

*User Guide*

# MCB Cooling Tank

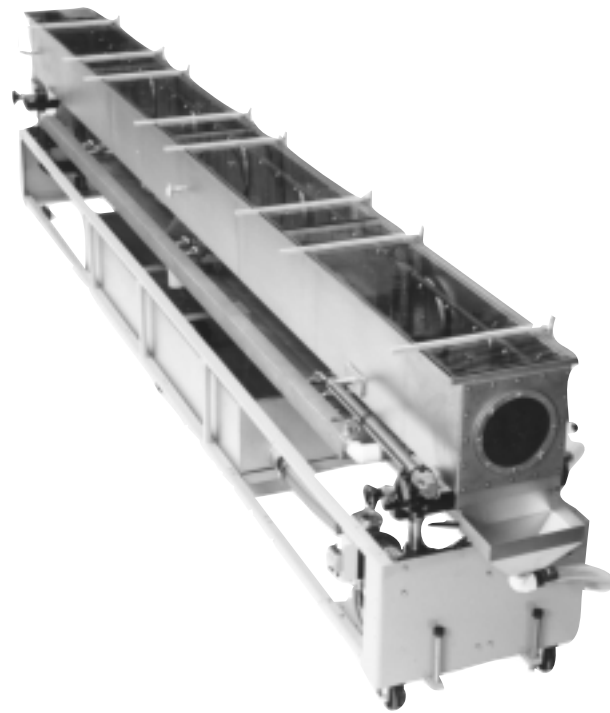
MCB Series Models

*Installation*

*Maintenance*

*Operation*

*Troubleshooting*



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UGE054/0502

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*Please record your equipment's model and serial number(s) and the date you received it in the spaces provided.*

It's a good idea to record the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Please keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

<b>Date:</b>
<b>Manual Number: UGE054/0502</b>
<b>Serial number(s):</b> ..... .....
<b>Model number(s):</b> ..... .....

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# INTRODUCTION

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## PURPOSE OF THE USER GUIDE

This User Guide describes the Conair MCB series water/spray tanks. It explains step-by-step how to install, operate, maintain and repair this equipment.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

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## HOW THE GUIDE IS ORGANIZED

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.



Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.



Numbers within shaded squares indicate tasks or steps to be performed by the user.



A diamond indicates the equipment's response to an action performed by the user.



An open box marks items in a checklist.



A shaded circle marks items in a list.

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## YOUR RESPONSIBILITY AS A USER

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

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We design equipment with the user's safety in mind. You can avoid the potential hazards identified on this machine by following the procedures outlined below and elsewhere in the User Guide.



**ATTENTION:  
READ THIS SO NO  
ONE GETS HURT**



**WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.**

This equipment should be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation and potential hazards of this type of machine.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the the machine serial tag and data plate.

You should keep the area around the tank clean and free from pooling water. We recommend installing a grate or drain system beneath this equipment to prevent water from pooling around the tank.



**WARNING: Voltage hazard**

This equipment is powered by three-phase alternating current, as specified on the machine serial tag and data plate.

A properly sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the electrical enclosure. Improper grounding can result in severe personal injury and erratic machine operation.

Always disconnect and lock out the incoming main power source before opening the electrical enclosure or performing non-standard operating procedures, such as routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.



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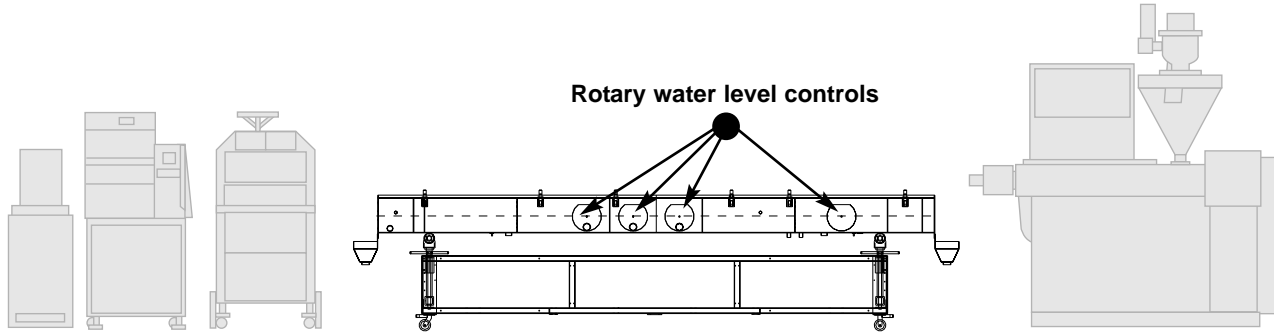
## DESCRIPTION

- *What is a MCB tank? . . . . .2-2*
- *How it works . . . . .2-3*
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# WHAT IS THE MCB TANK?

Conair Water and Spray Tanks are designed to provide additional spray or flood cooling of extruded profiles, tubing and pipe, or as a primary spray or cooling tank. Leveling floor jacks and adjustment handwheels at both ends of the tank ensure proper alignment with the extrusion line.



After an extrusion has been sized and solidified, it may require additional controlled cooling to obtain the desired characteristics.

**The MCB water tank** provides flood cooling. You can submerge the extrusion in heated water to slow the cooling rate, or in cool water to cool it more quickly. The internal plumbing configuration for flood cooling is designed to provide maximum turbulence to break up the temperature strata that forms around the extrusion for optimum heat transfer. Support and hold-down rollers keep the buoyant extrusion in place as it passes through the tank.

**When the spray option is chosen, the MCB spray tank** reduces the buoyancy of the extrusion in the water and provides maximum heat transfer through evaporation by spraying water onto the hot extrusion surface. The extrusion can be held above the water level or submerged in the water in the spray compartment.

The MCB tank has two compartments: a long water or spray compartment for controlled cooling of the extrusion, and a short air-wipe compartment for removing water from the pipe surface as it leaves the water or spray compartment.

The water and spray compartments are sealed by gaskets on each end. Black wiping gaskets backed up by red support gaskets retain the flood and spray water.

An optional closed water recirculation reservoir, pump and heat exchanger can interface with your portable chiller or central chiller for reduced water consumption.

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## How It Works

The extrusion enters the water or spray compartment after leaving the calibration tooling or a sizing tank. Simple support and hold-down rollers are used to hold small diameter hollow forms in position as the extrusion passes through the tank. Contoured support and hold-down rollers usually are required for large hollow forms.

**In a MCB water tank,** the extrusion is submerged in a flooded water compartment. Water enters the compartment through a quick fill valve or through one center-supply, drilled water header that is mounted along the top and back side of the compartment. The water level is controlled by a rotary water level controls.

**In the MCB tank with spray option,** the extrusion may be submerged or held above the water.

All water enters the compartment through four center-supply water distribution bars mounted at the four corners along the full length of the compartment. These water distribution bars are drilled or equipped with spray heads. Each pair of spray distribution bars has its own water supply valve.

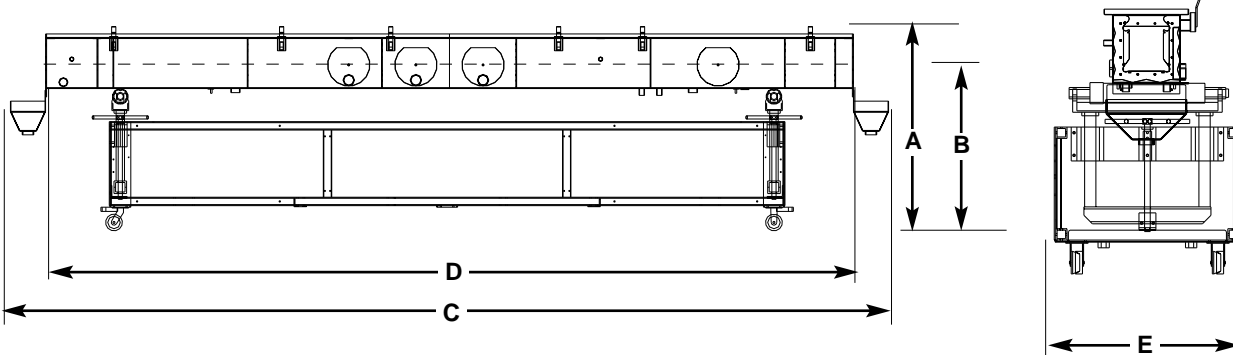
Water levels are controlled by the setting of the rotary water level control. When set low, the rotary water level control keeps the water level below the extrusion. When set high, the rotary water level control allows complete submersion of the extrusion in a flooded compartment.



The extrusion passes from the water or spray compartment into an air-wipe compartment equipped with one or two, tubular air wiper rings (depending on the model purchased) connected to compressed air. The wiper ring blasts air on the extrusion to blow off surface water. A gasket seal at the exit of the air wipe compartment ensures the extrusion will be dry as it reaches the puller.

# SPECIFICATIONS

## COOLING TANKS MCB Series



MODEL	MCB-2			MCB-4		
TANK LENGTH FT.	12	16	21	12	16	21
<b>Performance characteristics</b>						
Tube/profile capacity	up to 2 inches {50 mm}			up to 4 inches {101 mm}		
Pumps	2 Hp or 5 Hp water			2 Hp, 5 Hp or 7.5 Hp water		
Number of compartments	2	2	2	2	2	2
Size - Cooling / Air wipe	11 ft. / 1 ft.	15 ft. / 1 ft.	20 ft. / 1 ft.	11 ft. / 1 ft.	15 ft. / 1 ft.	20 ft. / 1 ft.
<b>Dimensions inches {mm}</b>						
A - Overall height	55 {1397}	55 {1397}	55 {1397}	55 {1397}	55 {1397}	55 {1397}
B - Height to centerline*	42 {1067}	42 {1067}	42 {1067}	42 {1067}	42 {1067}	42 {1067}
C - Overall length	180 {4572}	216 {5486}	288 {7315}	180 {4572}	216 {5486}	288 {7315}
D - Tank length feet {mm}	13.5 {343}	17.5 {445}	22.5 {572}	13.5 {343}	17.5 {445}	22.5 {572}
E - Overall width	48.5 {1232}	48.5 {1232}	48.5 {1232}	48.5 {1232}	48.5 {1232}	48.5 {1232}
Tank compartment width†	12 {306}	12 {306}	12 {306}	12 {306}	12 {306}	12 {306}
Tank compartment height	8 {203}	8 {203}	8 {203}	12 {306}	12 {306}	12 {306}
<b>Weight lbs {kg}‡</b>						
Shipping	2200 {998}	2800 {1270}	3500 {1587}	2200 {998}	2800 {1270}	3500 {1587}
<b>Voltages available §</b>	240V/3 phase/50-60 Hz or 480V/3 phase/50-60 Hz					
<b>Water requirements</b>	City, tower or chiller water; main supply line 1 inch NPT fitting					

**SPECIFICATION NOTES:**

These tables define standard configurations only. Specifications can change without notice. Contact a Conair representative for the most current information.

\* Centerline height is adjustable  $\pm 2$  inches.

† You will need a V-groove caster adapter if you have rails that are not spaced 25 inches (635 mm) apart. Adapters are available for rails with centerline spacing of 22 to 25 inches (559 to 635 mm).

‡ Weights are based on standard configuration only and do not include any of the available options.

§ Consult factory. Amp draws will be based on options selected.

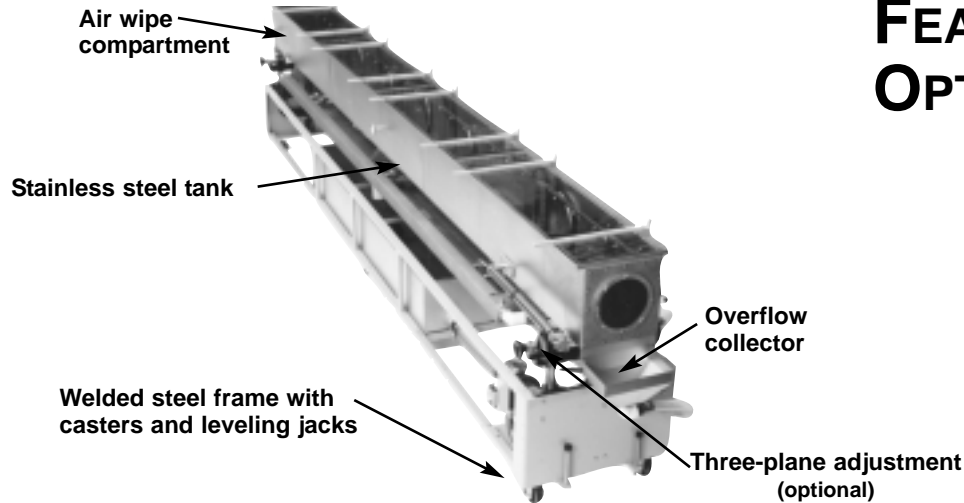
MODEL	MCB-6			MCB-8		
TANK LENGTH	12	16	21	12	16	21
<b>Performance characteristics</b>						
Tube/profile capacity	up to 6 inches {152 mm}			up to 8 inches {203 mm}		
Pumps	2 Hp, 5 Hp or 7.5 Hp water					
Number of compartments	2	2	2	2	2	2
Size - Cooling / Air wipe	11 ft. / 1 ft.	15 ft. / 1 ft.	20 ft. / 1 ft.	11 ft. / 1 ft.	15 ft. / 1 ft.	20 ft. / 1 ft.
<b>Dimensions inches (mm)</b>						
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B - Height to centerline†	42 {1067}	42 {1067}	42 {1067}	42 {1067}	42 {1067}	42 {1067}
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Tank compartment width	14 {356}	14 {356}	14 {356}	16 {406}	16 {406}	16 {406}
Tank compartment height	14 {356}	14 {356}	14 {356}	16 {406}	16 {406}	16 {406}
<b>Weight lbs (kg) ‡</b>						
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<b>Voltages available §</b>	240V/3 phase/50-60 Hz or 480V/3 phase/50-60 Hz					
<b>Water requirements</b>	City, tower or chiller water; main supply line 1 inch NPT fitting					

**APPLICATION NOTE:**

The base tank is supplied without the recirculation system. The tank is drained by gravity.

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## FEATURES AND OPTIONS



- **Tank:** The stainless steel, all-welded tank has two compartments: a long water or spray compartment and a short air-wipe compartment. Water distribution bar connections are stainless steel fittings welded through the tank bottom. The air wipe compartment has one or two blow-off rings mounted concentric to the extruded product. The rings generate water blow-off forces opposite to the direction of extrusion flow. Air supply is through the front sidewall of the compartment. A throttling valve is supplied.

Bulkheads are equipped with studs for applying gaskets. Black gaskets wipe the extruded product. Red gaskets provide dynamic sealing.

- **Tank Support:** The tank support system provides for
  - (1) accurate vertical positioning of each end of the tank to meet centerline height requirements,
  - (2) for accurate horizontal positioning of each end of the tank to meet tank centerline alignment requirements, and
  - (3) accurate axial positioning of the tank.The system is comprised of two basic elements: a micro-height adjusting system to move the tank up and down and a tank cradle system that cages the tank and carries means for horizontal and axial positioning.
- **Water Supply System:** Water is supplied from a short water supply header carried on the tank. A ball valve controls water to each spray header. This valve is used to modulate water to the tank. On small water tanks with one spray header, the second valve is used for "quick fill". On long tanks a third ball valve directs water to an end port to assist in "quick fill".

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## FEATURES AND OPTIONS (CON.)

- **Tank Drain System:** All tanks have rotary water level controls that continuously carry modulating water to the drain without drain valving. To drain the tank quickly, one to three drains are supplied, depending on the tank length and tank size. Additional tank drains, controlled by gate valves, empty into the tank drain header pipe. The header pipe, made of rigid PVC with demented fittings, is attached to the base frame and slopes toward the extruder.

The large drain size provides unrestricted water flow to the plant drains or plant water recovery system.

- **Casters and Wheels:** The tank base is supported at all four corners by vee grooved casters. Plain wheels are available.
- **Leveling Jacks:** After positioning the tank, it is necessary to anchor the tank against line forces. Two leveling jacks (floor locks) are provided on one side of the base, effectively anchoring the tank in place.
- **Vertical Adjustment System:** The tank support system is moved vertically up and down on each end to position the centerline and to level the horizontal plane. The cradle carrying the tank rests on micro-height adjusting plate at each end. The cradle is caged axially by angles welded to the micro-height plates. The small handwheel horizontally mounted to each micro-height plate engages a worm gear to drive a vertically mounted threaded rod. When the handwheel is rotated, that end of the tank is moved up or down. The adjustment is self locking.
- **Horizontal Adjustment Option:** To allow side-to-side positioning, the sides of the cradle are moved away from the tank. Rotation of knobs, which drive threaded blocks beneath the tank, moves the tank side to side.
- **Axial Adjustment Option:** This option allows you to move the tank backward and forward (longitudinally) in a precise manner, with positive locking at any position. The tank is supported on caged solid rollers running in short tracks to allow easy movement. Rotation of the large handwheel produces axial motion of the tank, depending on the status of the detent arm. When the detent is disengaged, the shaft is free to turn and the tank will move toward the puller. When the detent is pushed in and engaged, the one way locking action of the bearing on the shaft prohibits shaft rotation and the tank is locked in position. The detent must be removed if tank movement toward the puller is desired.

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## FEATURES AND OPTIONS (CON.)

- **Water Recirculation System Option:**

The system includes a high performance brazed plate heat exchanger sized appropriately for the associated water pump, reservoir and automatic level control system. The standard voltage for this system is 460 V/3 amps/ 60 Hz the optional voltage for this system is 230 V/3 amps/ 60 Hz.

**System A** contains a 2 Hp pump and is designed for extrusion rates less than 200 lbs/hr. (30 GPM at 50 PSI) a choice or a 30 gallon fiberglass reservoir or a 90 gallon stainless steel reservoir.

**System B** contains a 5 Hp pump and is designed for extrusion rates less than 400 lbs/hr. (100 GPM at 45 PSI) and a 90 gallon stainless steel reservoir.

**System C** contains a 7.55 Hp pump and is designed for extrusion rates less than 600 lbs/hr. (180 GPM at 50 PSI) and a 140 gallon stainless steel reservoir.

- **Sump Tank Option:** On recirculating systems, a sump tank holds water for the open loop systems. Bottom tank frame members support the sump, which is caged but not anchored. The overflow PVC drain fitting is dual purpose, reversible. As installed, the NPTF is outboard for screwed piping. When the fitting is reversed, external piping may be cemented into the sweat end.

- **Filter System with Flush Capabilities Option:** sized for minimum pressure drop. Size for circulation system 2 inch, A or B. Size for gallon circulation system 3 inch, C.

- **Tank Covers Option:** Water tanks seldom require covers as there is little or no splashing. However, spray tanks with their cross spray patterns, may require covers.

- **Thermometers Option:** On water tanks, thermometers may be mounted through the tank sidewall to monitor water temperature in the tank. On a tank with a gear pump system, the thermometers are mounted through the sump tank sidewall to monitor temperatures in the sump that indicates the temperature of water to the tank.

- **Profile Manifold Option:** 3 Hp vacuum pump with a 5 HP motor with water vacuum manifold, 8 ports each.

- **Left to Right Extrusion Direction Option**

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## FEATURES AND OPTIONS (CON.)

- **Additional Two Plane Adjustment Option:** This adjustment offers line flexibility and includes a large hand-wheel for linear tank movement and independent side-to-side adjustment provision (If tank is used as a primary unit this option is recommended.)
- **Upgrade to Four Distribution Bars Option:** The use of four bars instead of one facilitates turbulence in immersion cooling. The bars come standard as schedule 80 PVC. The schedule 80 PVC can be replaced with copper as an additional upgrade.
- **Upgrade to Four Distribution Bars with Brass Spray Nozzles Option:** The use of high velocity brass spray nozzles enhances evaporative cooling. The bars come standard as schedule 80 PVC. The schedule 80 PVC can be replaced with copper with brass nipples as an additional upgrade.
- **Stainless Steel Drip Tray Option:** The drip tray facilitates the provided quick dump valves to discharge into a common tray. This tray is provided with a built-in water manifold.

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# INSTALLATION

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- *Preparing for installation . . . . .3-3*
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- *Connecting the water and  
air supplies . . . . .3-6*
- *Connecting a chiller . . . . .3-6*
- *Testing the installation . . . . .3-7*

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# UNPACKING THE BOXES



**CAUTION:** Exercise caution when moving the MCB tank. The tank may be lifted with a forklift or hoist and straps that have been positioned at the tank's center of gravity.

The MCB tank comes fully assembled in a single crate.

- 1** **Carefully uncrate the tank** and its components.
- 2** **Remove all packing material**, protective paper, tape, and plastic. Compare contents to the shipping papers to ensure that you have all the parts.
- 3** **Carefully inspect all components** to make sure no damage occurred during shipping. Check all wire terminal connections, bolts, and any other electrical connections, which may have come loose during shipping. Immediately report any damage or missing components to the freight company that delivered the tank.
- 4** **Take a moment to record serial numbers** and specifications in the blanks provided on the back of the User Guide's title page. The information will be helpful if you ever need service or parts. The User Guide is in a folder inside the tank.
- 5** **You are now ready to begin installation.**  
Complete the preparation steps on the next page.

### ***Installation Hardware Needed:***

- wire strain relief (for recirculation package only)*
- one plumb bob or laser bore sight*
- one hex key wrench*
- one flathead screwdriver*
- flexible hose with 1.5 inch NPT coupling*

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You will install the MCB tank on the extrusion line, downstream of the extruder and any calibration/sizing equipment.

## PREPARING FOR INSTALLATION

### **1** Make sure the installation area provides:

- A source of water.** City, tower or chilled water may be used. Water supply flow should be about 80 gpm @ 60-70 psi {6.1 liters/sec @ 4.8-5.5 bars}.
- A grounded 3-phase power source** supplying the correct current and voltage for the recirculation system on your tank. Check the serial tag for the correct amps and voltage. Electrical power is required only if you have the recirculation system option.
- Minimum clearance for safe operation and maintenance.** The distance, or air gap, between the face of the die or sizing tank and the upstream end of the MCB tank may be up to 12 inches (305 mm). Allow at least 12 to 24 inches (305 to 610 mm) between the downstream end of the tank and the upstream end of the puller to roll the tank away from the extruder for maintenance.

### **2** Determine the correct position for the tank on the extrusion line.

There may be an additional cooling tank or an optional laser gauge/diameter gauge between the downstream end of the MCB tank and the puller. Allow 1 to 2 feet (305 to 610 mm) between the MCB tank and an additional cooling tank. Allow 1 to 3 feet (305 to 914 mm) between the MCB tank and a laser gauge and between a laser gauge and the puller.

### **3** Install v-rails. If your tank comes with v-groove casters, you may choose to use v-rails to insure repeatable tank alignment. The overall length of the rails will be determined by equipment sharing the rails. The v-rails should be long enough to move all downstream equipment away from the extruder for removal of the screw.

Typically, the rails should be 2 to 4 feet (610 to 1219 mm) longer than the MCB tank. The distance between the centers of the v-groove casters on standard MCB tanks is 22 inches (558.8 mm). Optional widths may have been ordered.

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# ALIGNING THE TANK



**CAUTION:** To avoid personal injury or damage to the tank, you should lift and move the tank with a forklift or hoist and straps positioned at the tank's center of gravity.



**WARNING:** Improper installation could result in equipment damage and severe personal injury from electrical shock .

Electrical connections should be made only by qualified personnel. This machine requires a well-grounded circuit and three-phase alternating current as specified on the data plate. If the correct power supply is not available, you must install a transformer between the building supply and the machine. A properly sized conductive ground wire from the power supply must be connected to the ground terminal on the tank.

- 1 Position the tank downstream of the extruder.** Place the tank inline with the extruder. Set the tank's v-groove casters on the v-rails, if present.
- 2 Adjust the height of the tank** to match the extruder's centerline height. Use a level and turn the hand wheels to adjust height at both ends of the tank.
- 3 Adjust the horizontal (side-to-side) position of the tank.** If you have the horizontal adjustment option, turn the handwheel to align the unit with other components in the extrusion line. Use a plumb bob or laser to guide the alignment.



**WARNING:** Improper installation could result in equipment damage and severe personal injury from electrical shock .

Electrical connections should be made only by qualified personnel. This machine requires a well-grounded circuit and three-phase alternating current as specified on the data plate. If the correct power supply is not available, you must install a transformer between the building supply and the machine. A properly sized conductive ground wire from the power supply must be connected to the ground terminal on the tank.

## CONNECTING THE MAIN POWER

Electrical connections are required only on MCB tanks with the optional water recirculation system and/or heat exchanger.

Always refer to the wiring diagrams that came with your tank before making electrical connections. The diagrams show the minimum size main power cable required for you tank, and the most accurate electrical component information. The procedure for making electrical connections will vary according to the options ordered with the tank.

Generally, you should:

- 1** **Disconnect and lock out the incoming main power source.**
- 2** **Open the electrical enclosure.**
- 3** **Connect the power and ground wires** to the terminals indicated on the wiring diagram that came with your machine.
- 4** **Check every terminal screw** to make sure wires are secure. Gently tug each wire. If a wire is loose, use a screwdriver to tighten the terminal.

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## CONNECTING THE WATER AND AIR SUPPLIES

The standard MCB tanks are designed for use with city, tower or chilled water supplies. You may choose to treat the water to prevent algae build-up.

**⚠ WARNING:** Do not use deionized water, brine or other corrosive water mixtures for the main water supply unless your tank has been specially designed for such mixtures. Consult a water treatment specialist for the best way to prevent algae build-up without damaging the equipment.

- 1** Connect the main water supply to the 1½-inch NPT fitting on the tank.
- 2** Connect the compressed air supply to the fitting on the tank air wipe compartment.

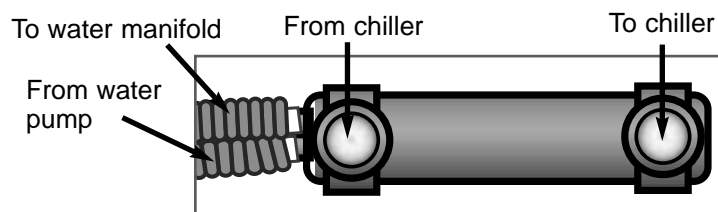
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## CONNECTING A CHILLER

You can connect a chiller to the tank’s optional heat exchanger to remove heat from the extrudate more efficiently. Typically, the tank comes with the ¾ inch lines of the standard tube and shell heater plumbed to the tank’s water manifold. The 1½ inch inlet and outlet of the heat exchanger can be used for the chiller.

### For maximum water flow:

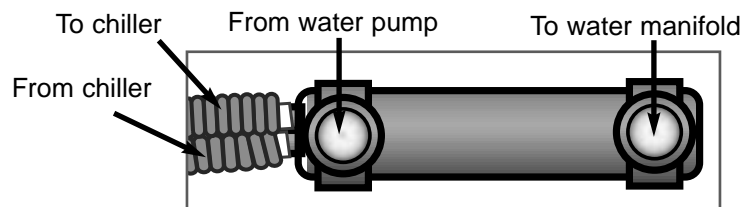
Connect the chiller “To Process” and “From Process” lines to the largest NPT fittings in the shell of the heat exchanger.



**TIP:** If you have a water supply with high mineral content, connect the chiller to the tube ends of the heat exchanger.

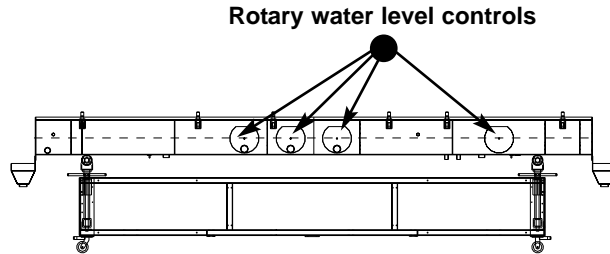
### For maximum cooling efficiency:

Connect the chiller “To Process” and “From Process” lines to the smallest NPT tube ends of the heat exchanger.



# TESTING THE INSTALLATION

- 1 Adjust the rotary water level control inside each compartment for the water level you want to maintain.**



- 2 Turn water supply on and fill the tank.**

- ◆ Water fills the tank to the water level you set.
- ◆ If you have a spray tank, water should enter the tank through the spray bars.
- ◆ Excess water flows through the drain lines.


## If you have the optional recirculation system:

- 1 Turn water pump on.**


Press the REC START button.

- ◆ The pump draws water through the heat exchanger and into the upper tank.

- 2 Check the pump for proper rotation.** The pump rotation must match the direction indicated on the rotation sticker on top of the pump.

 **WARNING:** If a pump rotates in the wrong direction for more than a very short time, damage will occur.

If the pump rotation is incorrect, turn off the pump and disconnect power. Swap any two of the three power source wires on the terminal block in the electrical enclosure.

 **WARNING: Voltage Hazard**  
Always disconnect and lock out the main power sources before making electrical adjustments. Electrical adjustments should be made only by qualified personnel.



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# OPERATION

- *Preparing for Operation . . . . .4-2*
- *Starting the MCB tank . . . . .4-3*
- *Stopping the MCB tank . . . . .4-3*

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# PREPARING FOR OPERATION

The MCB tank provides cooling through tank water flow, while the MCB with spray option cools with water flow and water sprayed onto the extrusion. Immersion rollers inside each tank chamber keep the extrusion positioned for even cooling.

## **1 Determine the cooling mode you will use.**

The best cooling mode and roller position for your profile depends upon your material and process.

- **Immersion cooling:** The extrusion should be fully immersed in the tank water. The immersion rollers are usually positioned above the extrusion to keep it submerged.

- **Spray cooling:** The extrusion is cooled by water sprayed over its surface. An inch or two of runoff water flows below the extrusion. The immersion rollers are usually positioned below the profile.

## **2 Make sure the extruder and puller are ready.**

The extruder should be discharging melt or extrudate that is up to the correct temperature. Set the extruder and puller at minimum speed.

## **3 Center the tank with the extrudate.** During installation, you aligned the tank with the extrusion line. Before each operation of the tank, you should fine tune the height and side-to-side position of the tank to align it with the center of the extrudate.

### **Height Adjustment:**

Looking down from above the tank, turn the small hand-wheel to move the tank toward or away from the operator side until it aligns with the center of the extrudate as it exits the die.

### **Side to Side adjustment:**

Kneeling at the upstream end of the tank at eye level with the die, turn the large, spoked wheel to adjust the tank height until it aligns with the center of the extrudate.

## PREPARING FOR OPERATION

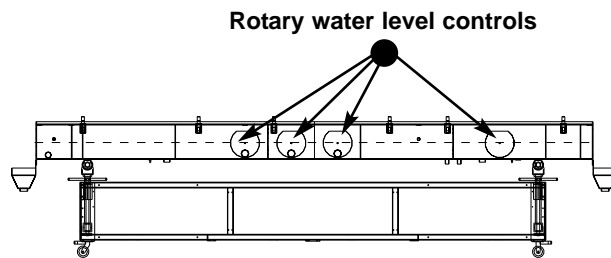


### **CAUTION: Hot surfaces.**

Wear gloves to protect yourself from the hot extrudate and hot surfaces on the extruder.

#### **4 Turn on the water supply to fill the tank.**

Adjust the rotary water level control for the water level you want to maintain. If you have the optional recirculation system, make sure the water level in the reservoir is above the pump input before proceeding.



**5 Move the tank downstream from the die.** Use the large linear actuator handwheel to slide the tank about 4-8 inches downstream from the die or additional sizing equipment.

**6 Thread the extrudate through the tank.** Cut the extrudate off close to the die face and ball up the end using a soft-metal spatula or scraper. Walk the extrudate through the system, threading the extrudate through any calibration or sizing equipment, the water/spray tank and into the puller.

**7 Move the tank back upstream for normal operation.** Turn the linear actuator handwheel to move the tank upstream to within 1 inch of the extruder die face, or to within 1 to 12 inches of the end of a sizing tank.

**8 Recheck the tank alignment.** With the extrudate threaded, verify that the tank is precisely aligned with the center of the extrudate.

**9 Position the immersion rollers to prevent the extrusion from sinking or floating.** Slide each roller a up or down to the desired position. The best position for the rollers depends upon your material, process and cooling mode.

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## STARTING THE MCB TANK

- 1 Turn water pump on, if you have the optional recirculation system.**  
After the tank has been filled, press REC START button.
- 2 Start the other equipment in the extrusion line.**
- 3 Gradually increase line speed.** Raise extruder rpms slowly until extrudate is close to the product desired.
- 4 Wet tank rim lightly and close lid.** Dip fingers into tank water and wet the tank rim to improve the seal.
- 5 Adjust water flow and water levels.** The best water flow rates and levels depend upon your material, process and cooling mode.

**NOTE:** You should check profile size and surface finish at start up and periodically throughout processing. Check the size of the profile using an optional in-line laser gauge, ID or OD gauge. Check the surface finish for imperfections. See the TROUBLESHOOTING section for product quality problems that could be related to the MCB tank.

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## STOPPING THE MCB TANK

Tank operation is stopped by turning off the water pump. Extrudate will continue to move through the tank unless the entire extrusion line is shut down. A typical shutdown procedure is given below.

- 1 Move the tank downstream.** While the material is still running, turn the large handwheel to move the tank away from the die.
- 2 Lower extruder rpms.**
- 3 Cut the plastic off at the die with a soft metal spatula or scraper.**
- 4 Cover the tank entrance hole.** Place one hand over the hole to limit water spillage when you stop the pump.
- 5 Turn the water pump off.** Press REC STOP.
- 6 Drain the tank and reservoirs if the tank will not be used or requires water system maintenance.**

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# MAINTENANCE

- *Maintenance schedule . . . . .5-2*
- *Replacing gaskets . . . . .5-3*
- *Lubricating tank components . .5-3*
- *Cleaning the tank and  
    spray bars . . . . .5-3*
- *Checking electrical  
    connections . . . . .5-4*

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# PREVENTATIVE MAINTENANCE SCHEDULE

Normal operation of the MCB tank involves extended exposure of many components to minerals and other water system contaminants. These minerals and contaminants can produce deposits, scales, slime or algae that will reduce tank performance.

To maintain the best performance, you should follow this maintenance schedule and develop an effective water treatment program.

## ● Weekly, or as often as needed.

### Inspect gaskets.

Gaskets at the ends of the tank should be kept in good condition. Replace any gaskets that are excessively worn, cracked or torn.

### Drain and clean the tank.

Remove any particles and wipe all surfaces thoroughly.

## ● Monthly

### Lubricate all threads, shafts, sliding components, linear actuator and bearings.

Lubricate not only the grease fittings but coat shafts and other sliding surfaces with a seize-resistant bearing compound to prevent corrosion. You may need to lubricate more often than monthly.

### Drain and clean the reservoir.

If you have the optional recirculation system, remove any particles and wipe all surfaces thoroughly.

### Clean the spray bars.

Check for clogged holes. Rinse or use compressed air to remove blockage.

## ● Quarterly (every 3 months)

### Lubricate water pump bearing frame, motor and coupling.

Refer to manufacturer's instructions. Recheck pump alignment after performing any maintenance that requires moving the unit.

## ● Every 6 months

### Inspect power cords, wires and electrical connections.

Check for loose wires, burned contacts, and signs of overheated wires. Check exterior power cords to the main power source and from the electrical box to the pumps. Check the ground wire. Replace any wire that appears damaged or has worn or cracked insulation.

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### To replace an end gasket:

- 1 Remove the retaining rings.** Loosen the wing nuts and lift off the ring that holds the gasket in place.
- 2 Remove the damaged gasket and slide a new gasket over the studs.** No sealant is required.
- 3 Reassemble.** Slip the retaining ring over the studs to cover the gasket. Tighten the wing nuts.

## REPLACING GASKETS

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Normal operation of the MCB tank creates many wet surfaces. We recommend generous monthly lubrication of any threaded or sliding components involved in positioning the tank. Those components include the positioning mechanisms such as the up/down vertical support shafts, side-to-side cross thread, and the linear actuator. You may need to lubricate more often than monthly.

- 1 Lubricate the vertical support shaft and grease fittings.** Apply bearing compound to the fittings until it overflows. Apply a coating of the compound to the shafts as well.
- 2 Lubricate the side-to-side cross thread grease fittings.** Apply bearing compound to the fittings until it overflows. Apply a coating of the compound to the thread as well.
- 3 Lubricate the linear actuator according to manufacturer's instructions.**

## LUBRICATING THE TANK COMPONENTS

### *Tools required:*

- grease gun
- seize-resistant bearing compound

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The tank, spray bars and optional recirculation reservoir should be thoroughly cleaned to remove particles that can accumulate.

- 1 Drain the tank and reservoir.**
- 2 Wipe surfaces thoroughly** to remove particles.
- 3 Remove the spray bars.** Twist each spray bar counterclockwise and pull it out.
- 4 Clean the spray bars.** Flush each bar with a compressed air line or water hose. Use a soft brush to remove any particles clogging the small holes.
- 5 Reassemble by repeating the steps in reverse order.**

## CLEANING THE TANK AND SPRAY BARS

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# CHECKING ELECTRICAL CONNECTIONS



## **WARNING: High voltage**

This equipment is powered by three-phase main voltage. Always disconnect and lock out the main power source before opening the unit or servicing.

Normal operation of the MCB Tank produces many wet surfaces. If you have the optional recirculation system, we recommend that you carefully check all electrical wires for signs of damage that could result in a serious shock.

- 1** **Stop the MCB tank.** Press the REC STOP button and lockout the main power source.
- 2** **Open the electrical enclosure.** A safety device prevents you from opening the door unless the power is shut down.
- 3** **Inspect the wires and connections.** Look for loose wires, burned contacts, and signs of over-heated wires. Have a qualified electrician make any repairs or replacements necessary.
- 4** **Inspect the exterior power cords.** Carefully check the power cords from the electrical enclosure to the pumps. Cords should not be crimped, exposed or rubbing against the frame. Also check the power cord to the machine. If the main power cord runs along the floor, make sure it is not positioned where it could be run over and cut by wheels or casters.

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# TROUBLESHOOTING

- *Before beginning . . . . .6-2*
- *Product quality problems . . . . .6-3*
- *Water system problems . . . . .6-3*

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## BEFORE BEGINNING

You can avoid most problems by following the recommended installation, operation and maintenance procedures outlined in this User Guide. If you do have a problem, this section will help you determine what caused it and tell you how to fix it.

### Before you begin troubleshooting:

**Find the wiring, plumbing and assembly diagrams that were shipped with your equipment.**

These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring, control or plumbing options, not covered in this User Guide.

**Verify that you have all instructional materials related to the MCB tank.**

Additional details about troubleshooting and repairing specific components of the tank, including pumps and heat exchanger can be found in the manufacturers manuals included in this instruction packet.

**Verify that you have manuals for equipment located upstream of the tank on the extrusion line.**

Solving problems related to extrudate quality may require troubleshooting malfunctions or incorrect operating procedures on other pieces of equipment in the extrusion line.

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## A FEW WORDS OF CAUTION



**WARNING:** This machines should be adjusted and serviced only by qualified technical personnel who are familiar with construction and operation of this type of equipment.



**DANGER: Voltage hazard.**

Troubleshooting the electrical system of this equipment requires use of precision electronic measuring equipment, as well as access to the electrical enclosure while power is on. Exposure to potentially fatal voltage levels is unavoidable. These troubleshooting procedures should be performed only by qualified electrical technicians who know how to use this precision electronic equipment and who understand the hazards involved.

This section contains product quality problems that may be related to MCB tank operation. Of course, other sections of the extrusion line also influence the quality of the extruded product. This section does not provide solutions to problems that originate with other equipment on the extrusion line.

## PRODUCT QUALITY PROBLEMS

Problem	Possible cause	Solution
Poor surface quality: Swirls on the surface.	Is the extrusion dragging against the calibration tooling or tank edges?	Check alignment.
Poor surface quality: Dimples on the surface	Are air bubbles adhering to the extrusion surface, causing uneven cooling?	<input type="checkbox"/> Increase spray bar flow. <input type="checkbox"/> Increase agitation in the water tank. <input type="checkbox"/> Add an anti-static agent to the water.

This section contains problems that may be related to optional water recirculation system on the MCB tank.

## WATER SYSTEM PROBLEMS

Problem	Possible cause	Solution
No water flow.	Is power and the correct voltage reaching the pump?	<input type="checkbox"/> Verify that the emergency stop button has not been activated, and check all power connections. <input type="checkbox"/> Verify that the supply power matches the rating on the motor data plate
	Has the pump overload tripped?	If necessary, manually reset the pump overload by pressing the reset button. Verify the overload is set to the FLA specified on the motor data plate. If the correct voltage is reaching the pump and the overload continues to trip, you may need to replace the pump.
The pump is running, but water flow is very low.	Is there a blockage in the flow path?	<input type="checkbox"/> Check the heat exchanger for blockages. <input type="checkbox"/> Check for a restriction in the spray bars.

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Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

## WE'RE HERE TO HELP

To contact Customer Service personnel, call:



## HOW TO CONTACT CUSTOMER SERVICE

**From outside the United States, call: 814-437-6861**

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

**If you do have a problem, please complete the following checklist before calling Conair:**

- Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- Make sure power is supplied to the equipment.
- Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- Check the troubleshooting guide of this manual for a solution.
- Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- Check that the equipment has been operated as described in this manual.
- Check accompanying schematic drawings for information on special considerations.

## BEFORE YOU CALL ...

*Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.*

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## EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

## PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

## WARRANTY LIMITATIONS

**Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.**