

# RIGGING AND INSTALLATION INSTRUCTIONS



## RCT Cooling Towers

The BAC equipment should be rigged and installed as outlined in this bulletin.

These procedures should be thoroughly reviewed prior to the rigging and operation to acquaint all personnel with the procedures to be followed and to assure that all necessary equipment will be available at the jobsite.

Be sure to have a copy of the unit certified drawing available for reference. If you do not have a copy of this drawing or if you need additional information about this unit, contact the local BAC Balticare representative. His name and phone number can be found on the BAC website: [www.BaltimoreAircoil.eu](http://www.BaltimoreAircoil.eu). The model type and serial number of your equipment are indicated on the unit nameplate.



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## About engineering and application practices

This bulletin only refers to the assembly of the unit. To ensure a proper operation, a correct integration of the unit in the overall installation is mandatory. For good engineering and application practices on layout, levelling, connecting pipework, etc..., please refer to our website: <http://www.baltimoreaircoil.eu/knowledge-center/application-information>.

## Shipping

BAC cooling equipment is factory assembled to assure uniform quality and minimum field assembly. Due to shipping height restrictions, RCT cooling towers may be shipped in multiple sections. Below table indicates the number of sections.

Unit type	Number of sections shipped	
	Casing sections	Basin sections*
Single fan unit	1	1
Double fan unit	2	1
Triple fan unit	3	-

\* Only if basin is provided by BAC  
Support beams are installed for transport reasons only. They must be removed when rigging the unit.

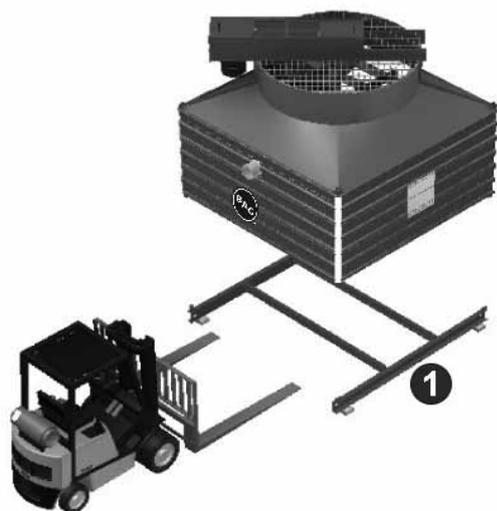


Figure 1: RCT Shipping Support for Casing Section

1. Galvanized support beam.  
For the dimensions and weights of a specific unit or section, refer to the certified drawing.

! Do not cover units with PVC eliminators or fill with a plastic tarpaulin. Temperature increase due to sun radiation could deform the fill or eliminators

## Inspection before Rigging

When the unit is delivered to the jobsite, it should be checked thoroughly to ensure all required items have been received and are free of any shipping damage prior to signing the bill of lading.

The following parts should be inspected:

- Sheaves and belts
- Bearings
- Bearing supports
- Fan motor(s)
- Fan(s) and Fan shaft(s)
- Wet deck surface
- Drift eliminators
- Water distribution system
- Strainer(s)
- Float valve assembly(s)
- Interior / Exterior surfaces
- Combined Inlet Shields
- Miscellaneous items:

An envelope with checklist is stored in a wooden no nail crate or a plastic container which is placed in the unit section. For safety reasons access panels are sealed with screw knobs.

The wooden no nail crate / plastic container also contains miscellaneous parts such as gasket, hardware and accessory items.

! Be sure to remove all miscellaneous items from the pan before the unit is assembled.

The hardware is packed in a plastic container and located inside the lower section of the unit.

## Unit Weights

Before rigging any BAC cooling equipment, the weight of each section should be verified on the unit certified drawing.

Note: These weights are **approximate** only and should be confirmed by weighing **before lifting** when available hoisting capacity provides little margin for safety.

! Before an actual lift is undertaken, ensure no water, snow, ice or debris has collected in the sump or elsewhere in the unit. Such accumulations will add substantially to the equipment's lifting weight.



## Anchoring

The unit must be properly anchored in place.

Refer to the suggested support details on the certified drawing for locations of the mounting holes. Anchor bolts must be provided by others.

Holes suitable for 16 mm bolts are provided for bolting the unit to the support beams or concrete sump.

## Leveling

The unit must be level for proper operation and ease of piping.

Support beams must also be level. Shim if necessary to level unit.

## Connecting Pipework

All piping external to BAC cooling equipment must be supported separately. In case the equipment is installed on vibration rails or springs, the piping must contain compensators to eliminate vibrations carried through the external pipework.

Suction pipe sizing should be done according to good practice, which may for larger flows require larger pipe diameters than the cooling tower outlet connection. In such cases adapter pieces need to be installed.

## Freeze Protection

These products must be protected against damage and/or reduced effectiveness due to possible freeze-up by mechanical and operational methods. Please refer to the BAC Product & Application Handbook or contact your local BAC Balticare representative for recommended protection alternatives.

## Bleed line installation

On all open cooling towers and all units operating with a remote sump tank, install a bleed line with valve between the system circulating pump discharge riser and a convenient drain. Locate the bleed line in a portion of the riser piping that drains when the pump is off.

The bleed valve should always be open when the unit is in operation, unless the bleed rate is automatically controlled by a water treatment system.

## Combined Inlet Shields

Combined Inlet Shields are a lift and drop in design. They are shipped in a separate wooden crate and are to be installed with flutes facing downwards into basin. A shorter shield is provided to fit over the quick fill/make-up.

## Safety Precautions

All electrical, mechanical and rotating machinery constitute a potential hazard, particularly for those not familiar with its design, construction and operation. Accordingly, adequate safeguards (including use of protective enclosures where necessary) should be taken with this equipment both to safeguard the public (including minors) from injury and to prevent damage to the equipment, its associated system and the premises.

If there is doubt about safe and proper rigging, installation, operation or maintenance procedures, contact the equipment manufacturer or his representative for advise.

When working on operating equipment, be aware that some parts may have an elevated temperature. Any operations on elevated level have to be executed with extra care to prevent accidents.

### AUTHORIZED PERSONNEL

The operation, maintenance and repair of this equipment should be undertaken only by personnel authorized and qualified to do so. All such personnel should be thoroughly familiar with the equipment, the associated systems and controls and the procedures set forth in this and other relevant manuals. Proper care, procedures and tools must be used in handling, lifting, installing, operating and repairing this equipment to prevent personal injury and/or property damage.

### MECHANICAL SAFETY

Mechanical safety of the equipment is in accordance with the requirements of the EU machinery directive. Depending upon site conditions it also may be necessary to install items such as bottom screens, ladders, safety cages, stairways, access platforms, handrails and toe boards for the safety and convenience of the authorized service and maintenance personnel. At no time this equipment should be operated without all fan screens, access panels and access doors in place.

When the equipment is operated with a variable fan speed control device, steps must be taken to avoid operating at or near to the fan's «critical speed». For more information consult your local BAC Balticare representative.

### ELECTRICAL SAFETY

Each fan and pump motor associated with this equipment should be installed with a lockable disconnect switch located within the sight of the equipment. No service work should be performed on or near the fans, motors, drives or inside the equipment unless fan and pump motors, heaters etc. are electrically isolated.

### LIFTING

!

**Failure to use designated lifting points can result in a dropped load causing severe injury, death and/or property damage. Lifts must be performed by qualified riggers following BAC published Rigging Instructions and generally accepted lifting practices; The use of supplemental safety slings may also be required if the lift**



## GENERAL INFORMATION

circumstances warrant its use, as determined by the rigging contractor.

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### LOCATION

All cooling equipment should be located as far away as possible from occupied areas, open windows or air intakes to buildings.

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**Each unit must be located and positioned to prevent the introduction of discharge air into the ventilation systems of the building on which the unit is located and of adjacent buildings.**

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*Note: For detailed recommendations on BAC equipment layout, please see the BAC Application Handbook EU-Edition, the BAC website: [www.baltimoreaircoil.eu](http://www.baltimoreaircoil.eu) or contact your local BAC-Balticare Representative.*

### LOCAL REGULATIONS

Installation and operation of cooling equipment may be subject of local regulations, such as establishment of risk analysis. Ensure regulatory requirements are consistently met.

### ELIMINATORS

Plastic eliminators are not designed to support the weight of a person or to be used as storage or work surface for any equipment or tools. Use of these eliminators as a walking, working or storage surface may result in injury to personnel or damage to the equipment. Units with plastic eliminators should not be covered with a clear plastic tarpaulin.

## Warranties

Please refer to the Limitation of Warranties applicable to and in effect at the time of the sale/purchase of these products.



## Introduction

To simplify shipping, rigging and installation RCT cooling towers are shipped in sections consisting of a basin assembly (if provided by BAC) and one or more casing sections.

!   
**Never assemble the unit before lifting as the lifting devices provided on the unit are not designed to support the weight of the entire assembled unit.**

!   
**The use of safety slings is recommended for extended lifts or whenever hazards exist.**

1. Lift the basin section(s) into place.
  2. Lift each casing section into place and secure to the basin section (see section assembly).  
At the completion of this stage a crane is no longer required.
  3. Securely bolt the unit to supporting steel or concrete sump.
- Below tables and pictures shows recommended method for rigging each section of a RCT cooling tower.

### SINGLE FAN UNITS

RCT type	Number of sections		H1 (mm)	H2 (mm)	L (mm)
	Basin Section	Casing Section	Fig. 1	Fig. 2	Fig. 2
RCT 2118-1 RCT 2129-1	1	1	1900	2200	2284
RCT 2142-1 RCT 2156-1	1	1	2200	2500	2589
RCT 2183-1 RCT 2208-1	1	1	2400	2700	2894
RCT 2238-1 RCT 2262-1	1	1	2700	3000	3198
RCT 2299-1 RCT 2320-1	1	1	2900	3300	3499
RCT 2368-1 RCT 2386-1	1	1	4500	3000	4787
RCT 2418-1 RCT 2441-1	1	1	5000	3300	5247

Table 1: Single fan units

### DOUBLE FAN UNITS

RCT type	Number of sections		H1 (mm)	H2 (mm)	L (mm)
	Basin Section	Casing Section	Fig. 1	Fig. 2	Fig. 2
RCT 2118-2 RCT 2129-2	1	2	1900	2200	2284
RCT 2142-2 RCT 2156-2	1	2	2200	2500	2589
RCT 2183-2 RCT 2208-2	1	2	2400	2700	2894
RCT 2238-2 RCT 2262-2	1	2	2700	3000	3198
RCT 2299-2 RCT 2320-2	1	2	2900	3300	3499

Table 2: Double fan units

### TRIPLE FAN UNITS

RCT type	Number of sections		H1 (mm)	H2 (mm)	L (mm)
	Basin Section	Casing Section	Fig. 1	Fig. 2	Fig. 2
RCT 2118-3 RCT 2129-3	N/A	3	1900	2200	2284
RCT 2142-3 RCT 2156-3	N/A	3	2200	2500	2589
RCT 2183-3 RCT 2208-3	N/A	3	2400	2700	2894
RCT 2238-3 RCT 2262-3	N/A	3	2700	3000	3198
RCT 2299-3 RCT 2320-3	N/A	3	2900	3300	3499

Table 3: Triple fan units



## Basin section rigging method

Position the basin section(s) on the tower support.

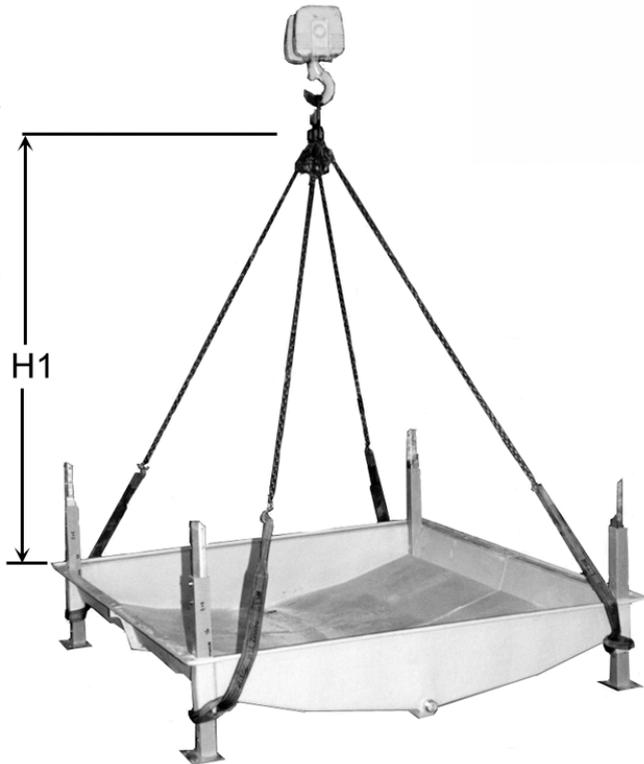


Figure 2: Lifting basin section

## Casing section rigging method

Lift the casing section by using a spreader bar and lower into place.

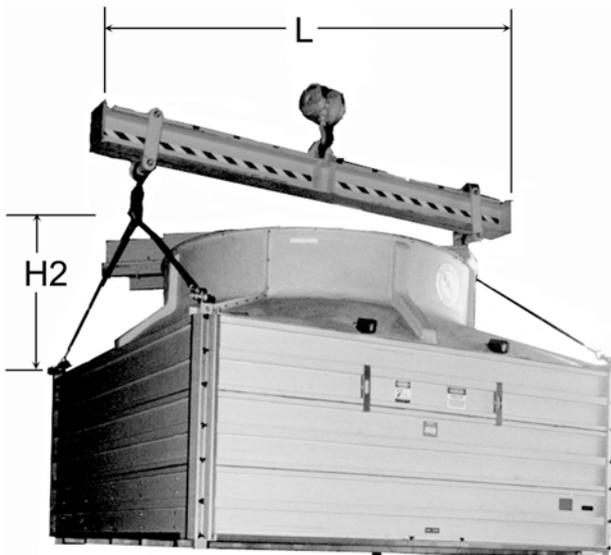


Figure 3: Lifting casing section



## Method

!   
 When lowering a section, ensure nothing can be trapped between the upper and lower flanges.

1. Apply a small amount of sealer around the Combined Inlet Shields posts in each corner of the basin section.
2. Lower the casing into place using the basin-to-casing joining brackets as a guide to fit into the casing section corner posts
3. Bolt the two sections together at each post.



Figure 4: Joining casing to basin section

### 1. Joining brackets

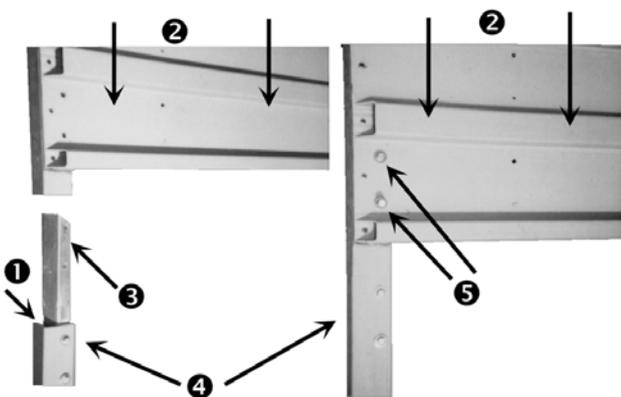


Figure 5: Detail of joining casing to basin section

1. Apply sealer around this ledge
2. Casing section being lowered onto basin
3. Basin-to-casing joining bracket
4. Basin Combined Inlet Shields post
5. Insert and tighten bolts to lock casing to basin section



### General

1. All required installation instructions for optional accessories are stored in the wooden no nail crate / plastic container which is placed in the lower section. (See page 2 "Hardware Location").
2. Refer to the unit certified drawing for installation sequence of optional accessories.



## General

Prior to start-up, the following services, which are described in detail in the Operating and Maintenance Manual (see Table Recommended Maintenance and Monitoring Schedule- Start-up) must be performed.

Proper start-up procedures and scheduled periodic maintenance will prolong the life of the equipment and ensure trouble-free performance for which the unit is designed.







# RECOMMENDED MAINTENANCE AND MONITORING PROGRAMME

## Schedule

Type of Action	Action	Start-Up	Weekly	Monthly	Quarterly	Every Six Months	Annually	Shutdown
<b>Checks and Adjustments</b>	Cold water basin and strainer	X			X			
	Operating level and make-up	X		X				
	Blow down	X		X				
	Sump heater package	X				X		
	Belt tension	X		X				
	Drive alignment	X					X	
	Locking Collar	X						
	Rotation of fan(s) and pump(s)	X						
	Motor voltage and current	X						X
	Drive train	X					X	
	Unusual noise and/or vibration	X		X				
<b>Inspections and Monitoring</b>	General condition	X		X				
	Heat transfer section	X				X		
	Combined Inlet Shields				X	X		
	Drift eliminators	X				X		
	Water distribution	X				X		
	Electric Water Level Control Package (optional)	X				X		
	Fan shaft					X		
	TAB test (dip slides)	X	X					
	Circulating water quality	X		X				
	System overview	X					X	
	Record keeping							
<b>Lubrication</b>	Fan shaft bearings	X			X			
	Adjustable motor base	X						
<b>Cleaning procedures</b>	Mechanical cleaning	X					X	
	Disinfection **	(X)					(X)	(X)

Table 4: Recommended Maintenance & Monitoring Schedule

\*\* depends on applied code of practice

Notes:

1. Water Treatment and auxiliary equipment integrated in the cooling system may require additions to the table above. Contact suppliers for recommended actions and their required frequency.
2. Recommended service intervals are for typical installations. Different environmental conditions may dictate more frequent servicing.
3. When operating in ambient temperatures below freezing, the unit should be inspected more frequently (see Cold Weather Operations in the appropriate Operating and Maintenance Instructions).
4. For units with Belt Drive, tension on new belts must be readjusted after the first 24 hours of operation and monthly thereafter.

Model: .....

Serialnumber: .....



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