

Owner's Manual

Manual de Operación



For commercial and industrial use.

CAUTION

**SAVE AND READ THESE
IMPORTANT INSTRUCTIONS**

Read all instructions carefully before setting up and operating this unit. This manual was designed to provide you with important information needed to setup, operate, maintain, and troubleshoot your cooler. Failure to follow these instructions may damage and/or impair its operation and void the warranty.



PRECAUCIÓN
**LEA Y CONSERVE ESTE
MANUAL**

Lea todas las instrucciones cuidadosamente antes de montar y operar esta unidad. Este manual fue diseñado para proveerle importante información necesaria para instalar, operar, mantener y detectar problemas en su enfriador. La falla en seguir estas instrucciones puede dañar y/o afectar la operación del enfriador y anular la garantía.

IMPORTANT

Before installing equipment please read owner's manual carefully and keep it for future reference. For technical assistance please contact our customer service department, in Mexico 01-555-536-0390 and in the USA (602) 281-7969.

For Side, Up and Down Symphony models
Series 28", 30" and 36"

impco

email: customerservice@impcolc.com, Website: www.impcolc.com

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Symphony high performance industrial units work under the heat absorption principle through the evaporation of water. This industrial evaporative cooler has been designed to provide constant, efficient cooling using 12" high efficiency media.

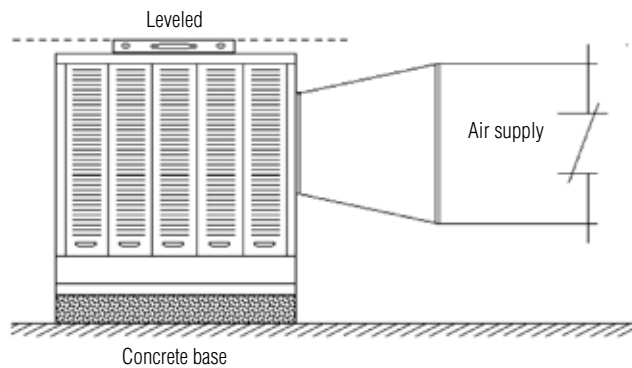
The Symphony high performance industrial units should be installed outdoors. If installed indoors there must be air circulation.

Make sure that the unit is installed facing natural air flow, away from chimneys and sewers. Leave at least 2 feet distance from any wall.

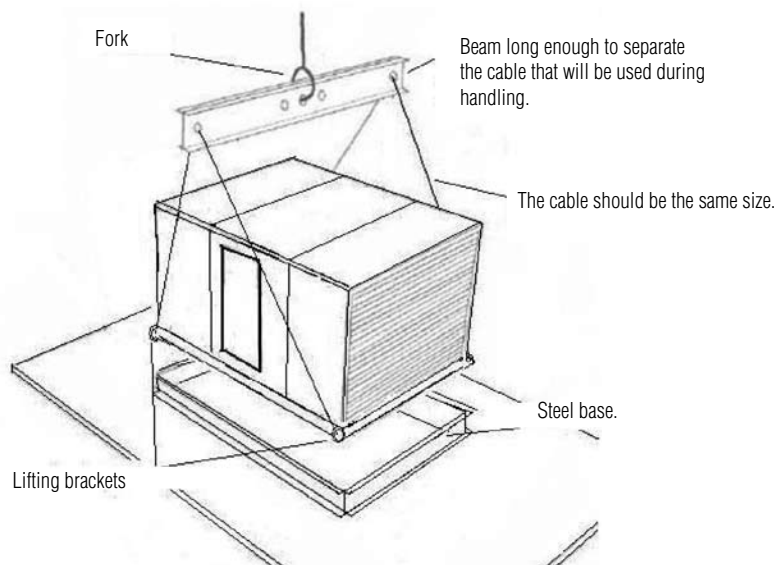
INSTALLATION

Before installing the unit make sure you have done the following:

- Verify that the base has the necessary strength to support the weight of the unit. Remember that the water will add weight to the cooler.



- Have the necessary equipment to raise the unit to the location where it will be installed.
- The unit must be properly handled during the downloading and installation process. If the unit is temporary placed on the ground, make sure it is leveled.
- A professional contractor must handle and install the unit.
- Advise the contractor that the unit contains delicate components that require the unit to always be in a vertical position. Avoid abrupt movements.



1. Only trained personnel should handle the lifting process.
2. Make sure that the unit gaskets and seals are not damaged.
3. Lifting brackets are provided for easier handling.
4. Make sure that the unit is kept in vertical position during lifting.
5. A beam should be used to avoid damaging the cabinet.
6. When two or more cables are used, a tightener will be required.
7. Verify that the load is leveled to avoid damaging the unit.

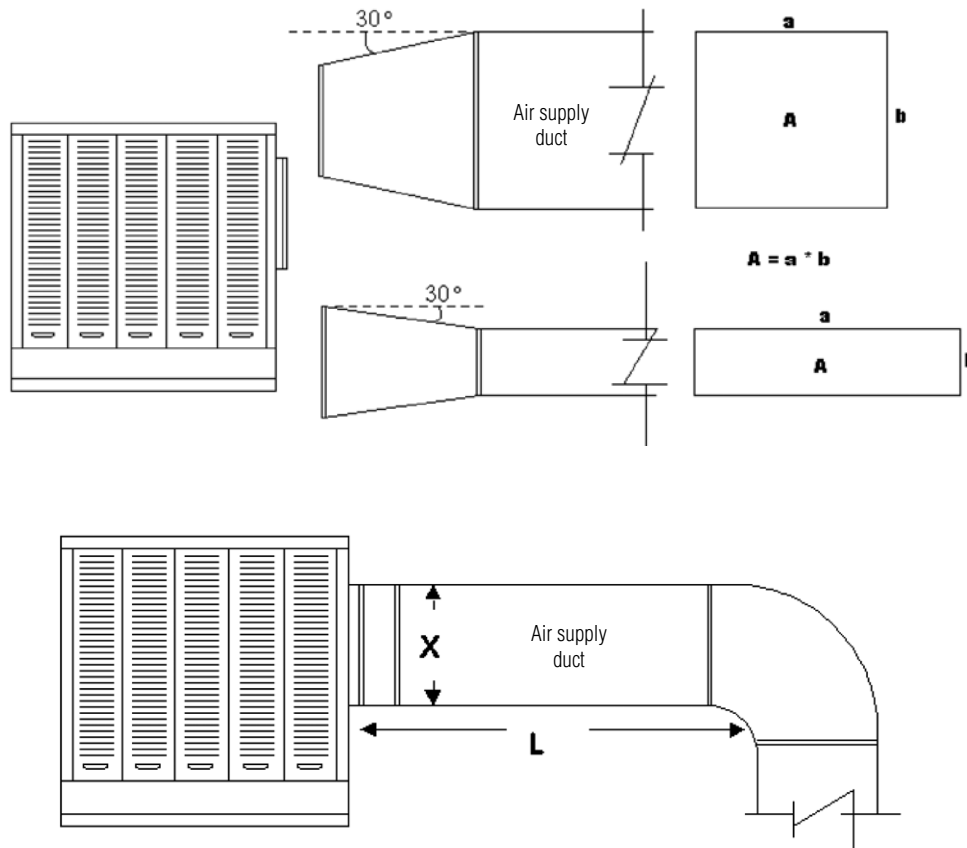


CAUTION: The unit must be leveled in all directions to guarantee uniform water supply to the media.

AIR DISTRIBUTION SYSTEM

Side Discharge

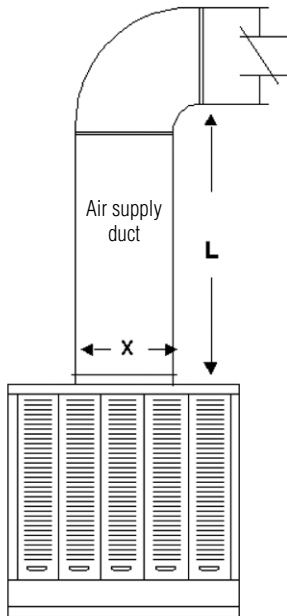
- Select the appropriate model and speed for each application using the Symphony Industrial Sizing program. Do not forget to consider the friction loss.



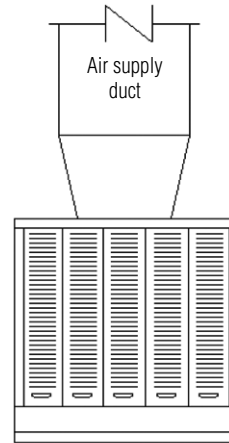
- In the supply duct, if dimension b is smaller than a, then the difference must be compensated by the width of b without exceeding the ratio of 3 to 1; you must consider the angle as shown.
- To minimize friction loss a minimum length of $L=3X$ is recommended before any 90° angle in the supply duct.

AIR DISTRIBUTION SYSTEM

Up Discharge

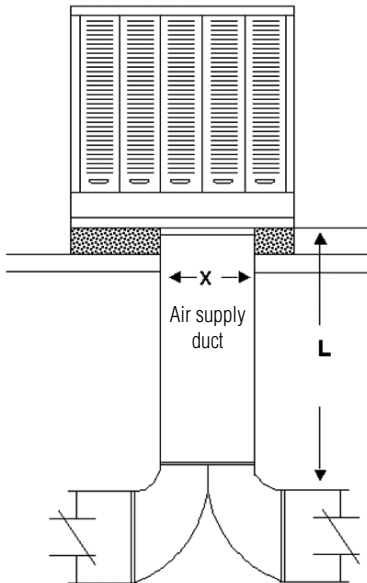


• $L = 3X$ before a 90° angle

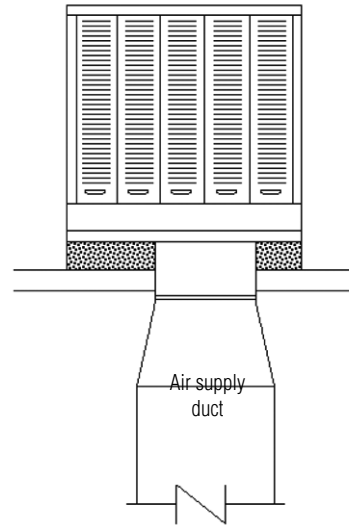


- When supply duct is smaller than the discharge opening, make sure the transition ducting is concentric.

Down Discharge

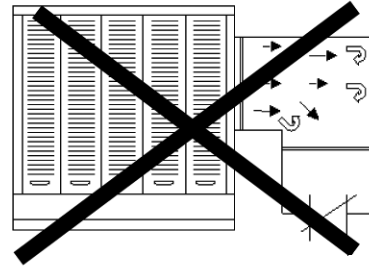
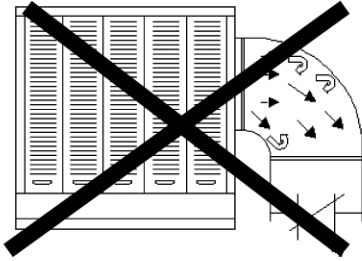


- $L=3X$ before a 90° angle
This option represents a higher friction loss.



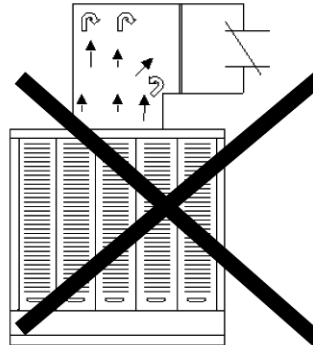
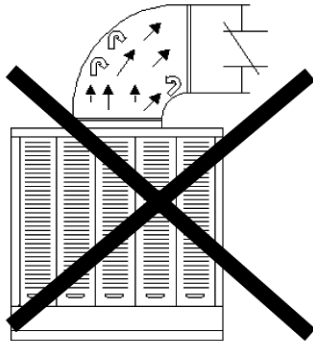
- When supply duct is smaller than discharge opening, make sure the transition ducting is concentric.

Side discharge



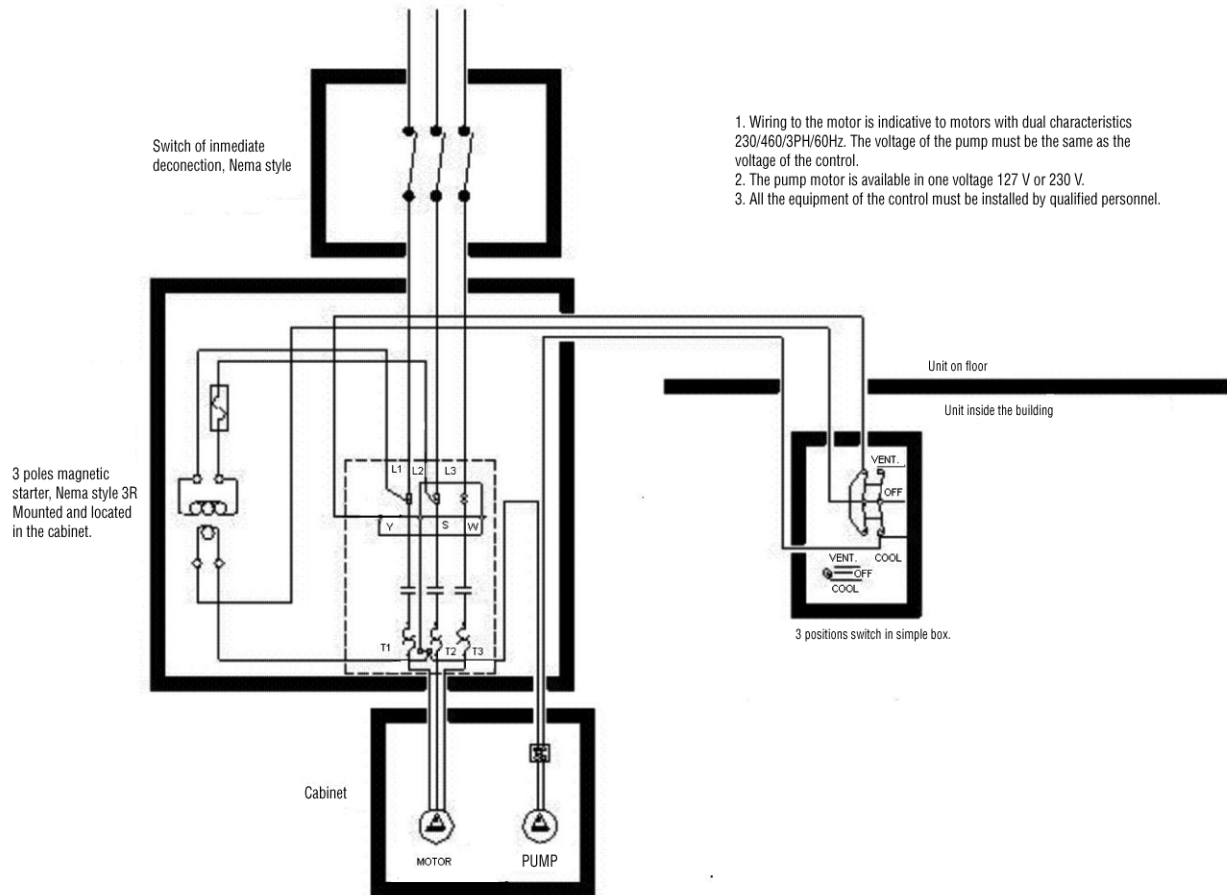
Air supply duct

Up discharge



ELECTRICAL INSTALLATION

- The evaporative cooler should be connected according to the electrical ratings specified on the pump and motor sticker.
- As a safety measure, make sure that the ULA unit is grounded.
- Electricity norms establish that all installations be properly grounded and have thermal overload protection.



Electrical diagram for manual start-up with fuse box for overload protection

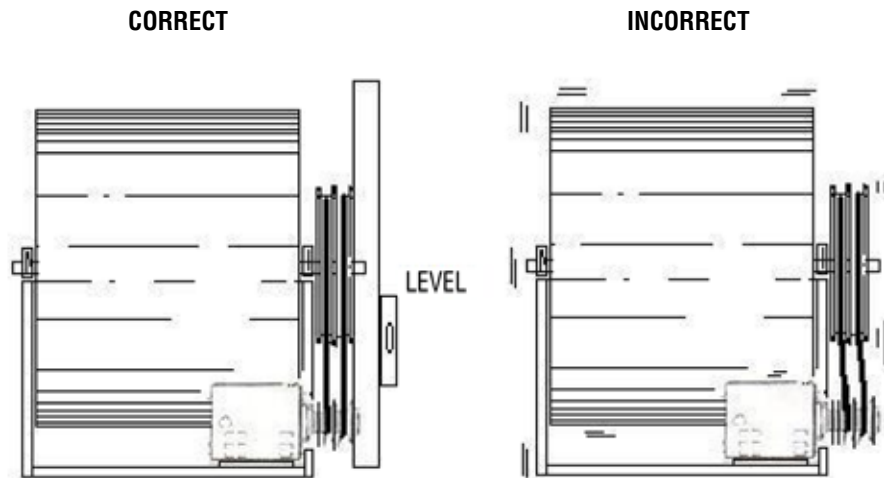


Caution: All electrical installations should comply with local and national electric codes.

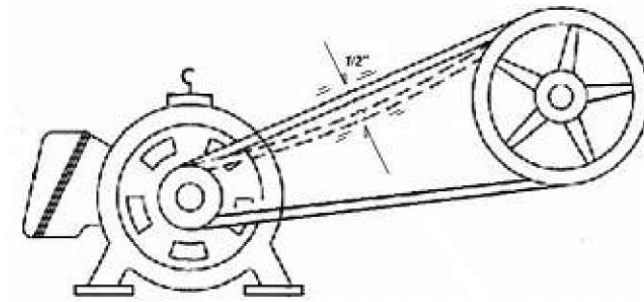
Caution: Select overloads according to volts and full load amps. Consult a specialist.

SHEAVE AND PULLEY

- Check that motor is firmly fixed to the base and that the belt, sheave, and pulley are aligned.
- If not aligned, slide sheave in or out until it is aligned with pulley.



Place belts and adjust the 50 psi or 1/2 inch play.



Caution: Excessive tension in the belt will damage the motor and bearings. To adjust the belt tension, use screws found at base.

MOTOR ADJUSTMENT



Caution: An excessive tension of the belt might cause damage to the motor and bearings.

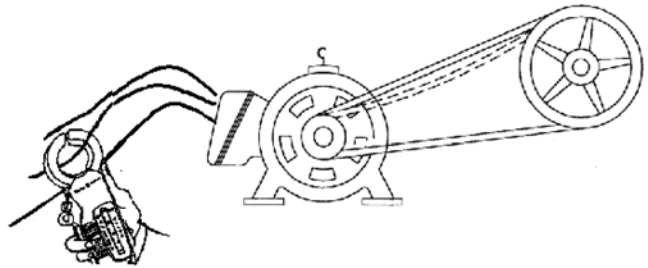
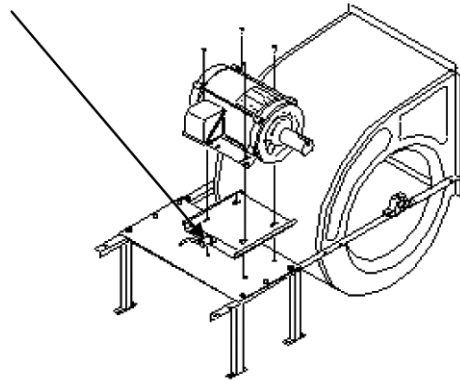
Tighten the belt use the adjustment screws located on the base.

Adjustment of the variable sheave.

1. Find motor amperage on the motor specification plate.
2. Make sure that the grills and louvers in the duct are open.
3. Turn on the unit and make sure that the motor is turning to the correct direction.
4. Use a hook ammeter to check electrical current.
5. When motor is on, if the amperage is below operating limits, adjust out the sheave and turn handly clockwise.
Tight the sheave screw and turn on the motor and verify amperage.
Repeat this procedure until the lecture on the ammeter reach the speci-fied amperage.

Do not exceed specified amperage to avoid a motor overload. Do not connect the pump to the electric supply of the motor.

Screw



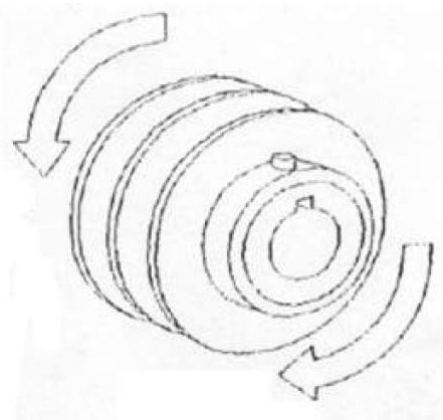
SHEAVE ADJUSTMENT

6. If the first reading of the ammeter was too high, unplug the motor immediatly go back to the step 5, turning the plate of the pulley counterclockwise tightening the opresor of the pulley.

7. Once you obtain the correct amperage, tighten the set screw, adjust the pulley if it is neccessary, verify alignment.

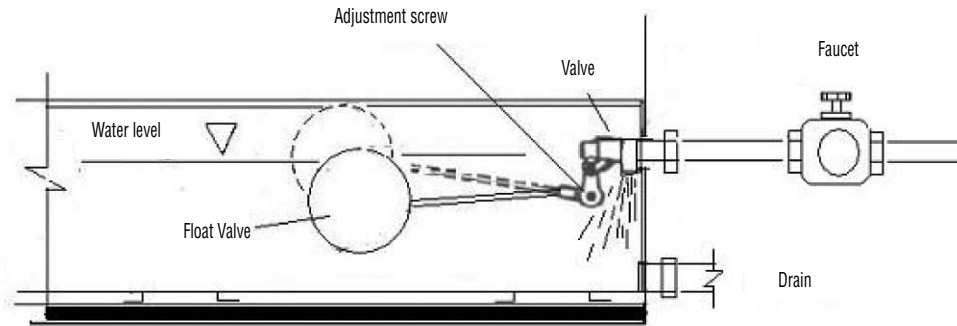
In case you do not have an ammeter, remove the belt, loosen the set screw of the pulley, turn clockwise until the plates of the pulley touch each other, once the pulley is completely closed, untighten the pulley by three and a half turns counterclockwise to reduce the diameter of the pulley, tighten the set screw on this position, this procedure will give you the security that the motor does not work in a higher amperage that the name plate specifies.

Reduction of the diameter by turning counterclockwise



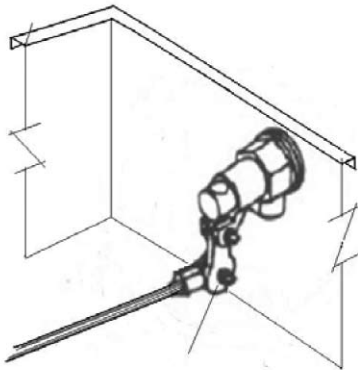
Increase of the diameter turning clockwise

WATER SUPPLY



- We suggest to install a shut off valve in an accessible place to close or open water supply during maintenance.
- Use copper pipe or 12 mm PVC (1/2") diameter with a 3/4" hex nipple to the float valve to supply water to the cooler.
- Connect the pipe to the float valve thru the hex nipple and tighten.
- Open the water supply verifying that pressure and water runs correctly thru the float valve.

Float valve rated up to 125 psi/sq. in



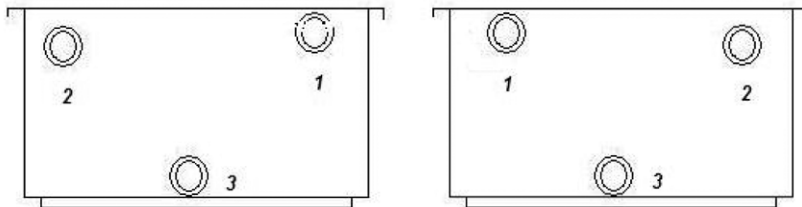
Adjusting Water Level and Float Valve.

Fill reservoir as follows:

1. Turn water supply on. Check for adequate pressure and flow from float valve.
2. When float valve shuts off, check water level. Water level should be from 1/2" to 1" below top edge of overflow standpipe.
3. Turn on water and adjust float valve by loosening adjustment or bending rod..

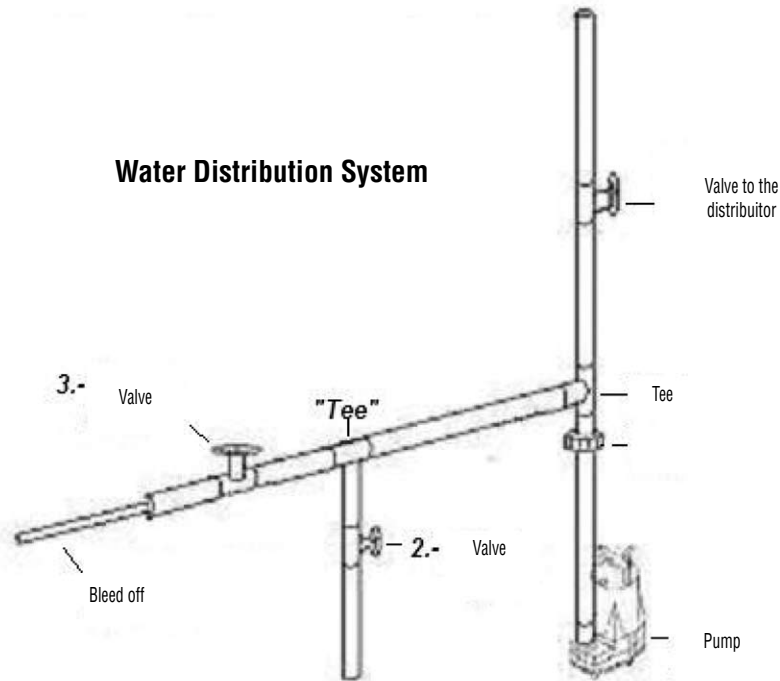
Left water reservoir

Right water reservoir



1. Water supply to float valve 2. Overflow tube, to drain 3. Water drain

- Drain and overflow tube must be connected to drain.



Install Bleed-Off. A bleed-off system is available for your cooler. Its purpose is to eliminate a small quantity of water from recirculation; this reduces scale build-up. This bleed-off assembly merely requires inserting the bleed-off hose into the pump assembly and routing bleed-line hose through standpipe opening.

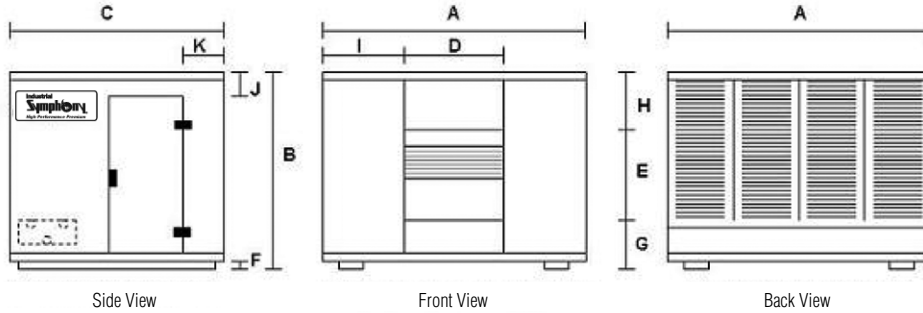
1. Install bleed-line into pump assembly bleed-off tap.
2. Route far end of bleed-line into standpipe.
3. Install clamp with screw on bleed-line.

* Adjust clamp so a 12-ounce beverage can be filled by bleed-off in 60 seconds.

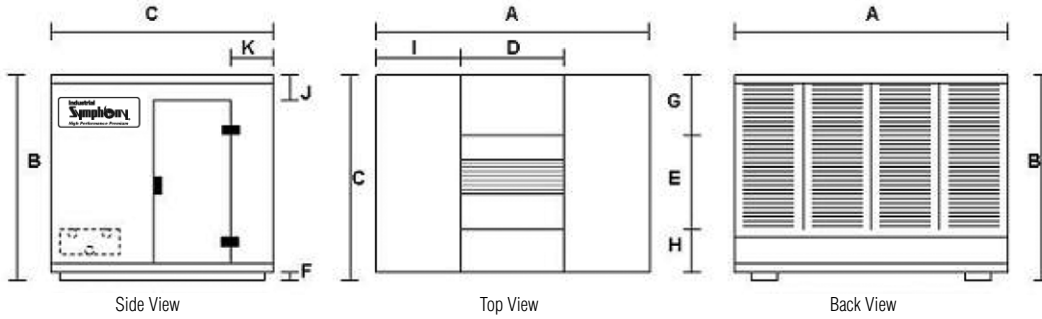
NOTE: Periodically check bleed off line for calcium deposits.

DIMENSIONS OF 28 X 28 ULA

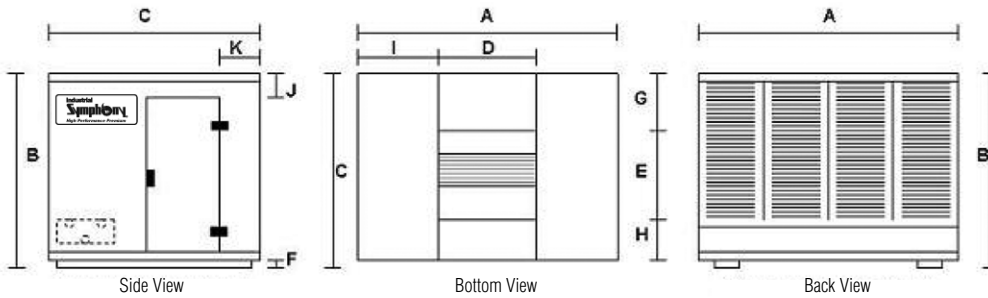
Side Discharge



Up Discharge



Down Discharge



Dimensions of ULA (inches)

DISCHARGE	CABINET			DISCHARGE OPENING		HEIGHT	LOCATION			LOCATION	
	LENGTH	HEIGHT	DEPTH	WIDTH	HEIGHT	SKID	DISCHARGE			DOOR	
	A	B	C	D	E	F	G	H	I	J	K
SIDE	98.5	78.74	78.6	32	32	2.5	22.25	24.75	33.5	4	11.75
DOWN	98.5	78.74	78.6	32	32	2.5	44	63.5	33.5	4	11.75
UP	98.5	78.74	78.6	32	32	2.5	44	63.5	33.5	4	11.75

SPECIFICATION OF 28 X 28 ULA

U.L.A.

MODEL	Motor	Volts	Amps
H28050M D28050M I28050M	5.0 HP	230/460/3PH/60Hz	15 A / 7.5 A
H28075M D28075M I28075M	7.5 HP	230/460/3PH/60Hz	20 A / 10 A
H28100M D28100M I28100M	10.0 HP	230/460/3PH/60Hz	27.0 A / 13.0 A
H28150M D28150M I28150M	15.0 HP	230/460/3PH/60Hz	38 A / 19 A

WATER PUMP

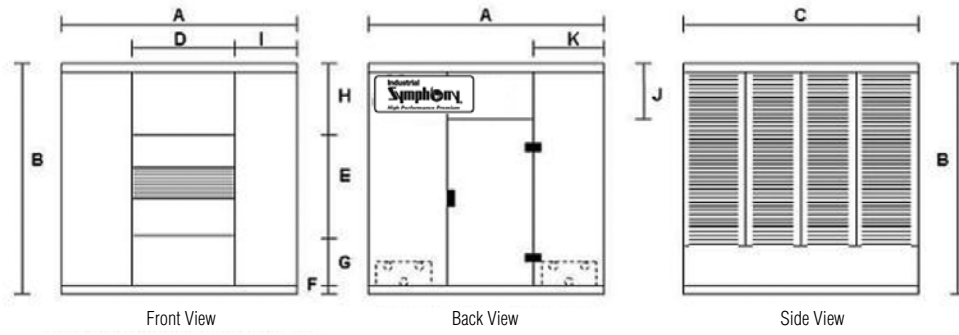
MODEL	Capacity	Motor	Volts	Amps
5 -MSP	17.5 GPM	1/16 H.P.	127 V	5.8 A
5-MSP	17.5 GPM	1//16 HP	220/1PH/60	2.5 A

WATER LEVEL SWITCH (Optional)

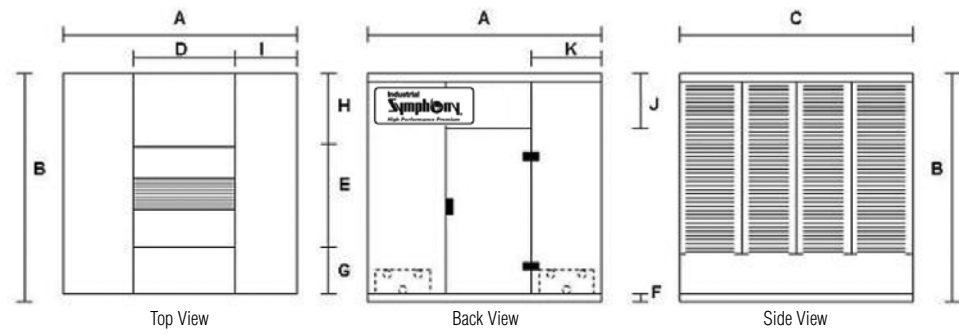
MODEL	Pump Setting	Pump Setting	Volts
RS-5-LL	2" to 3" (5.1 A 7.6 cm.)	½" to 1 ½" (1.2 A 3.8 cm)	127 / 220

DIMENSIONS OF 30 X 30 ULA

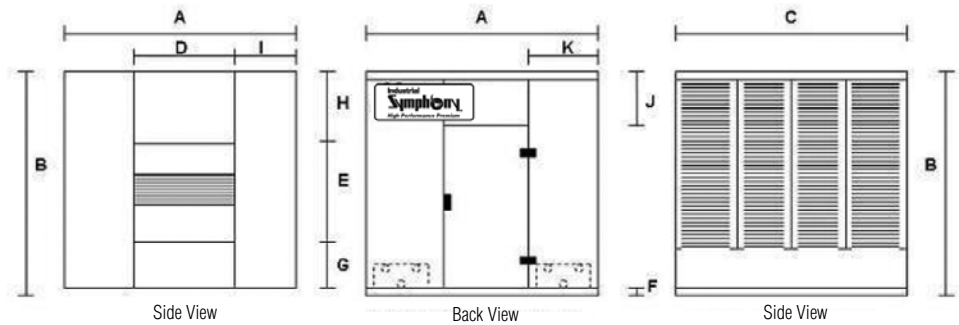
Side Discharge



Up Discharge



Down Discharge



Dimensions of ULA (inches)

DISCHARGE	CABINET			DISCHARGE OPENING		HEIGHT	LOCATION			LOCATION	
	LENGTH A	HEIGHT B	DEPTH	WIDTH D	HEIGHT E	SKID F	DISCHARGE			DOOR	
			C				G	H	I	J	K
SIDE	102	70	80	37	36.5	4	19.81	13.34	32	30	36.31
DOWN	102	70	80	37	36.5	4	37.5	6.12	32.5	30	36.31
UP	102	70	80	37	36.5	4	37.6	6.12	32.5	30	36.31

SPECIFICATION OF 30 X 30 ULA

MODEL	Motor	Volts	Amps
H30100M D30100M I-30100M	10.0 HP	230/460/3PH/60Hz	27 A / 13 A
H30150M D301505M I-30150M	15.0 HP	230/460/3PH/60Hz	38 A / 19 A
H30200M D30200M I-30200M	20.0 HP	230/460/3PH/60Hz	53 A / 26 A
H30250M D30250M I-30250M	25.0 HP	230/460/3PH/60Hz	62 A / 31 A
H30300M D30300M I-30300M	30.0 HP	230/460/3PH/60Hz	71 A / 35 A

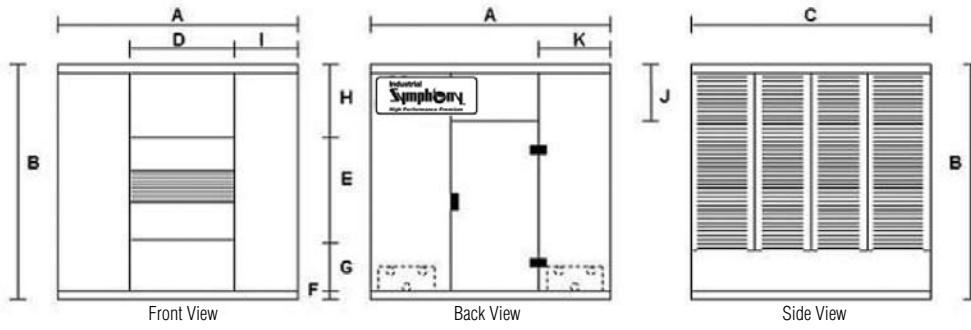
WATER PUMP

MODEL	Capacity	Motor	Volts	Amps
5 -MSP	17,5 GPM	1/16 H.P.	127 V	5,8 A
5-MSP	17.5 GPM	1//16 HP	220/1PH/60	2.5 A

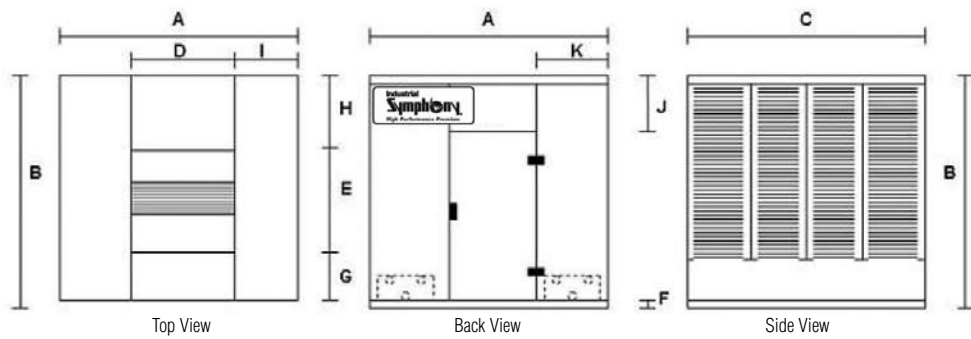
WATER LEVEL SWITCH (Optional)

MODEL	Pump Setting	Pump Setting	Volts
RS-5-LL	2" to 3" (5.1 A 7.6 cm.)	½" to 1 ½" (1.2 A 3.8 cm)	127 / 220

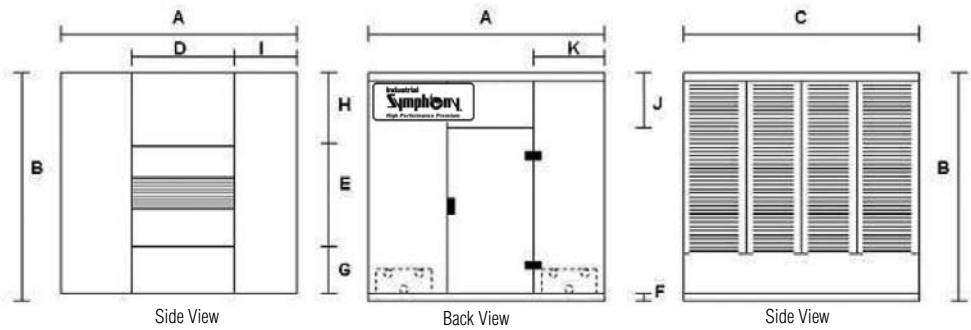
Side Discharge



Up Discharge



Down Discharge



Dimensions of ULA (inches)

DISCHARGE	CABINET			DISCHARGE OPENING		HEIGHT	LOCATION			LOCATION	
	LENGTH A	HEIGHT B	DEPTH C	WIDTH D	HEIGHT E	SKID F	DISCHARGE			DOOR	
							G	H	I	J	K
SIDE	102	90.5	98.75	43	43	7.5	17.81	29.37	29.56	20.25	24.87
DOWN	102	90.5	98.75	43	43	7.5	47	8.75	29.56	20.25	24.87
UP	102	90.5	98.75	43	43	7.5	47	8.75	29.56	20.25	24.87

SPECIFICATION OF 36 X 36 ULA

MODEL	Motor	Volts	Amps
H36100M D36100M I-30100M	10.0 HP	230/460/3PH/60Hz	27 A / 13 A
H36150M D36150M I-36150M	15.0 HP	230/460/3PH/60Hz	38 A / 19 A
H36200M D36200M I-36200M	20.0 HP	230/460/3PH/60Hz	53 A / 26 A
H36250M D36250M I-36250M	25.0 HP	230/460/3PH/60Hz	62 A / 31 A
H36300M D36300M I-36300M	30.0 HP	230/460/3PH/60Hz	71 A / 35 A
H36400M D36400M I-36400M	40.0 HP	230/460/3PH/60Hz	101 A / 50 A

WATER PUMP

MODEL	Capacity	Motor	Volts	Amps
5 -MSP	17.5 GPM	1/16 H.P.	127 V	5.8 A
5-MSP	17.5 GPM	1//16 HP	220/1PH/60	2.5 A

WATER LEVEL SWITCH (Optional)

MODEL	Pump Setting	Pump Setting	Volts
RS-5-LL	2" to 3" (5.1 A 7.6 cm.)	½" to 1 ½" (1.2 A 3.8 cm)	127 / 220

CHECK-LIST

Before operating the Industrial High Performance Unit, check the following:

- That the unit is firmly placed and leveled. _____
- That the duct is sealed and does not leak. _____
- That the unit is grounded and all electric wiring is firm and secure. _____
- That the motor, pump and float are installed properly. _____
- That the water line has no leaks and the water supply is open. _____
- That the motor sheave and pulley are correctly aligned and belt has proper tension. _____
- That the pump is operational and the media is evenly wet. _____
- That the pump is turned on for twelve hours and the water is renewed before using the unit. _____
- That all windows, dampers and supply grilles are open. _____



CAUTION: Evaporative coolers will not operate properly without sufficient relief air.

PREVENTATIVE MAINTENANCE

Giving periodic maintenance to the unit will result in a longer life and better efficiency of the cooler; it will also minimize the unnecessary replacement of parts. Before starting to give any type of service to your unit, please read these instructions carefully.

Maintenance Required	Beginning of Season March-April	Mid-Season July-August	End of Season
Close water supply and drain unit completely.			X
Oil motor and blower bearings.	X	X	X
Tighten all screws.	X	X	
Clean unit and water resevoir.	X	X	X
Clean media.	X	X	X
Clean and oil pump.	X	X	X
Change media pads if necessary.	X	X	X
Periodic Inspection.	X	X	X



CAUTION: Turn off electrical supply before doing any maintenance work on your unit.

CLEANING THE MEDIA

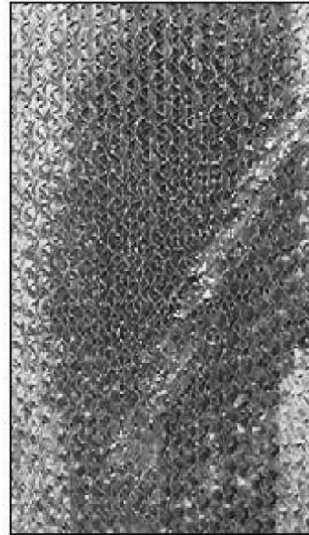
The accumulation of minerals and dust must be eliminated from the surface of the media pads. To do so you must:

- Turn the water supply off
- Make sure media pads are completely dry
- Remove the media pads, first remove the cover from the unit and from the distributor
- Eliminate mineral deposits using a hard plastic brush and water pressure
- Avoid using any type of chemicals that might harm the media pads or cause allergies if inhaled
- Service every three months

The change of media pads is recommended every 5 years or sooner if the media openings are clogged. Place the clean media pads according to air flow arrows indicated on the pads. If indication is not shown, place media with biggest inlet angle towards the outside of the unit.



Brushing



Water Cleaning

CLEANING THE WATER PUMP

To replace or service the pump, please follow these instructions:

- Turn off electrical supply.
- Do not operate pump at different voltage from that specified on plate.
- Pump designed to operate completely submerged in water.
- Do not operate pump without water; motor could be damaged and will result in a loss of warranty.
- Maintain sufficient water level during operation.
- When water container is emptied, keep pump turned off.
- Periodically clean the filter found in the bottom part of the pump to remove solids that could obstruct the pump impeller and cause it to overheat.
- Clean the bottom of the pump completely, inside and outside the impeller using soft soap and clean water.
- Turn the impeller manually to assure that it is free of mineral residue.
- Clean and then replace impeller base.
- Reinstall pump.
- Make sure that filter is place in its original position.



Pump housing

Nipple

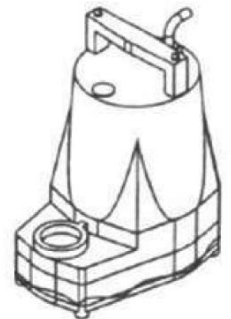
Impeller

Seal

Base

Screw

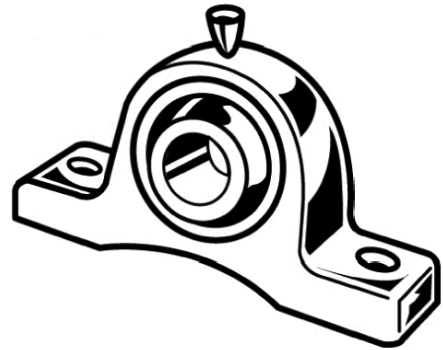
Mesh



LUBRICATION

Oil bearings before operating the unit.

The bearing has an oil inlet for lubrication. Oil motor bearings slowly while spinning shaft to prevent damaging the seal.



PREVENTATIVE MAINTENANCE

Frequent preventative maintenance will prolong the life of your cooler.

The following recommendations should be followed:

- Adjust belt tension and replace if necessary.
- Current data should be as mentioned on product label.
- Water should flow through distributor orifice
- Check that media pads are properly in place
- Check that all screws and bolts are perfectly tightened

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES	REMEDY
Unit fails to start or deliver air	<ol style="list-style-type: none"> 1. No electrical power to unit <ol style="list-style-type: none"> a. Fuse blown b. Circuit breaker tripped 2. Cord(s) damaged or unplugged 3. Belt too loose or too tight 4. Motor overheated and frozen <ol style="list-style-type: none"> a. Belt too tight or broken b. Blower wheel bearings dry c. Motor overloaded d. Faulty wiring or shorts 	<ol style="list-style-type: none"> 1. Check power <ol style="list-style-type: none"> a. Replace fuse* b. Reset breaker* *If condition persists, call electrician 2. Plug in cord or replace 3. Adjust belt tension 4. Replace motor <ol style="list-style-type: none"> a. Adjust belt tension or replace b. Lubricate blower bearings c. Using ammeter, adjust motor to full load nameplate amps d. Call electrician
Unit starts but air delivery inadequate	<ol style="list-style-type: none"> 1. Lack of sufficient air exhaust 2. Motor underloaded 3. Belt too loose 4. Pad plugged 	<ol style="list-style-type: none"> 1. Open windows or doors to increase ventilation 2. Using ammeter, adjust motor to full amps per nameplate 3. Adjust belt tension or replace 4. Rinse or replace pad
Inadequate cooling	<ol style="list-style-type: none"> 1. Inadequate exhaust in house 2. Air registers improperly positioned 3. Insufficient water / pad not wet <ol style="list-style-type: none"> a. Pad plugged b. Distribution holes clogged c. Pump not working d. Loose connection in water system e. Pump basket clogged 	<ol style="list-style-type: none"> 1. Open windows or doors to increase ventilation 2. Adjust to direct air as desired 3. Check water distribution system <ol style="list-style-type: none"> a. Rinse or replace pad b. Clear holes c. Unplug pump. Clean impeller housing of foreign matter d. Check for leaks and correct e. Clean basket
Motor cycles on and off	<ol style="list-style-type: none"> 1. Excessive belt tension <ol style="list-style-type: none"> a. Blower shaft tight or frozen 2. Motor overloaded 3. Incorrect sheave adjustment 4. Pulleys misaligned 5. Service panels, pad or inlet panels are removed 	<ol style="list-style-type: none"> 1. Adjust belt tension <ol style="list-style-type: none"> a. Lubricate blower bearings and rotate shaft by hand (power off) 2. Using ammeter, adjust motor to full load nameplate amps 3. Serviceman should correct 4. Correct alignment 5. Never operate unit with service panels, pad or inlet panel removed. This will result in an overloaded condition and may damage the motor.
Water draining from overflow standpipe	<ol style="list-style-type: none"> 1. Float arm improperly adjusted 2. Seat in float valve leaking 3. Standpipe not tight 	<ol style="list-style-type: none"> 1. Adjust float 2. Replace float valve 3. Tighten standpipe
Knocking or banging sound	<ol style="list-style-type: none"> 1. Bearings dry <ol style="list-style-type: none"> a. Wheel rubbing blower housing or rotating off-balance 	<ol style="list-style-type: none"> 1. Lubricate blower bearings <ol style="list-style-type: none"> a. Inspect blower shaft, collars, belt and pulley alignment and motor mounting
Blower shakes or rattles	<ol style="list-style-type: none"> 1. Belt or pulley loose 	<ol style="list-style-type: none"> 1. Inspect belt and adjust if needed. Adjust or replace pulley.
Excessive humidity in house	<ol style="list-style-type: none"> 1. Inadequate exhaust 	<ol style="list-style-type: none"> 1. Open doors or windows to increase ventilation
Musty or unpleasant odor	<ol style="list-style-type: none"> 1. Stale or stagnant water in reservoir <ol style="list-style-type: none"> a. Pad mildewed or clogged b. Pad not completely wet before cooler is turned on c. New media (pad) 	<ol style="list-style-type: none"> 1. Drain, flush and clean reservoir <ol style="list-style-type: none"> a. Check drain pump b. Turn on water before starting unit c. <u>Note:</u> There will be a slight odor noticed on initial startup. The odor will disappear within the first few days of operation when drain pump is used.

WARRANTY

MODELS: ULA's 5-YEAR LIMITED WARRANTY

Impco extends this limited warranty to the original purchaser of a Symphony Evaporative Cooler installed and used under normal conditions within the continental United States.

- I. 5-year limited coverage for commercial / industrial applications. At our option, we will exchange or repair the wet section bottom pan assembly should any water leakage occur through the base assembly due to rust out during the first five years after date of initial purchase.
- II. One Year Coverage applies to the structural integrity of the pad. We will exchange the pad should it fail as a result of original material or workmanship during the first year from the date of initial purchase.
- III. Two Year Coverage applies to original Symphony pumps and motor. We will exchange these parts should they fail as a result of original material or workmanship during the first year from the date of initial purchase.
- IV. One Year Coverage applies to all other components and accessories furnished by Impco. At our option, we will exchange or repair any part which fails as a result of original material or workmanship during the first year from the date of initial purchase.
- V. **What this warranty does not cover:**
 - a. This warranty does not cover any failure, damage or defect that results from unauthorized modification or service; or from the use of products or replacement parts other than those from Impco; including but not limited to, motors and pumps.
 - b. This warranty does not cover any damage or malfunction unless caused by a defect in material or workmanship. Damage or malfunction which is not covered by this warranty includes. but is not limited to, water damage to the motor, abuse, misuse, alteration, improper installation, maintenance , operation, or transportation damage.
 - c. Mineral accumulations and dirt and dust on the pad are not defects and are excluded from this warranty. Refer to the Owners Guide for maintenance and instructions to help minimize these conditions.
 - d. This warranty does not cover the cost of a service call at the site of installation to diagnose cause of trouble, the cost of labor to install the part, or mileage allowance to or from the site. Impco does not pay freight or postage on any exchange.
 - e. This warranty does not cover evaporative coolers installed and operated outside the continental United States.
- VI. **Do not use cooler cleaners, cooler treatments, or other additives in this evaporative cooler. The use of any of these products will void your warranty and may impair the life of your evaporative cooler.**
- VII. To obtain service under this warranty, contact the dealer where you purchased your evaporative cooler. As a final step or if you cannot locate your dealer, contact Customer Service at www.impcollc.com
- VIII. In case of unsatisfactory warranty service please email Customer Service at Impco. Include your name, address and ZIP code; the servicing dealer involved; the model number of your evaporative cooler; date of installation; and a description of your problem.

Impco

602 281 7816

email: customerservice@impcollc.com

www.impcollc.com

This warranty is the only warranty extended by Impco to suppliers and / or purchasers of this evaporative cooler. Impco disclaims all other warranties, express or implied, that arise by the operation of the law, except that implied warranties of merchantability or fitness for a particular purpose are limited to the duration of the warranty period. Impco shall not be liable for any incidental or consequential damage which may have resulted from any alleged breach of warranty. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the limitations or exclusions stated above may not apply to you.

This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Note: There will be a slight odor that may be noticed during the initial start-up. The odor will disappear within the first few days of operation if the drain system supplied with the cooler is properly installed and used. Since Impco follows a policy of continuous product improvement, it reserves the right to change design and specifications without prior notice or liability.