



Compass Series Open Cooling Towers



Compass Series Benefits

Baltimore Aircoil Company (BAC) is the world's largest and leading supplier of evaporative heat transfer and thermal energy management equipment. With over 75 years of experience in designing and manufacturing evaporative heat transfer products, BAC is proud to launch the Compass Series Cooling Tower and start a new era of Green Cooling Towers.

➤ Environmentally Friendly

- ▶ Environmentally Friendly Materials
 - Upgraded environmentally friendly BUTYL is used instead of chemical epoxy resin, making it safer for people installing the unit
 - All materials are designed to meet OSHA requirements
- ▶ Lower Operating Cost
 - Meets or exceeds ASHRAE Standard 90.1 energy efficiency requirements
 - HELIX 3i Fill, BAC's patented crossflow hanging fill, is developed to provide the most efficient thermal capacity in the industry, with at least a 10% heat exchange premium per unit area
 - Patented non-clog nozzles distribute flow evenly
 - Triple-pass integral eliminators limit drift loss up to 0.00091%
 - Large capacity basin is designed to hold more pull-down volume
- ▶ Low Sound Operation
 - High efficiency aluminum alloy fans provide a low sound solution (58 dB(A))
 - BAC's industry leading selection program provides accurate sound power and sound pressure data



Environmentally Friendly Sealer



Patented HELIX 3i Fill



Patented 360° Spray Nozzle

➤ 100% Thermal Performance

- ▶ All Compass Series models are certified by the Cooling Technology Institute (CTI)
- ▶ Strict CTI testing procedures ensure that all Compass Series towers are 100% thermal performance





➤ Reliable Year-Round Operation

- ▶ Heavy-duty G-235 galvanized steel frame and FRP casing panels are designed to withstand up to a S_{DS} of 1.3g and a wind load of 66 psf
- ▶ Waterproof, sealed bearings are ideal for use inside of the moist cooling tower environment
- ▶ In moist cooling tower environments, aluminum sheave provide better corrosion-resistance and longer belt service life, compared to cast iron sheaves
- ▶ Cooling tower duty fan motor provides reliable performance and longer service life
- ▶ Fewer seams in the cold water basin and strong steel supports under the seams reduce the potential leakage risk
- ▶ Large capacity cold water basin and anti-vortexing water outlet strainer prevent air entrainment and ensure the reliability of the system



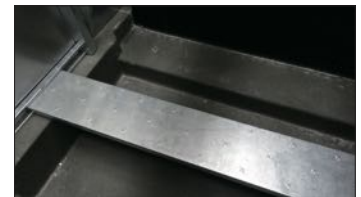
Heavy-Duty Construction



High-efficiency Fan System

➤ Easy Maintenance

- ▶ Crossflow configuration provides direct access for easy maintenance of cold water basin, water distribution system, and drive system
- ▶ Split bearings are easy to lubricate and replace
- ▶ Light aluminum driven sheaves with high-quality bushing kits simplify maintenance
- ▶ Snap-rotating nozzles are simple to remove for easy maintenance and recyclable
- ▶ Cold water basin is sloped to eliminate stagnant water and reduce biological growth
- ▶ Standard hot water basin covers prevent debris from entering the hot water basin, protecting the system. And can also be used as service platform, simplifying maintenance
- ▶ Fill surface is elevated above the sloped cold water basin floor to facilitate flushing of dirt and debris
- ▶ Optional fan deck handrail, ladder packages and internal platform/ladder provide safe access to the water distribution system and other key components
- ▶ Standard access door and internal walkway provide easy maintenance access

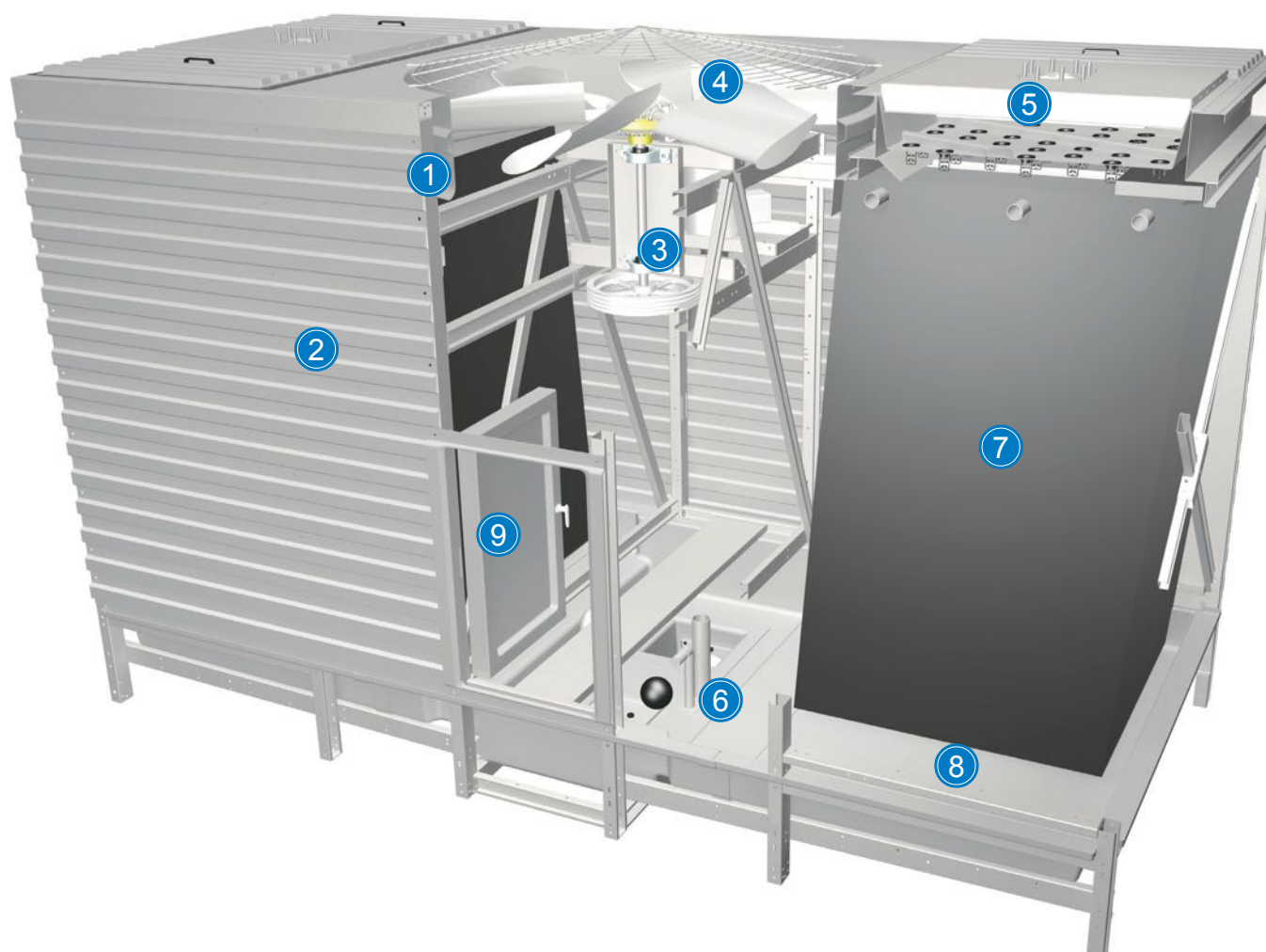


Standard Internal Walkway

➤ Easy Installation

- ▶ Fewer seams with environmentally friendly BUYTL and no hand-laid FRP on-site, reducing the time required to assemble and install the cold water basin
- ▶ All models can be mounted directly on the side panel of the parallel beams which make field assembly much simple
- ▶ Factory-assembled units ensure uniform quality with minimum field assembly (option)

Compass Series Construction Details





① Heavy-Duty Construction

- ▶ Heavy-gauge G235 hot-dip galvanized steel frame
- ▶ Designed to withstand seismic ratings up to a S_{DS} of 1.3g
- ▶ Designed to withstand wind loads of up to 66psf

② FRP Casing Panels

- ▶ Corrosion resistant
- ▶ Maintenance Free
- ▶ UV resistant finish

③ Fan Drive System

- ▶ Split waterproof sealed bearings ensure longer life and easier installation and maintenance
- ▶ Anti-corrosion aluminum alloy fan sheave, easier installation, and simplified maintenance
- ▶ Premium quality bushing reduces the contact corrosion for the shaft

④ Axial Fan

- ▶ Quiet operation
- ▶ High efficiency
- ▶ Corrosion resistant, longer service life

⑤ Water Distribution System

- ▶ Low pump head gravity distribution basins
- ▶ 360° large orifice, non-clog nozzles
- ▶ Uniquely designed pre-distributor and re-distributor provide more even water distribution

⑥ Water Outlet Strainer

- ▶ Easy to install, clean, and maintain
- ▶ Corrosion resistant 304 stainless steel
- ▶ Anti-vortexing design protects the HVAC system

⑦ Patented HELIX 3i Fill with Integral Louvers and Drift Eliminators

- ▶ High efficiency heat transfer surface
- ▶ Polyvinyl chloride (PVC)
- ▶ Impervious to rot, decay, and biological attack
- ▶ Fire-resistant materials, oxygen index of 32

⑧ Cold Water Basin

- ▶ Less seams, easy installation
- ▶ Environmentally friendly sealing materials, safe transportation
- ▶ Sloped cold water basin to eliminate stagnant water and reduce biological growth
- ▶ Large capacity to hold more pull down volume and prevent air entrainment

⑨ Access Door

- ▶ Easy and safe access to the interior of the unit
- ▶ Large, inward hinged access door on the end wall

Compass Series

Custom Features & Options

› Materials of Construction



Standard Construction

To assure long-life, a G-235 hot-dip galvanized steel frame with fiberglass reinforced polyester (FRP) casing panels are used as the standard material of construction. The structural integrity of the unit is provided by its strong steel frame. The Compass standard construction has been seismically verified up to an Sds of 1.30g and can withstand wind loads of up to 66 psf, proving its frame construction is designed for extreme durability. With proper maintenance and water treatment, G-235 galvanized steel and FRP will provide an excellent service life under the operating conditions normally encountered in comfort cooling and industrial applications.



Standard Construction Installation

▶ **Stainless Steel (Option)**

Optional 304 stainless steel frame and fastener

› 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. Cooling tower duty motors are specially designed for the harsh environment inside 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.



High-efficiency Fan System

▶ **Vibration Cutout Switch (Option)**

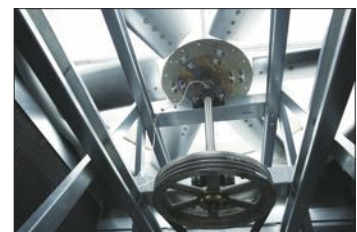
A factory mounted vibration cutout switch is available to effectively protect against rotating equipment failure. BAC can provide a mechanical vibration cutout switch in a NEMA 4 enclosure to ensure reliable protection.



Vibration Cutout Switch

▶ **Extended Lubrication Lines (Option)**

Extended lubrication lines are available for lubrication of the fan shaft bearings. Fittings are located on the exterior casing panel next to the access door.



Extended Lubrication Lines

› Cold Water Basin

The cooling tower water collects in the cold water basin which provides the required head pressure for the cooling system pump. During operation, BAC's hygienic cold water basin 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.



Mechanical Water Level Control

► **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 it 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.



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. Electric immersion heaters, which maintain 4.4°C (40°F) water temperature, are a simple and inexpensive way of providing such protection.



Basin Heaters

Heater kW Data

Model Number	-17.8°C (0°F) Ambient Heaters		-28.9°C (-20°F) Ambient Heaters	
	Number of Heaters	kW per Heater	Number of Heaters	kW per Heater
CPSC-0716*	1	10	1	15
CPSC-0817*	1	12	1	15
CPSC-1020*	2	8	2	12
CPSC-1222*	2	12	2	15
CPSC-1424*	2	15	2	18

► 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. To prevent this from occurring, BAC provides two options for balancing water levels and recommends that the installation be designed to ensure balanced flows to and from each tower.

► **Flume Box Standard on all Multi-Cell Units**

A flume box is provided as standard for multi-cell units to balance the water level in the cold water basins.



Flume Box

► **Equalizer (Option)**

Equalizer connections are available as an option for multi-cell cooling towers in lieu of a flume box. Use of an equalizer allows for easy isolation of a cell for winter operation, maintenance, or inspection while continuing system operation.

Compass Series

Custom Features & Options

› Water Distribution System

The Compass Cooling Tower utilizes a low pump head gravity distribution system with large orifice non-clogging nozzles that requires low pump head than a pressurized distribution system.

▶ **HELIX 3i Fill**

HELIX 3i Fill with integral drift eliminators and louvers, is optimized to provide the most efficient thermal capacity.

▶ **Hot Water Basin Covers**

Standard hot water basin covers prevent debris from entering the hot water basin, ensuring the reliability of the system. They also assist in lowering sound levels.



Hot Water Basin Cover

› Shipping and Rigging

The Compass Cooling Tower is designed to ship in two ways to meet any requirement.

▶ **Knockdown Units**

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. All materials of construction and design features are the same as those of a factory assembled unit.

▶ **Factory-Assembled Units (Option)**

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.

▶ **Rigging Guides**

Rigging guides make rigging much simpler and reducing the time required.

› Sound Options

Recognition of the importance of sound reduction is growing and can be a very important design criterion for any project. BAC maintains the widest selection of sound mitigating options in the market place and can provide the most cost effective option to meet any requirement.



Standard Fan

The fan provided for all Compass Cooling Towers is selected to optimize low sound levels and maximize thermal performance.



Standard Fan



► **Low Sound Fan (Option)**

The Low Sound Fan option reduces sound up to 9 dBA. Adding a high solidity fan decreases fan speeds, which proportionally decreases sound levels. The thermal performance with the Low Sound Fan has been certified in accordance with CTI Standard STD-201.

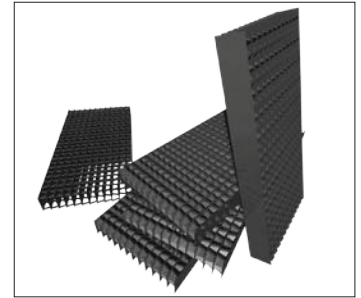
► **Air Intake Options**

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.



Combined Inlet Shields (CIS) (Option)

The Combined Inlet Shields' (CIS) bent flow path blocks sunlight from the cold water basin and fill section and acts as a screen to prevent debris from entering the unit. These benefits result in a significant reduction in algae growth, debris accumulation, and scale build-up. CIS are constructed from corrosion and UV resistant PVC, are CTI certified, and are installed in easy to handle sections that are separate from the fill section to facilitate removal, inspection, and replacement. The use of CIS results in lower maintenance costs and ease of maintenance over the life of the unit.



Combined Inlet Shields (CIS)

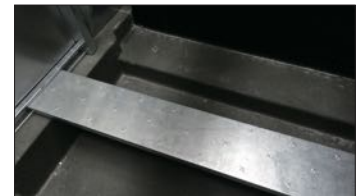
► **Access Options**

BAC provides a broad offering of access options. Our evaporative equipment is designed to be the most easily maintained for sustaining capacity over a longer life. All BAC platforms and ladders are OSHA compliant to ensure personnel safety and code compliance.



Standard Internal Walkway

An internal walkway is standard, allowing access to the spacious plenum area for maintenance and inspection of the cold water basin, make-up, fill, and drive system.



Standard Internal Walkway

► **Handrail and Ladder Packages (Option)**

Handrail and ladder packages are available to provide safe access to key components of the unit for maintenance. All BAC platforms and ladders are OSHA compliant to ensure personnel safety and code compliance.

► **Internal Service Platform and Ladder Packages (Option)**

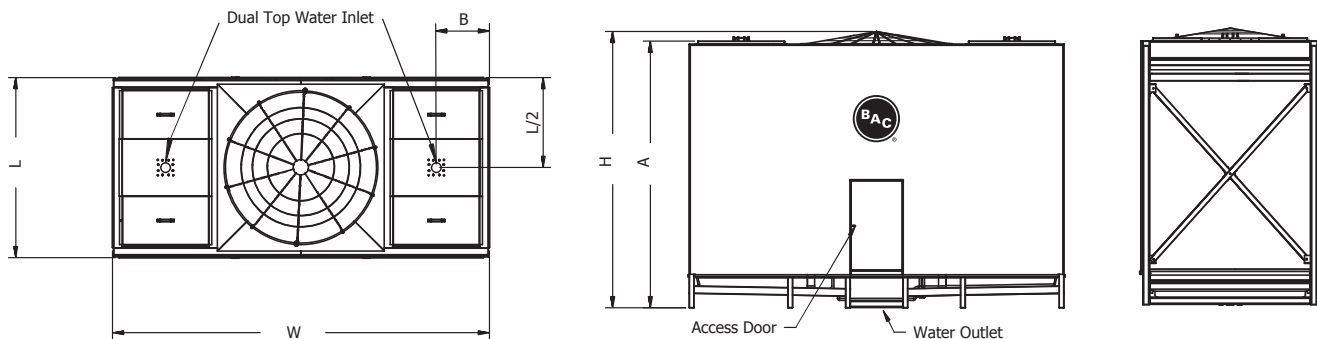
For access to the motor and drive assemblies, an internal ladder and upper service platform with handrails is available on the units, and all components are designed to meet OSHA requirements.



Internal Service Platform and Ladder Packages

Compass Series Engineering Data

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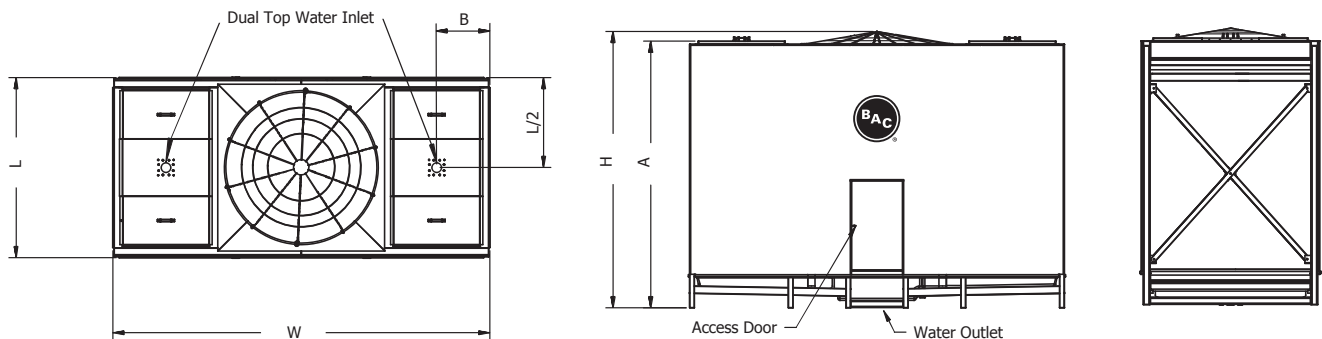
Model Number	Nominal Tonnage ⁽¹⁾	Motor (KW)	Fan (m ³ /h)	Weights (kg)		Dimensions(mm)					Connection Sizes				
				Shipping	Operating ⁽¹⁾	L	W	H	A	B	Make-up (in)	Top Inlet (mm)	Outlet (mm)	Drain (in)	Overflow (in)
CPSC-0716-06G	161	2.2	72,848	1,819	4,562	2,393	5,005	3,262	3,133	706	1.5	150	200	2	3
CPSC-0716-06H	192	4	85,782	1,831	4,574										
CPSC-0716-06J	221	5.5	97,862	1,857	4,600										
CPSC-0716-06K	245	7.5	107,807	1,868	4,611										
CPSC-0716-06L	278	11	121,735	1,914	4,657										
CPSC-0716-06M	309	15	134,290	1,937	4,680										
CPSC-0716-07H	209	4	90,908	1,952	4,695	2,393	5,005	3,669	3,540	706	1.5	150	200	2	3
CPSC-0716-07J	240	5.5	103,707	1,978	4,721										
CPSC-0716-07K	266	7.5	114,232	1,989	4,732										
CPSC-0716-07L	303	11	128,947	2,035	4,778										
CPSC-0716-07M	336	15	142,193	2,058	4,801										
CPSC-0716-07N	360	18.5	151,980	2,097	4,840										

Notes:

1. Nominal tons of cooling represents 3 GPM (0.684 m³/h) of water from a 95°F (35°C) to 85°F (29.4°C) at a 78°F (25.6°C) entering wet-bulb temperature.
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3. Unless otherwise indicated, all connections 3" (76mm) and smaller are male pipe thread, and connections 4"(102mm) and larger are PN 1.0MPa flange connections. Piping support (by others) is required at the point of 500mm from outlet & equalizer connection.
4. If you need multi-cell towers, consult your local BAC representative.
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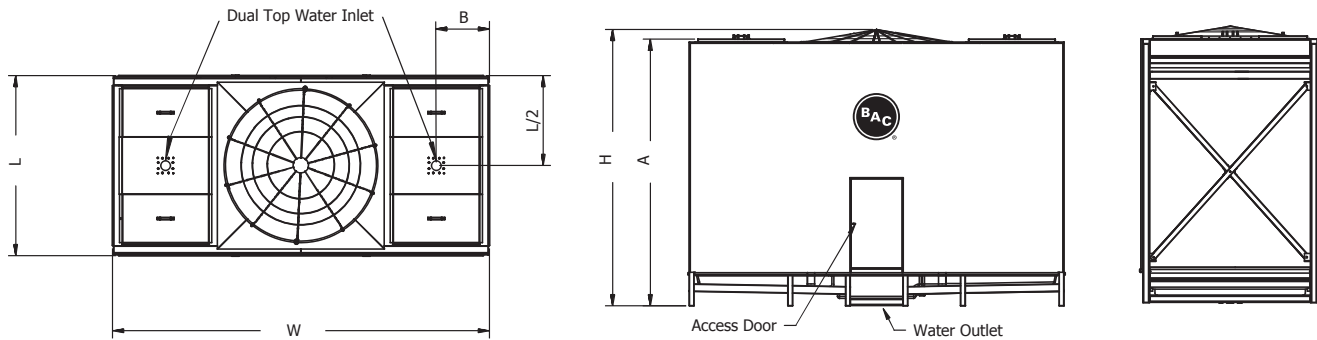
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CPSC-0817-07J	273	5.5	117,921	2,232	5,753	2,698	5,307	3,716	3,563	706	1.5	150	250	2	3
CPSC-0817-07K	302	7.5	129,763	2,243	5,765										
CPSC-0817-07L	343	11	146,297	2,289	5,810										
CPSC-0817-07M	380	15	161,162	2,312	5,833										
CPSC-0817-07N	407	18.5	172,130	2,351	5,873										
CPSC-0817-07O	430	22	181,450	2,376	5,898										
CPSC-0817-08J	290	5.5	124,071	2,367	5,888	2,698	5,307	4,123	3,966	706	1.5	150	250	2	3
CPSC-0817-08K	322	7.5	136,524	2,378	5,900										
CPSC-0817-08L	365	11	153,882	2,424	5,946										
CPSC-0817-08M	404	15	169,470	2,447	5,968										
CPSC-0817-08N	433	18.5	180,962	2,486	6,008										
CPSC-0817-08O	458	22	190,711	2,511	6,033										
CPSC-0817-08P	505	30	209,797	2,545	6,067										

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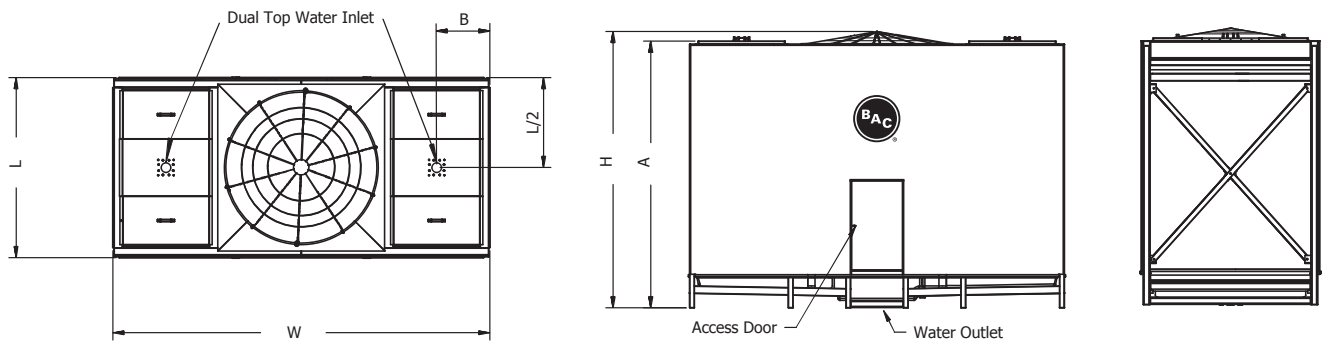
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CPSC-1020-07K	360	7.5	154,868	2,998	8,116	3,368	6,070	3,809	3,617	755	1.5	200	300	2	3
CPSC-1020-07L	408	11	174,463	3,044	8,162										
CPSC-1020-07M	451	15	192,035	3,094	8,211										
CPSC-1020-07N	483	18.5	204,850	3,134	8,251										
CPSC-1020-07O	511	22	216,024	3,134	8,252										
CPSC-1020-08K	385	7.5	163,889	3,164	8,282	3,368	6,070	4,216	4,024	755	1.5	200	300	2	3
CPSC-1020-08L	437	11	184,537	3,211	8,328										
CPSC-1020-08M	483	15	203,038	3,260	8,378										
CPSC-1020-08N	517	18.5	216,498	3,300	8,418										
CPSC-1020-08O	546	22	228,235	3,301	8,419										
CPSC-1020-08P	603	30	250,781	3,364	8,482	3,368	6,070	4,623	4,431	755	1.5	200	300	2	3
CPSC-1020-09K	409	7.5	171,360	3,350	8,468										
CPSC-1020-09L	463	11	192,896	3,396	8,514										
CPSC-1020-09M	513	15	212,163	3,446	8,604										
CPSC-1020-09N	548	18.5	226,171	3,486	8,604										
CPSC-1020-09O	579	22	238,377	3,487	8,668	3,368	6,070	4,623	4,431	755	1.5	200	300	2	3
CPSC-1020-09P	639	30	261,854	3,550	8,668										
CPSC-1020-09Q	682	37	278,691	3,653	8,771										

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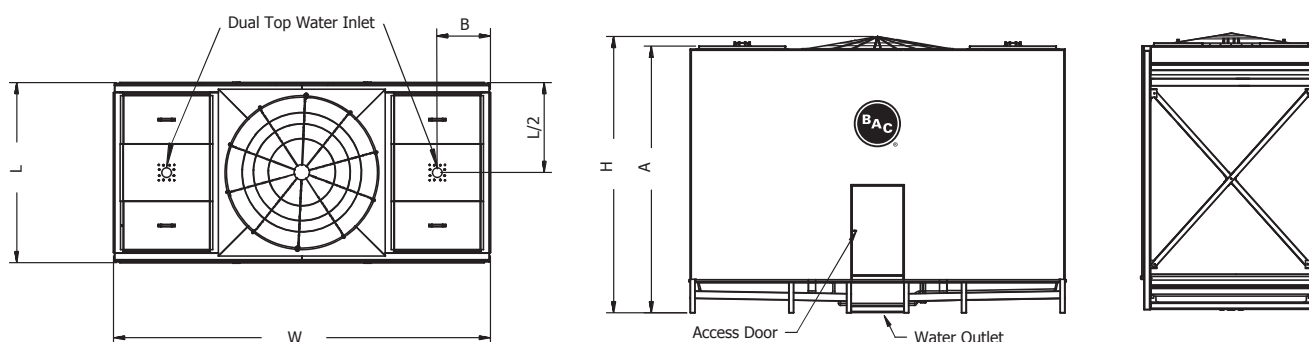
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CPSC-1222-08K	450	7.5	192,100	3,991	10,688	3,978	6,750	4,317	4,068	755	2	250	300	2	3
CPSC-1222-08L	510	11	215,971	4,038	10,734										
CPSC-1222-08M	563	15	237,318	4,061	10,758										
CPSC-1222-08N	602	18.5	252,829	4,094	10,791										
CPSC-1222-08O	636	22	266,346	4,094	10,791										
CPSC-1222-08P	701	30	292,329	4,162	10,859										
CPSC-1222-08Q	747	37	310,947	4,271	10,968	3,978	6,750	4,724	4,475	755	2	250	300	2	3
CPSC-1222-09K	482	7.5	202,341	4,215	10,912										
CPSC-1222-09L	545	11	227,333	4,262	10,958										
CPSC-1222-09M	602	15	249,638	4,285	10,982										
CPSC-1222-09N	643	18.5	265,832	4,318	11,015										
CPSC-1222-09O	679	22	279,929	4,318	11,015										
CPSC-1222-09P	748	30	307,000	4,386	11,083										
CPSC-1222-09Q	798	37	326,383	4,495	11,192										
CPSC-1222-09R	846	45	345,571	4,499	11,195										

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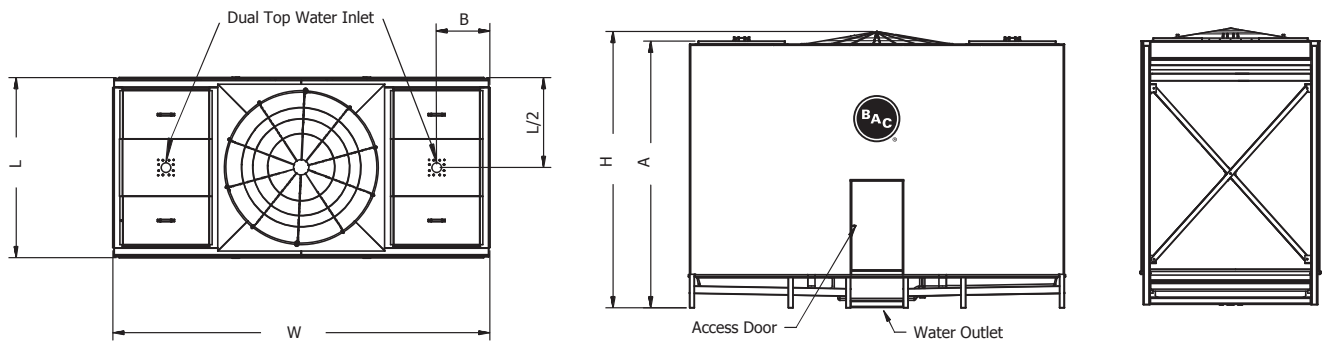
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CPSC-1222-10L	572	11	237,386	4,810	13,419	3,978	6,750	5,207	4,958	755	2	250	300	2	3
CPSC-1222-10M	632	15	260,581	4,833	13,442										
CPSC-1222-10N	675	18.5	277,406	4,866	13,475										
CPSC-1222-10O	713	22	292,040	4,866	13,475										
CPSC-1222-10P	785	30	320,124	4,934	13,543										
CPSC-1222-10Q	836	37	340,216	5,043	13,652										
CPSC-1222-10R	887	45	360,096	5,047	13,656										
CPSC-1222-12L	618	11	253,859	5,204	13,813	3,978	6,750	6,020	5,771	755	2.5	250	300	2	3
CPSC-1222-12M	682	15	278,554	5,227	13,836										
CPSC-1222-12N	728	18.5	296,439	5,260	13,869										
CPSC-1222-12O	768	22	311,979	5,261	13,870										
CPSC-1222-12P	846	30	341,760	5,329	13,938										
CPSC-1222-12Q	901	37	363,047	5,438	14,047										
CPSC-1222-12R	956	45	384,071	5,441	14,050										
CPSC-1222-14M	721	15	292,534	5,649	14,258	3,978	6,750	6,833	6,584	755	2.5	250	300	2	3
CPSC-1222-14N	771	18.5	311,290	5,682	14,291										
CPSC-1222-14O	813	22	327,573	5,683	14,292										
CPSC-1222-14P	895	30	358,737	5,751	14,360										
CPSC-1222-14Q	954	37	380,973	5,860	14,469										
CPSC-1222-14R	1011	45	402,927	5,863	14,472										
CPSC-1222-14S	1073	55	426,754	5,925	14,534										

Notes:

1. Nominal tons of cooling represents 3 GPM (0.684 m³/h) of water from a 95°F (35°C) to 85°F (29.4°C) at a 78°F (25.6°C) entering wet-bulb temperature.
2. Operating weight is based on the water level in the cold water basin at overflow height.
3. Unless otherwise indicated, all connections 3" (76mm) and smaller are male pipe thread, and connections 4"(102mm) and larger are PN 1.0MPa flange connections. Piping support (by others) is required at the point of 500mm from outlet & equalizer connection.
4. If you need multi-cell towers, consult your local BAC representative.
5. If you need factory assembled units, consult your local BAC representative.



Do not use for construction. Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be confirmed at the time of purchase. More details can be found at www.BaltimoreAircoil.cn



Model Number	Nominal Tonnage ¹⁾	Motor (KW)	Fan (m ³ /h)	Weights (kg)		Dimensions(mm)					Connection Sizes				
				Shipping	Operating ²⁾	L	W	H	A	B	Make-up (in)	Top Inlet (mm)	Outlet (mm)	Drain (in)	Overflow (in)
CPSC-1424-12N	834	18.5	340,131	6,341	16,703	4,587	7,606	6,222	5,789	755	2.5	250	350	2	3
CPSC-1424-12O	880	22	357,631	6,342	16,703										
CPSC-1424-12P	967	30	391,136	6,440	16,802										
CPSC-1424-12Q	1029	37	415,035	6,543	16,905										
CPSC-1424-12R	1090	45	438,637	6,545	16,906										
CPSC-1424-12S	1169	55	469,294	6,607	16,968										
CPSC-1424-14N	890	18.5	359,647	6,799	17,160	4,587	7,606	7,035	6,602	755	2.5	250	350	2	3
CPSC-1424-14O	938	22	378,029	6,799	17,161										
CPSC-1424-14P	1030	30	413,171	6,897	17,259										
CPSC-1424-14Q	1096	37	438,189	7,000	17,362										
CPSC-1424-14R	1160	45	462,878	7,002	17,363										
CPSC-1424-14S	1249	55	496,934	7,064	17,426										
CPSC-1424-14T	1339	75	531,338	7,280	17,641										

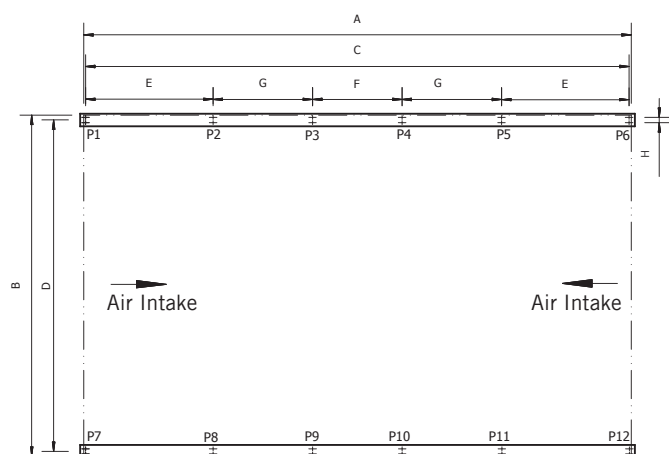
Notes:

1. Nominal tons of cooling represents 3 GPM (0.684 m³/h) of water from a 95°F (35°C) to 85°F (29.4°C) at a 78°F (25.6°C) entering wet-bulb temperature.
2. Operating weight is based on the water level in the cold water basin at overflow height.
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4. If you need multi-cell towers, consult your local BAC representative.
5. If you need factory assembled units, consult your local BAC representative.

Compass Series Structural Support

The recommended support arrangement for the Compass Series Cooling Tower consists of parallel I-beams positioned as shown on the drawings. Besides providing adequate support, the steel also serves to raise the unit above any solid foundation to assure access to the bottom of the tower.

Model Number	Dimensions(mm)							
	A	B	C	D	E	F	G	H
CPSC-0716-06*	5,005	2,393	4,912	2,225	1,310	764	765	50
CPSC-0716-07*	5,005	2,393	4,912	2,225	1,310	764	765	50
CPSC-0817-07*	5,307	2,698	5,216	2,530	1,310	764	916	50
CPSC-0817-08*	5,307	2,698	5,216	2,530	1,310	764	916	50
CPSC-1020-07*	6,050	3,368	5,988	3,168	1,482	764	1,130	60
CPSC-1020-08*	6,050	3,368	5,988	3,168	1,482	764	1,130	60
CPSC-1020-09*	6,050	3,368	5,988	3,168	1,482	764	1,130	60
CPSC-1222-07*	6,750	3,978	6,657	3,778	1,890	1,115	881	60
CPSC-1222-08*	6,750	3,978	6,657	3,778	1,890	1,115	881	60
CPSC-1222-09*	6,750	3,978	6,657	3,778	1,890	1,115	881	60
CPSC-1222-10*	6,750	3,978	6,657	3,778	1,890	1,115	881	60
CPSC-1222-12*	6,750	3,978	6,657	3,778	1,890	1,115	881	60
CPSC-1222-14*	6,750	3,978	6,657	3,778	1,890	1,115	881	60
CPSC-1424-10*	7,606	4,587	7,513	4,387	1,890	1,115	1,309	60
CPSC-1424-12*	7,606	4,587	7,513	4,387	1,890	1,115	1,309	60
CPSC-1424-14*	7,606	4,587	7,513	4,387	1,890	1,115	1,309	60



Notes:

1. Support beams and anchor bolts 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 under unit to be 1/360 of span, not to exceed 1/2".
4. If point vibration isolation is used with multi-cell towers, the isolators must be located under the support steel, not between the support steel and the cooling towers.
5. If you need factory assembled units, consult your local BAC representative.

Compass Series Engineering Specifications



1.0 Cooling Tower

- 1.1 General:** Furnish and install____, induced draft, crossflow cooling tower(s) with vertical air discharge, conforming in all aspects to the specifications, schedules and as shown on the plans. Overall dimensions shall not exceed approximately ____ ft (mm) long X ____ ft (mm) wide X ____ ft (mm) high. The total connected fan horsepower shall not exceed ____ HP (KW). The cooling tower(s) shall be Baltimore Aircoil Company Model ____.
- 1.2 Thermal Capacity:** The cooling tower(s) shall be warranted by the manufacturer to cool ____ USGPM (l/s) of water from ____ °F (°C) to ____ °F (°C) at ____ °F (°C) entering wet bulb temperature. Additionally, the thermal performance shall be certified by the Cooling Technology Institute in accordance with CTI Certification Standard STD-201. Lacking such certification, a field acceptance test shall be conducted within the warranty period in accordance with CTI Acceptance Test Code ATC-105, by the Cooling Technology Institute or other qualified independent third party testing agency. Manufacturers' performance guarantees or performance bonds without CTI Certification or independent field thermal performance test shall not be accepted. The cooling tower(s) shall comply with the energy efficiency requirements of ASHRAE Standard 90.1.
- 1.3 Wind and Seismic Forces:** When supported as recommended, the unit shall be suitable for applications requiring equipment anchorage to withstand wind loads up to ____ psf and verified with seismic ratings up to a S_{DS} of ____ g, per the IBC 2009 and ASCE/SEI F05.
- 1.4 Quality Assurance:** The cooling tower manufacturer shall have a Management System certified by an accredited registrar as complying with the requirements of ISO-9001:2000 to ensure consistent quality of products and services.

2.0 Construction Details

- 2.1 Structure:** The cooling tower shall be constructed with a sturdy structural frame designed to transmit all wind, seismic and mechanical loads to the equipment anchorage.
- 2.2 Casing Panels:** Casing panels shall be constructed of corrosion and UV-resistant fiberglass reinforced polyester (FRP) to minimize maintenance requirements and prolong equipment life.
- 2.3 Cold Water Basin:** The cold water basin shall be constructed of fiberglass reinforced polyester (FRP). The basin area under the fill shall be sloped toward the depressed center section to facilitate cleaning. Standard basin accessories shall include a bronze make-up valve with large diameter plastic float for easy adjustment of the operating water level.
- 2.4 Water Outlet:** The outlet shall be provided with large-area lift out strainers constructed of SST 304, with perforated openings sized smaller than the water distribution nozzles and an anti-vortexing device to prevent air entrainment.
- 2.5 Water Distribution System:** The hot water distribution basins shall be the open gravity type for easy cleaning, and constructed of FRP. The basins must be accessible from outside the unit and serviceable during tower operation. Basin baffle and plastic nozzles shall be provided to assure even distribution of the water over the fill.

Compass Series Engineering Specifications

3.0 Mechanical Equipment

- 3.1 Fan(s):** Fan(s) shall be heavy-duty, axial flow with blades selected to provide optimum cooling tower thermal performance with minimal sound levels. The top of the fan cylinder shall be equipped with a conical, non-sagging removable fan guard.
- 3.2 Bearings:** Fan (s) and shaft (s) shall be supported by heavy-duty, self-aligning, grease-packed ball bearings with moisture proof seals and integral slinger collars, designed for a minimum L_{10} life of 30,000 hours.
- 3.3 Fan Drive:** The belt is designed for 150% of the motor nameplate horsepower, and be specifically designed for cooling tower service.
- 3.4 Sheaves:** Fan sheave shall be fabricated from aluminum to minimize corrosion and maintenance and ensure maximum belt operating life.
- 3.5 Fan Motor:** Fan motor(s) shall be totally enclosed air over (TEAO), reversible, squirrel cage, ball bearing type designed specifically for cooling tower service. The motor shall be furnished with special moisture protection on windings, shafts and bearings.

4.0 Fill, Louvers and Drift Eliminators

- 4.1** Fill, Louvers and Drift Eliminators shall be formed from self-extinguishing (per ASTM-568) polyvinyl chloride (PVC) of 13mil thickness having a flame spread rating of 5 per ASTM E84 and shall be impervious to rot, decay, fungus and biological attack. The fill shall be suitable for entering water temperatures up to and including 130°F (54.4°C). The fill shall be manufactured, tested and rated by the cooling tower manufacturer and shall be elevated above the cold water basin floor to facilitate cleaning.

5.0 Access

- 5.1 Access Door:** One access door should be provided as standard for access into the plenum section.
- 5.2 Internal Walkway:** An internal walkway is provided as standard in the plenum section for inspection and maintenance. All working surfaces shall be able to withstand 50 psf (244 kg/m²) live load or 200 pound (90.7 kg) concentrated load. Other components of the cooling tower, i.e. basin floor and fill/drift eliminators, shall not be considered as internal working surface.



6.0 Sound

- 6.1 Sound Level:** To maintain the quality of the local environment, the maximum sound pressure levels (dB) measured 1.5 m from the cooling tower operating at full fan speed shall not exceed the sound levels detailed below.

Location	63	125	250	500	1000	2000	4000	8000	dBA
Discharge									
Air Inlet									
Cased Face									

- 6.1 Sound Level (Optional):** To maintain the quality of the local environment, the cooling tower shall be furnished with a low sound fan. The thermal performance of the cooling tower when furnished with the low sound fan shall be certified by the Cooling Technology Institute in accordance with paragraph 1.2 of this specification. The maximum sound pressure levels (dB) measured 1.5 m from the cooling tower operating at full fan speed shall not exceed the sound levels detailed below.

Location	63	125	250	500	1000	2000	4000	8000	dBA
Discharge									
Air Inlet									
Cased Face									

7.0 Accessories

- 7.1 Basin Heater(s):** The cooling tower cold water basin shall be provided with electric heater(s) to prevent freezing in low ambient conditions. The heater(s) shall be selected to maintain 40°F (4.44°C) basin water temperatures at ____°F (°C) ambient. The heater(s) shall be ____V/____phase/____Hz electric and shall be provided with low water cutout and thermostat.
- 7.2 Vibration Cutout Switch:** Provide a mechanical local reset vibration switch. The mechanical vibration cutout switch will be guaranteed to trip at a point so as not to cause damage to the cooling tower.
- 7.3 Ladder, Safety Cage and Handrails:** A hot-dip galvanized steel ladder and safety cage shall be provided for access to the fan deck. The handrails shall also be provided around the perimeter of the cooling tower cells. All components are designed to meet OSHA requirements.



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Rm.2204, Litong Plaza, No.1350 North Sichuan Rd., Shanghai, PRC, 200080

Telephone: (86-21) 6072 3600 Fax: (86-21) 6072 3610

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