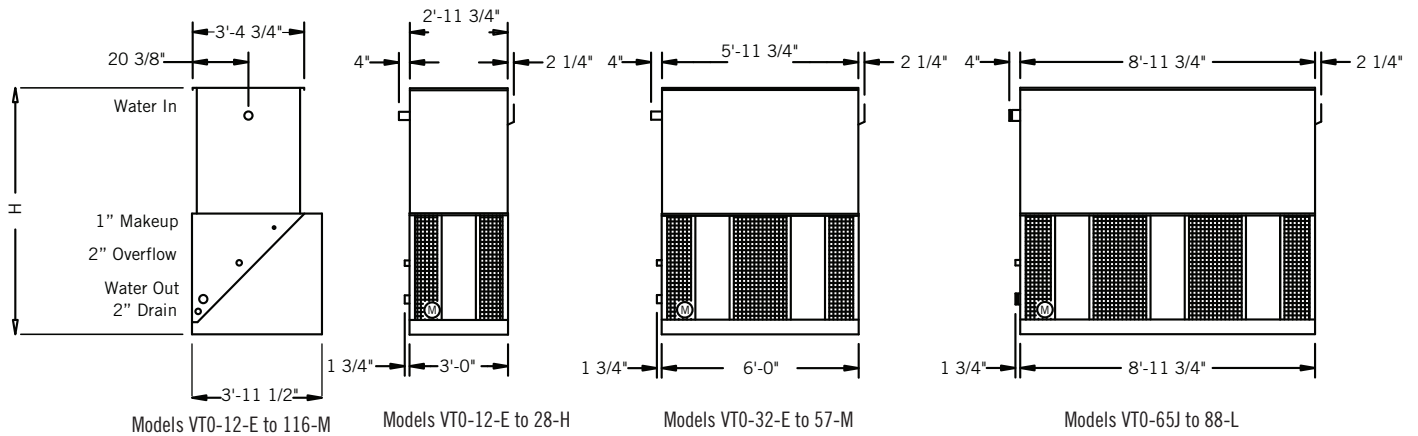
NOTES:


1. 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.
2. Fan horsepower is at 0" external static pressure.
3. Operating weight is based on the water level in cold water basin at overflow height.
4. Unless otherwise indicated, all connections 4" and smaller are MPT and connections 6" and larger are beveled for welding.

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.

Series V Engineering Data

VTO MODELS



 **NOTE:** Up-to-date engineering data, free product selection software, and more can be found at www.BaltimoreAircoil.com.



Model Number	Nominal Tonnage ⁽¹⁾	Motor HP ⁽²⁾	Airflow (CFM)	Weights (lbs)		H	Connections ⁽⁴⁾		
				Operating ⁽³⁾	Shipping		Inlet	Outlet	Overflow
VTO-12-E	12	1.5	4,970	960	790	7'-7"	3"	3"	2"
VTO-14-F	14	2	5,460	970	800	7'-7"	3"	3"	2"
VTO-19-G	19	3	6,190	990	820	7'-7"	3"	3"	2"
VTO-24-G	24	3	5,945	1,050	950	9'-1"	3"	3"	2"
VTO-28-H	28	5	6,960	1,170	970	9'-1"	3"	3"	2"
VTO-32-H	32	5	11,820	1,590	1,230	7'-7"	3"	3"	2"
VTO-41-J	41	7.5	13,435	1,650	1,290	7'-7"	3"	3"	2"
VTO-52-J	52	7.5	12,960	1,780	1,540	9'-1"	3"	3"	2"
VTO-57-K	57	10	14,180	1,790	1,550	9'-1"	3"	3"	2"
VTO-65-J	65	7.5	16,860	2,580	2,000	9'-1"	4"	4"	2"
VTO-75-K	75	10	18,435	2,590	2,010	9'-1"	4"	4"	2"
VTO-78-K	78	10	17,990	2,710	2,130	10'-7"	4"	4"	2"
VTO-88-L	88	15	20,420	2,770	2,190	10'-7"	4"	4"	2"
VTO-102-L	102	15	25,060	3,310	2,500	9'-1"	4"	4"	2"
VTO-107-L ⁽⁵⁾	107	15	24,460	3,680	2,870	10'-7"	4"	4"	2"
VTO-116-M ⁽⁵⁾	116	20	26,670	3,740	2,930	10'-7"	4"	4"	2"
VTO-132-L	132	15	30,600	5,190	3,820	11'-10"	6"	6"	3"
VTO-145-M	145	20	33,670	5,200	3,830	11'-10"	6"	6"	3"
VTO-155-N	155	25	36,240	5,250	3,880	11'-10"	6"	6"	3"
VTO-166-N5	166	25	35,265	5,650	4,280	13'-4"	6"	6"	3"
VTO-176-05	176	30	37,330	5,680	4,310	13'-4"	6"	6"	3"



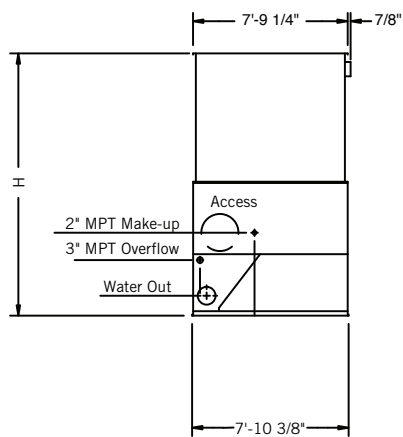
NOTES:

1. 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.
2. Fan horsepower is at 0" external static pressure.
3. Operating weight is based on the water level in cold water basin at overflow height.
4. Unless otherwise indicated, all connections 6" and smaller are MPT and connections 8" and larger are beveled for welding.
5. Unit's casing section is the heaviest section.

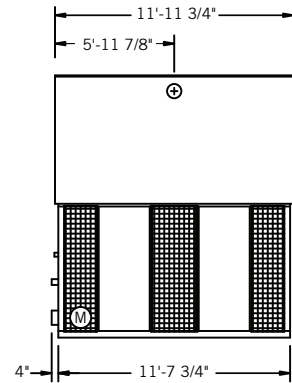
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Series V Engineering Data

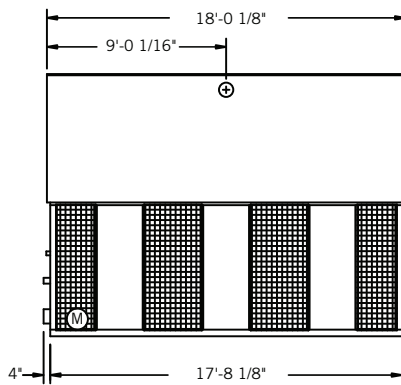
VT1 MODELS



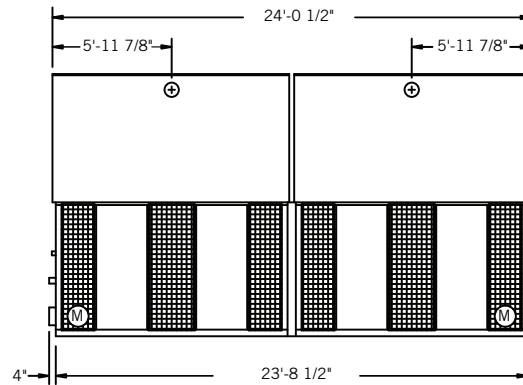
Models VT1-N209-P to N255-P



Models VT1-N209-P to N255-P




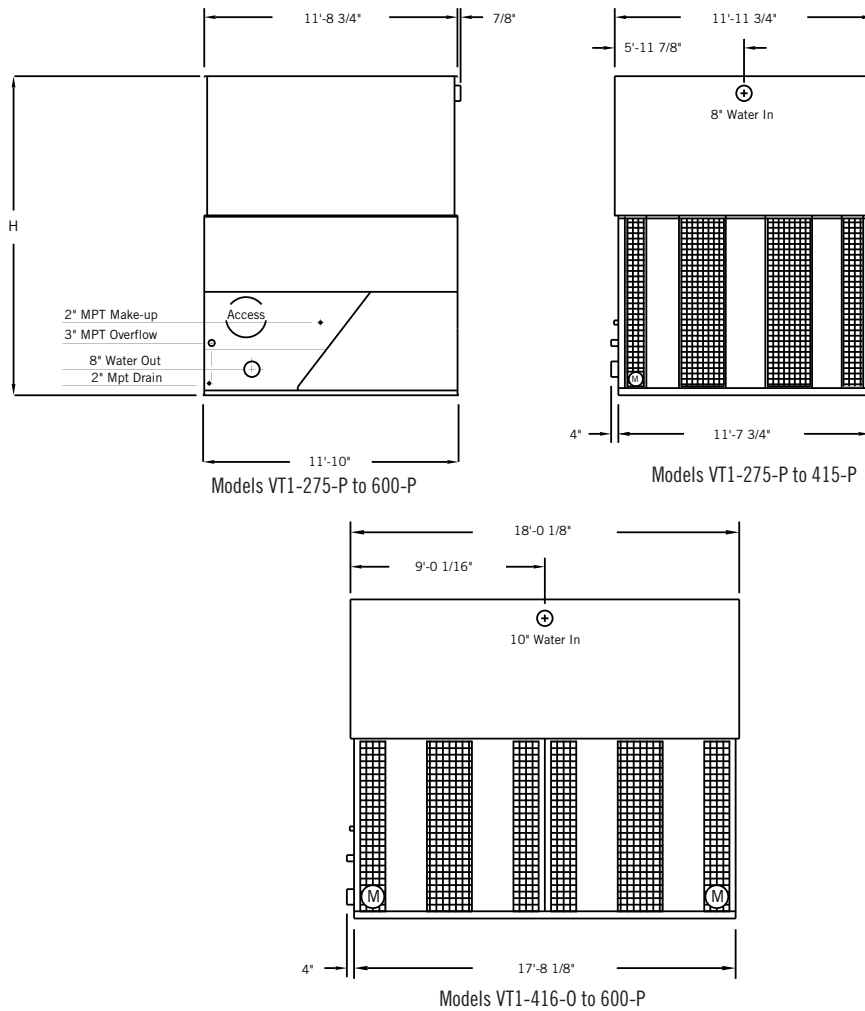
Models VT1-N301-Q to N395-R



Models VT1-N418P to N510-P

Model Number	Nominal Tonnage ^[1]	Motor HP ^[2]	Airflow (CFM)	Weights (lbs)			H	Connections ^[4]	
				Operating ^[3]	Shipping	Heaviest		Inlet	Outlet
VT1-N209-P	209	40	66,300	9,180	5,350	3,300	10'-8"	8"	8"
VT1-N220-O	220	30	53,100	9,490	5,660	3,110	12'-5"	8"	8"
VT1-N240-P	240	40	57,950	9,680	5,850	3,300	12'-5"	8"	8"
VT1-N255-P	255	40	55,900	10,380	6,550	3,300	13'-10"	8"	8"
VT1-N301-Q	301	50	86,150	13,380	7,530	4,590	10'-8"	8"	8"
VT1-N325-P	325	40	77,450	14,110	8,260	4,550	12'-5"	8"	8"
VT1-N346-Q	346	50	83,050	14,150	8,300	4,590	12'-5"	8"	8"
VT1-N370-Q ^[5]	370	50	80,150	15,130	9,280	4,690	13'-10"	8"	8"
VT1-N395-R	395	60	84,750	15,250	9,400	4,710	13'-10"	8"	8"
VT1-N418-P	418	(2) 40	120,600	18,490	10,680	6,580	11'-4"	(2) 8"	10"
VT1-N440-O	440	(2) 30	106,200	19,110	11,300	6,200	12'-5"	(2) 8"	10"
VT1-N480-P	480	(2) 40	115,900	19,490	11,680	6,580	12'-5"	(2) 8"	10"
VT1-N510-P	510	(2) 40	111,800	20,890	13,080	6,580	13'-10"	(2) 8"	10"

 **NOTE:** Up-to-date engineering data, free product selection software, and more can be found at www.BaltimoreAircoil.com.




NOTES:

1. 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.
2. Fan horsepower is at 0" external static pressure.
3. Operating weight is based on the water level in cold water basin at overflow height.
4. Unless otherwise indicated, all connections 6" and smaller are MPT and connections 8" and larger are beveled for welding.
5. Unit's casing section is the heaviest section.

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Series V Engineering Data

VT1 MODELS

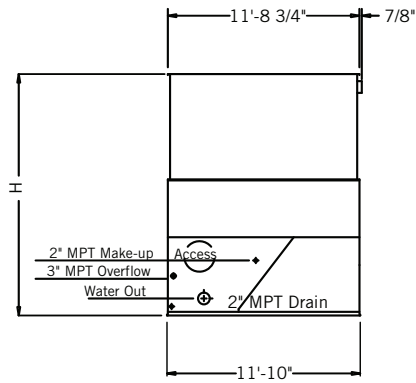
 **NOTE:** Up-to-date engineering data, free product selection software, and more can be found at www.BaltimoreAircoil.com.

Model Number	Nominal Tonnage ⁽¹⁾	Motor HP ⁽²⁾	Airflow (CFM)	Weights (lbs)			H	Connections ⁽⁴⁾		
				Operating ⁽³⁾	Shipping	Heaviest Section		Inlet	Outlet	Make-up
VT1-275-P	275	40	82,350	15,190	8,040	5,140	12'-11"	8"	8"	2"
VT1-307-0	307	30	74,350	15,780	8,630	4,950	14'-10"	8"	8"	2"
VT1-340-P	340	40	81,550	15,970	8,820	5,140	14'-10"	8"	8"	2"
VT1-375-P	375	40	79,300	16,940	9,790	5,140	16'-3"	8"	8"	2"
VT1-400-Q	400	50	85,150	16,980	9,830	5,180	16'-3"	8"	8"	2"
VT1-415-R	415	60	90,250	17,100	9,950	5,300	16'-3"	8"	8"	2"
VT1-416-0	416	(2) 30	125,046	22,430	11,530	7,280	12'-11"	10"	10"	2"
VT1-478-N	478	(2) 25	116,150	23,600	12,700	7,240	14'-10"	10"	10"	2"
VT1-507-0	507	(2) 30	123,150	23,640	12,740	7,280	14'-10"	10"	10"	2"
VT1-560-0	560	(2) 30	119,750	25,080	14,180	7,280	16'-3"	10"	10"	2"
VT1-600-P	600	(2) 40	131,250	25,460	14,560	7,660	16'-3"	10"	10"	2"

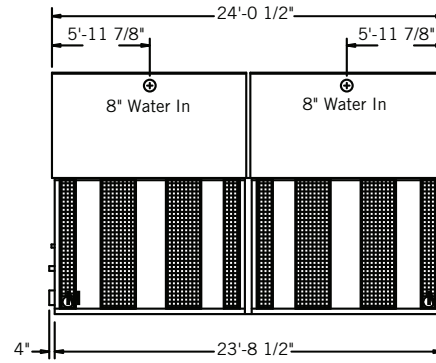
NOTES:

1. 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.
2. Fan horsepower is at 0" external static pressure.
3. Operating weight is based on the water level in cold water basin at overflow height.
4. Unless otherwise indicated, all connections 6" and smaller are MPT and connections 8" and larger are beveled for welding.
5. Fans on models VT1-416 through 600 must be cycled simultaneously for capacity control. For additional steps of control beyond on/off operation, a variable frequency drive, the BALTIGUARD™ Fan System, or two-speed motors are recommended.

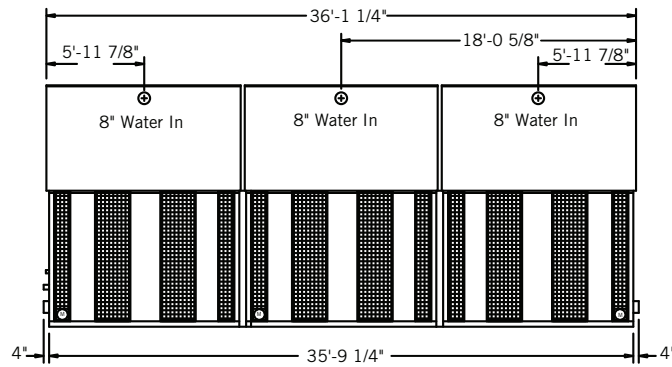
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Models VT1-550P to 1355-P



Models VT1-550P to 830-R

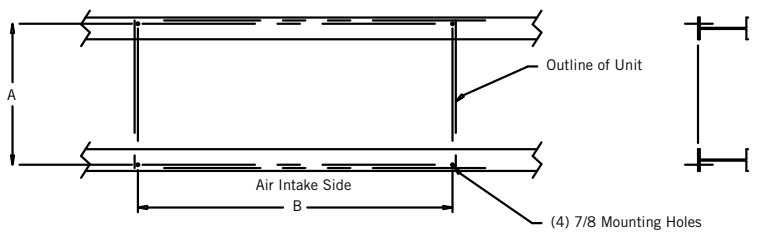
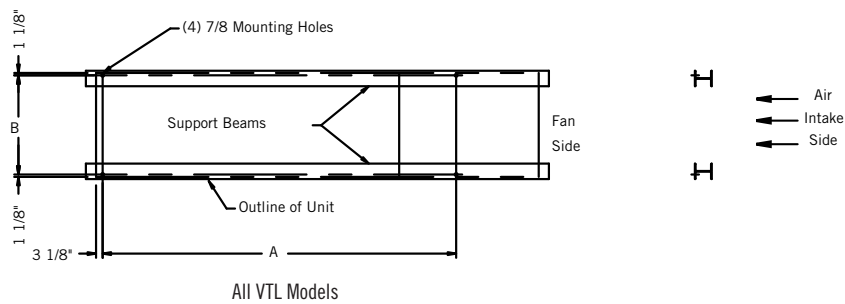


Models VT1-825-P to 1355-S

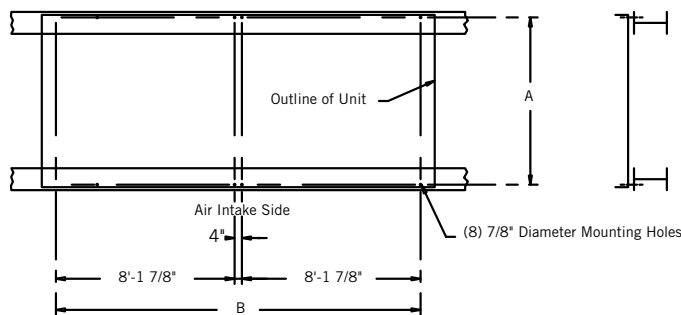
Model Number	Nominal Tonnage ⁽¹⁾	Motor HP ⁽²⁾	Airflow (CFM)	Weights (lbs)			H	Connections ⁽⁴⁾		
				Operating ⁽³⁾	Shipping	Heaviest Section		Inlet	Outlet	Make-up
VT1-550-P	550	(2) 40	165,060	30,590	16,020	10,220	12'-11"	(2) 8"	12"	2"
VT1-680-P	680	(2) 40	163,100	32,150	17,580	10,220	14'-10"	(2) 8"	12"	2"
VT1-750-P	750	(2) 40	158,600	34,090	19,520	10,220	16'-3"	(2) 8"	12"	2"
VT1-800-Q	800	(2) 50	170,300	34,170	19,600	10,300	16'-3"	(2) 8"	12"	2"
VT1-830-R	830	(2) 60	180,500	34,410	19,840	10,540	16'-3"	(2) 8"	12"	2"
VT1-825-P	825	(3) 40	247,590	45,980	24,000	15,300	12'-11"	(3) 8"	(2) 10"	3"
VT1-921-O	921	(3) 30	223,050	47,750	25,770	14,730	14'-10"	(3) 8"	(2) 10"	3"
VT1-1020-P	1,020	(3) 40	244,650	48,320	26,340	15,300	14'-10"	(3) 8"	(2) 10"	3"
VT1-1125-P	1,125	(3) 40	237,900	51,230	29,250	15,300	16'-3"	(3) 8"	(2) 10"	3"
VT1-1200-Q	1,200	(3) 50	255,450	51,350	29,370	15,420	16'-3"	(3) 8"	(2) 10"	3"
VT1-1245-R	1,245	(3) 60	270,750	51,710	29,730	15,780	16'-3"	(3) 8"	(2) 10"	3"
VT1-1335-S	1,335	(3) 75	290,550	51,770	29,790	15,840	16'-3"	(3) 8"	(2) 10"	3"

Series V Structural Support

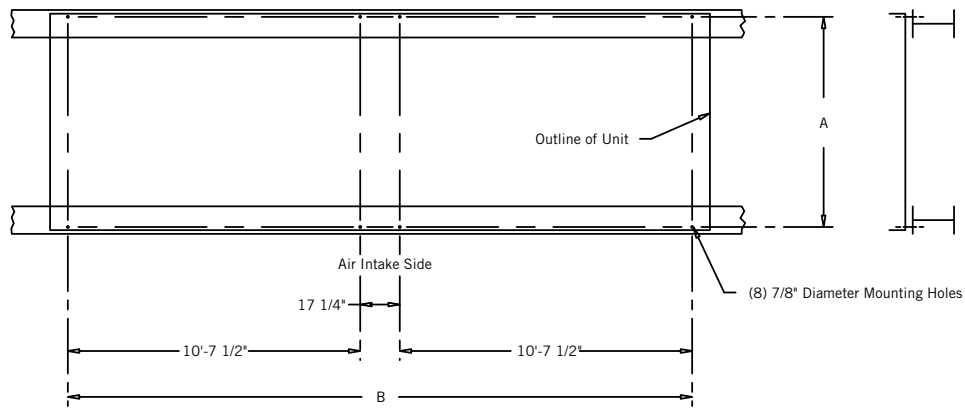
The recommended support arrangement for the Series V Cooling Tower consists of parallel I-beams running the full length of the unit, spaced as shown in the following drawing. Besides providing adequate support, the steel also serves to raise the unit above any solid foundation to ensure access to the bottom of the tower. To support a Series V Cooling Tower in an alternate steel support arrangement, consult your local BAC Representative.



All VTO Models & VTi-N209-P Thru N255-P & VT1-275-P Thru 415-R



VTi-N301-Q Thru N510P & VT1-416-P Thru 830-R



Models VT1-825-P Thru 1335-S

STRUCTURAL SUPPORT

Model Number	A	B	Maximum Deflection ⁽³⁾
VTL-016-E thru 039-H	3'-11"	4'-6"	1/4"
VTL-045-H thru 079-K	3'-11"	7'-11 1/2"	3/8"
VTL-082-K thru 095-K	3'-11"	10'-11 1/4"	1/2"
VTL-103-K thru 137-M	3'-11"	13'-11 1/2"	1/2"
VTL-152-M thru 227-O	7'-8 1/4"	10'-11 1/4"	1/2"
VTL-245-P thru 272-P	7'-8 1/4"	13'-11 1/2"	1/2"
VT0-12-E thru 28-H	3'-9 3/8"	2'-5 1/2"	3/32"
VT0-32-H thru 57-K	3'-9 3/8"	5'-5 1/2"	3/16"
VT0-65-J thru 88-L	3'-9 3/8"	8'-5 1/4"	5/16"
VT0-102-L thru 116-M	3'-9 3/8"	11'-5 1/2"	3/8"
VT0-132-L thru 176-O	4'-6 1/4"	11'-5 1/2"	3/8"
VT1-N209-P thru N255-P	7'-7 5/8"	10'-7 1/2"	3/8"
VT1-N301-Q thru N395-R	7'-7 5/8"	16'-7 3/4"	1/2"
VT1-N418-P thru N510-P	7'-7 5/8"	22'-8 1/4"	1/2"
VT1-275-P thru 415-R	11'-7 1/4"	10'-7 1/2"	3/8"
VT1-416-O thru 600-P	11'-7 1/4"	16'-7 3/4"	1/2"
VT1-550-P thru 830-R	11'-7 1/4"	22'-8 1/4"	1/2"
VT1-825-P thru 1335-S	11'-7 1/4"	34'-9"	1/2"



NOTES:

1. Support beams and anchor bolts are to be selected and installed by others.
2. All support steel must be level at the top.
3. Beams must be selected in accordance with accepted structural practice. Maximum deflection of beam B shown under unit in the table.
4. Operating weight is based on the water level in cold water basin at overflow height.
5. If vibration isolation rails are to be used between the unit and supporting steel, be certain to allow for the length of the vibration rails when determining the length of the supporting steel, as vibration rail length and mounting hole locations may differ from those of the unit.



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