

HUMCR

Humidifiers



Product Data



Controlling indoor humidity is very important. In many cases the air inside a home is drier than a desert. Dry, indoor air is often the culprit for such common problems as itchy or cracked skin, eye irritation, dry nasal passages, and damaged home furnishings. Dry indoor air can also increase the possibility of catching cold and flu viruses and can reduce the efficiency and effectiveness of the heating system.

All of these problems can be alleviated with the help of a Carrier humidifier. Carrier offers six humidifier models designed to put moisture back into the indoor environment so homeowners can relax in warm, soothing comfort. Depending on the model that best matches the system, a Carrier humidifier can deliver between 12 and 34 gallons (45 and 129 liters) of moisture per day to minimize the problems of excessively dry air. And, because humidified air feels warmer, using lower thermostat settings may be possible for added energy savings.

FEATURES/BENEFITS (Bypass & Fan Powered Models)

Easy Access for Cleaning and Maintenance—The treated aluminum water panel (or wicking paper water panel in the water-saver model) ensures top performance. Front or side access door allows for quick and convenient removal and replacement of water panel.

Smooth, Low-Noise Operation—Nearly silent operation is the result of Carrier humidifier's precision-engineered fan and motor combination on fan powered models. Air is drawn through the water panel quietly and efficiently, turning water into the water vapor that humidifies the home.

Long Lasting, Attractive Cover—The outside casing and interior components of all Carrier humidifiers are made from durable UV resistant plastic. This plastic resists deterioration, even when exposed to ultra-violet light sources common in many systems.

Built-In Bypass Damper—On the LBP, SBP and WBP models.

Optimum Distribution of Moisture—Through the combination of the solenoid valve and water distribution system by Carrier, homeowners will benefit from the most optimum distribution of moisture possible.

Four Humidity Control Options—Choose between four separate control options, the Humidistat, the HumidiTrac™, the Thermidistat™, and the Infinity® system Control. Each of these units provide precise control over the humidity levels in the home.

Granite Gray—Color-compatible with most HVAC equipment.

Water Saver Models - WBP Series units deliver 100% of water used. For use in applications where water costs are high, with septic systems or in drought-stricken areas



FEATURES/BENEFITS (Steam Model)

The steam humidifier delivers humidity in the form of steam to the conditioned space via the HVAC system duct. Unlike older steam humidifiers using electric heating elements, this device generates steam by energizing two electrodes that extend into a canister of water. Current flowing between the electrodes causes the water to boil, creating steam, which is delivered into the air stream through a dispersion tube mounted in the ductwork. Openings in the dispersion tube are fitted with “tubelets” which extend into the center of the tube. The design of the dispersion tube and tubelets distribute steam over a wide area in the duct and direct any condensed moisture back into the steam hose.

- Steam is generated via electrodes in replaceable canister
- Canister can be replaced easily and quickly - no cleaning required
- Capable of operating with either 115 or 208-240 voltage
- Unit can be mounted on wall, duct or indoor unit
- Dispersion technology prevents condensation in duct
- Water filtration not required - suitable for a wide range of water conditions
- Granite gray color, compatible with most HVAC equipment
- Includes: manual control, 6-ft steam hose, dispersion tube, 10-ft drain tubing, hose clamps, saddle valve

MODEL NUMBER NOMENCLATURE

HUM	CR	LFP	15	18
Product Type HUM = Humidifier				Gallons (Liters) Per Day LFP = 18 (68) SBP = 12 (45) LBP = 17 (64) WBP = 17 (64) STM = 34 (129)
Brand - Carrier		Model Type LFP = Large Fan Powered SBP = Small Bypass LBP = Large Bypass WBP = Water Saving Large Bypass STM = Steam	Series 15 = LFP 24 = SBP, LBP, WBP 31 = STM	



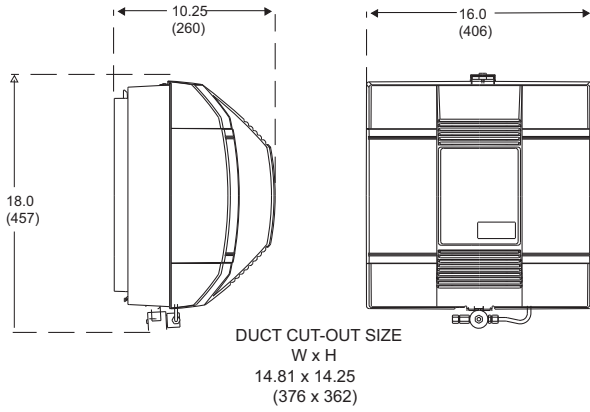
PHYSICAL DATA

MODEL	HUMCRLFP	HUMCRLBP	HUMCRWBP	HUMCRSBP	HUMCRSTM
Output Gallons (Liters)/Day	18 (68)	17 (64)		12 (45)	34** (128**)
TYPE					
Airflow	Fan	Bypass			N/A
Water Flow	Drain Through		Sump with Overflow Drain	Drain Through	Steam
GENERAL					
Water Panel Replacement	P110- 3545 (10 packs)	P110- 3545 (10 packs)	P110- 4545 (5 - 2 packs)	P110- 1045 (10 packs)	N/A
Water Panel in (mm) (H x W x D)	13 x 10 x 1- 11/16 (330 x 254 x43)			9- 7/8 x 9- 5/8 x 1- 11/16 (251 x 244 x 43)	N/A
Water Panel Access	Quick Release Cover				N/A
Unit Size in (mm) (H x W x D)	18 x 16 x 10- 1/4 (457 x 406 x 260)	15- 1/8 x 14 x 10- 1/4 (384 x 356 x 260)		12- 1/4 x 14 x 10- 1/4 (311 x 356 x 260)	21 x 9 x 7- 1/4 (533 x 229 x 184)
Weight lbs (kg)	17.1 (7.8)	8.0 (4)		7.0 (3)	23 (10)
Water Usage Gal (liters)/hr	6 (23)	3 (11)			1.44** (5.45**)
ELECTRICAL CONTROL LOW- VOLTAGE SOLENOID					
Volts	24V- 60Hz				N/A
Amps (Max)	0.5				N/A
VA (Max)	12				N/A
Watts	2.3				N/A
HIGH VOLTAGE CORD					
Volts	120V- 1ph- 60Hz	N/A			120V- 1ph- 60Hz 208V- 1ph- 60Hz 240V- 1ph- 60Hz
Amps	0.7	N/A			11.5 - 16 (nominal)
CONNECTIONS					
Water Inlet	1/4- in. Copper Tubing				
Water Drain	1/2- in. I.D. plastic hose				7/8- in. Tube
Bypass Opening	N/A	6- in. round elbow or straight			N/A
Duct Opening in (mm) (W x H)	14- 13/16 x 14- 1/4 (376 x 362)	9- 7/8 x 12- 5/8 (251 x 321)		9- 1/2 x 9- 1/2 (241 x 241)	1- 1/4- in Round (32)
STANDARD EQUIPMENT					
Water Valve	Solenoid, 24VAC				
Motor	Thermal Protected 120VAC (0.014HP = 1/70 HP)	N/A			N/A
Relay	SPST 24VAC	N/A			DPST 24VAC
Humidistat	24V		24V (not included)	24V	
Saddle Valve	Standard				
Damper	N/A	Standard			N/A
Template	Installation Sheet Included				N/A
ACESSORIES					
HumidiTrac™ Automatic Cntrl	KUAW0101CAC- A10				
Blower Activation Relay	5387				

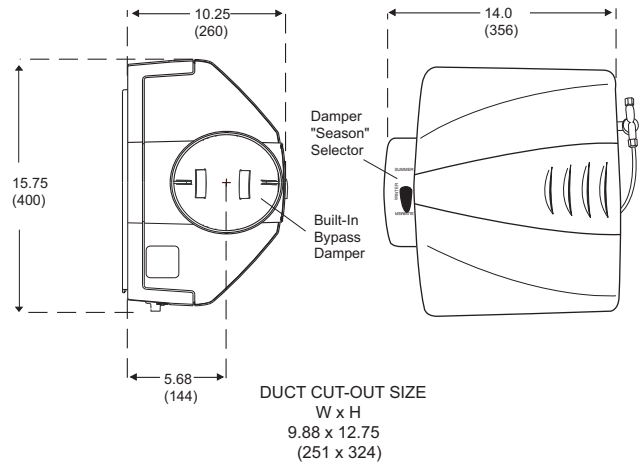
**Varies by voltage and amperage.

DIMENSIONS

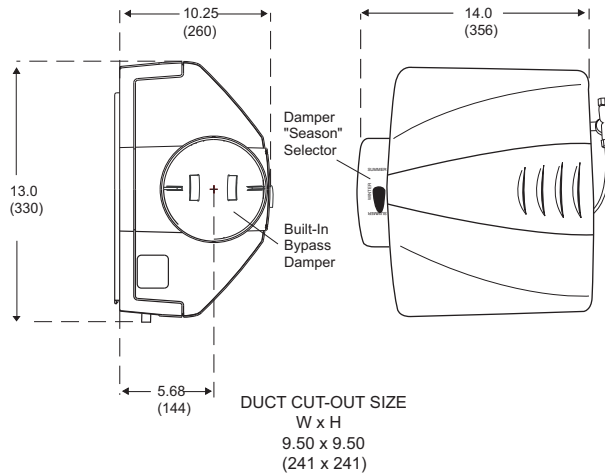
Model HUMCRLFP1518



Model HUMCRLBP2417 & HUMCRWBP2417

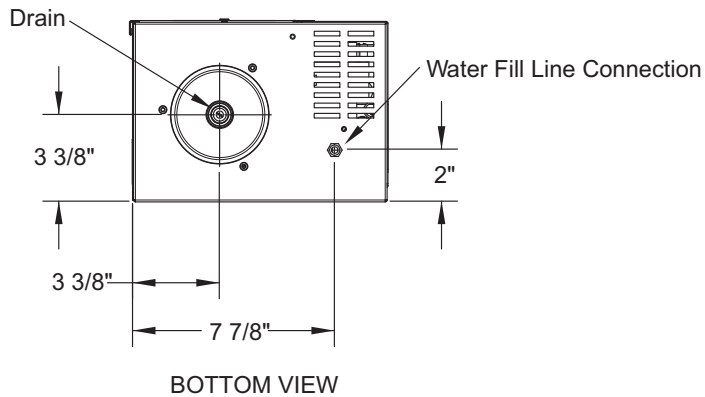
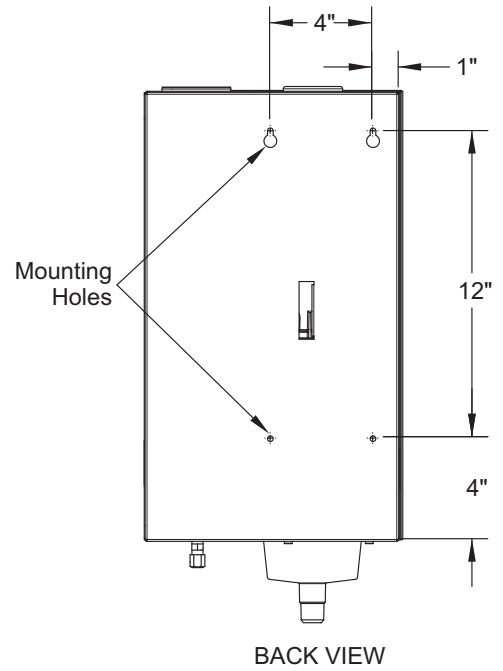
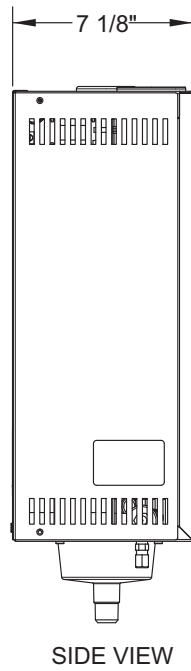
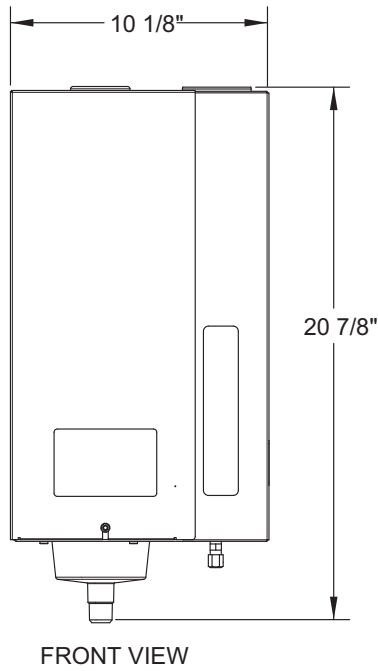
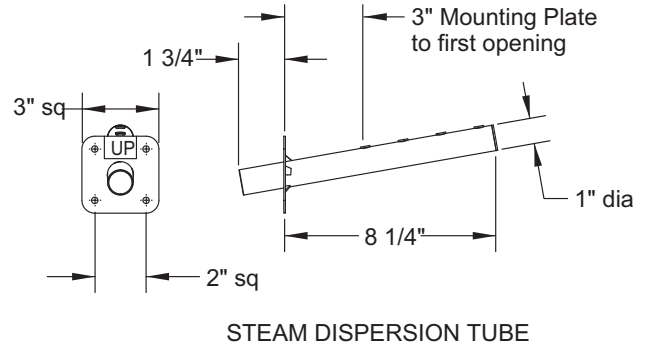
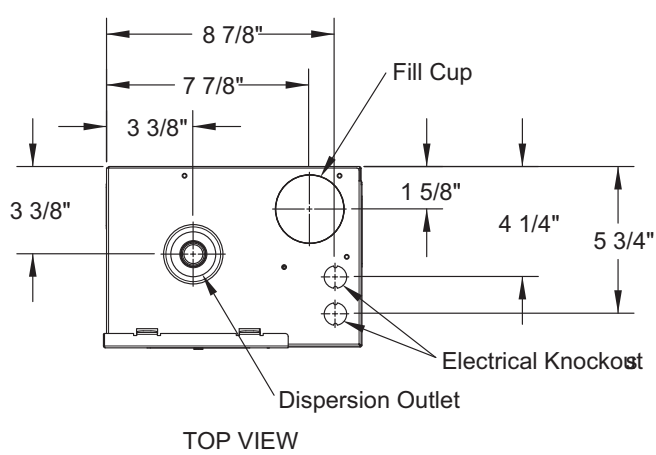


Model HUMCRSBP2412

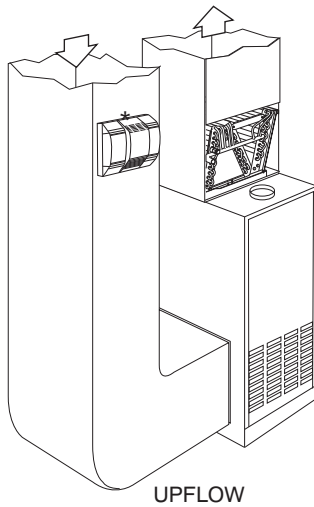
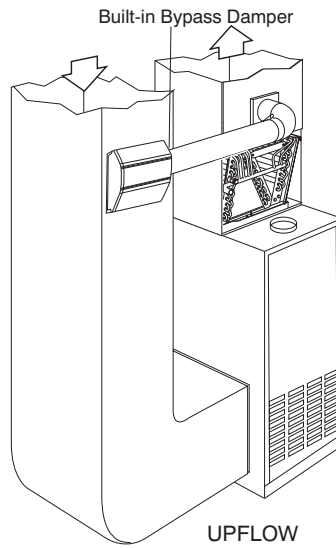
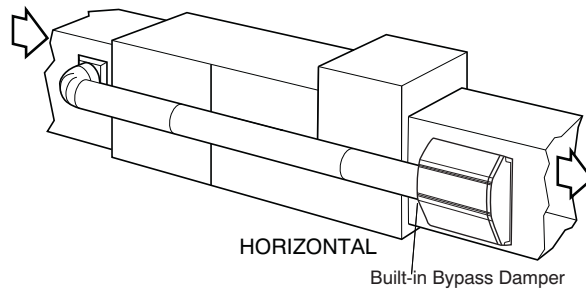
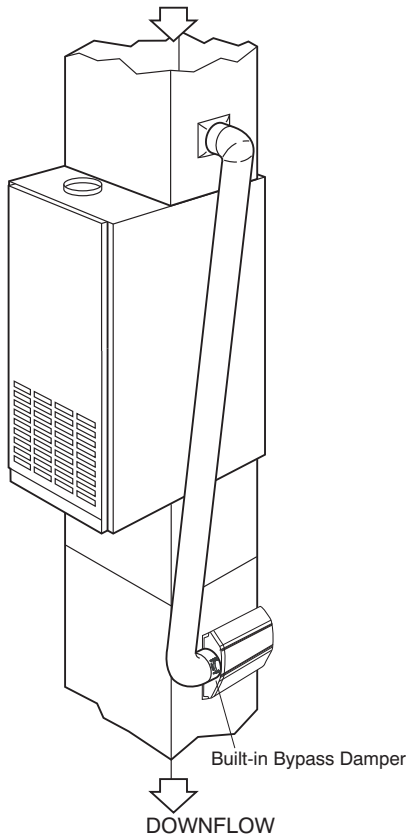


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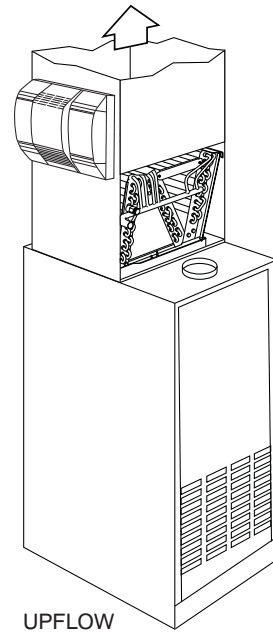
DIMENSIONS (cont.) Model HUMCRSTM3134



TYPICAL HUMIDIFIER INSTALLATIONS (Bypass and Fan Powered Models)



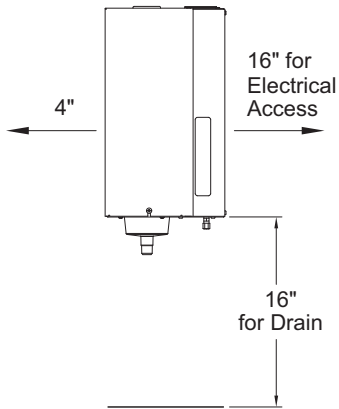
*Note - It is recommended that hot water be supplied in this return air application.



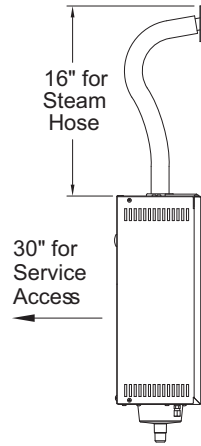
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TYPICAL HUMIDIFIER INSTALLATIONS (Steam Model)

Clearances

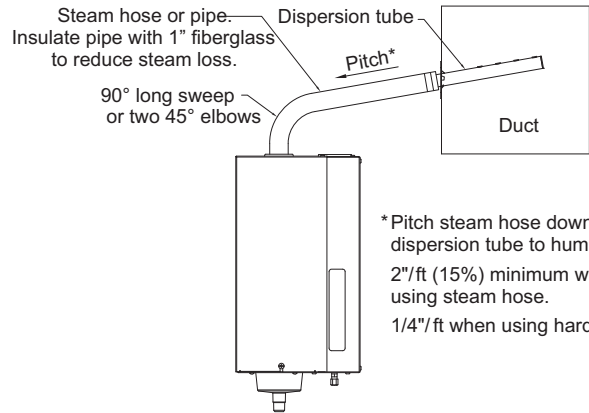


FRONT VIEW



SIDE VIEW

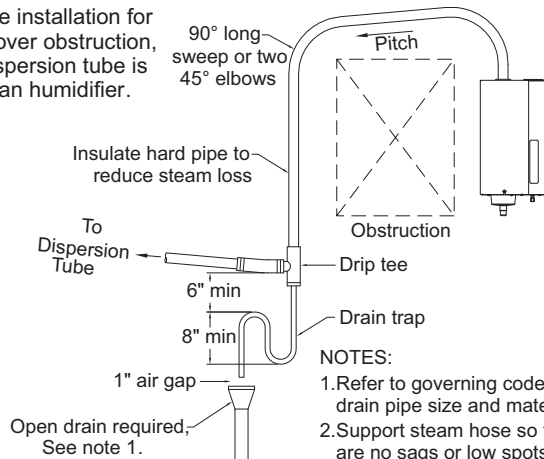
Dispersion Tube Mounted Above Humidifier



* Pitch steam hose down from dispersion tube to humidifier:
2"/ft (15%) minimum when using steam hose.
1/4"/ft when using hard pipe.

Dispersion Tube Mounted Below Humidifier

Drip tee installation for piping over obstruction, or if dispersion tube is lower than humidifier.



NOTES:

1. Refer to governing codes for drain pipe size and materials.
2. Support steam hose so there are no sags or low spots.

A12461

Steam Humidifier Capacity

Steam Hose or Insulated Pipe Length	120 Volts				208 Volts				240 Volts			
	11.5 Amps		16.0 Amps		11.5 Amps		16.0 Amps		11.5 Amps		16.0 Amps	
	Steam Hose	Insulated Pipe	Steam Hose	Insulated Pipe	Steam Hose	Insulated Pipe	Steam Hose	Insulated Pipe	Steam Hose	Insulated Pipe	Steam Hose	Insulated Pipe
<2 ft.	11.5	11.5	16.0	16.0	20.5	20.5	30.0	30.0	23.3	23.3	34.6	34.6
2 ft.	11	11	15.5	15.5	20	20	29	29.5	23	23	34	34
4 ft.	10	11	14.5	15.5	19	20	28	29.5	22	23	33	34
6 ft.	9	11	13.5	15	18	20	27	29	21	22	32	33

STEAM HUMIDIFIER WATER QUALITY CONSIDERATIONS

Minerals that are naturally found in water cause the water to be electrically conductive. Water conductivity is measured in micro Siemens per centimeter (uS/cm). Mineral content, also described as “water hardness” is usually measured in grains per gallon. Because of the variety of minerals that are found in water, there is no direct correlation between water hardness and conductivity, but generally the higher the mineral content, the higher the conductivity.

The Canister Steam Humidifier is designed to operate on water with conductivity between 125 and 1,250 uS/cm. This correlates loosely with water with hardness between 3 and 36 grains/gallon. Water that is considered “hard” and also softened water work well in the humidifier. The humidifier will make steam when plumbed to low-conductivity water but it takes longer to reach nominal capacity.

With low conductivity water, it may take the humidifier one week or more of operation to reach rated capacity, especially if it is wired to operate on 120 volts. When operating on 240 volts, the humidifier usually will reach nominal capacity within a few hours, even with lower conductivity water.

As water in the canister boils and turns into steam, minerals are left behind. Minerals remaining in solution increase the conductivity of

the water. Minerals also deposit onto the submerged portions of the electrodes rendering those areas ineffective. As this occurs, the level of water in the canister rises to expose un-coated electrode surface.

There are benefits and trade-offs to consider when the application allows a choice between hard and softened water:

Hard water: The benefit of hard water is less frequent draining and filling than with soft water, which results in better energy and water efficiency and more consistent steam output. However, canister replacement could be more frequent with hard water, because hard water scale coats the electrodes. The harder the water, the more frequent the need for a new canister.

Softened water: The benefit of softened water is longer canister life (depending on water chemistry) than with hard water, because softened water does not coat the electrodes nearly as much as hard water. However, softened water ions stay in solution to much higher concentrations than hard water ions. This requires more frequent draining and filling, which results in less energy and water efficiency and less consistent steam output.

Conductivity (uS/cm) of water connected to humidifier	Estimated grains/gallon (prior to any water softening)	Hardness (prior to any water softening)	Canister Behavior	Solution
0- 125	0- 3	Naturally Soft	Humidifier does not function	Installation not recommended
125- 300	3- 9	Naturally Soft	Long start up time	Power with 240VAC, use constant fan to increase time to full capacity
300- 500	9- 15	Slightly Hard	Optimal performance range	Use hard or softened water
500- 640	15- 20	Moderately Hard		
640- 840	20- 25	Hard		
840- 1250	25- 36	Very Hard	Shortened canister life due to scale build up	Use softened water
above 1250	36	Extremely Hard	Canister performance degrades quickly	Installation not recommended

NOTE: If softened water is not available, or if non- softened water will be used in the humidifier, use this table to estimate the conductivity of the water delivered to the humidifier. Then take the appropriate actions as necessary. Using softened water is generally acceptable unless the water is extremely conductive. The conductivity of softened water is usually slightly higher than the conductivity of the hard water entering the softener. For softened water, use a conductivity test together with the table above if there is a concern that the water may be too conductive. The manufacturer is not responsible for failures due to misapplication of the product using water that is unsuitable for this technology.

Recommended Relative Humidity by Outdoor Temperature

OUTDOOR TEMP °F (°C)	OUTDOOR RELATIVE HUMIDITY (%)	INDOOR RELATIVE HUMIDITY (%) W/O HUMIDIFIER*	MAX RECOMMENDED INDOOR RELATIVE HUMIDITY†
- 10 (- 23)	30 to 70	1 to 2	20 (Lo)
0 (- 18)	30 to 70	2 to 4	25
10 (- 12)	30 to 70	3 to 6	30
20 (- 7)	30 to 70	4 to 10	35
30 (- 1)	30 to 70	6 to 15	40 (Med)

*Indoor relative humidity level when outdoor air is heated to 72°F/22°C.

†As stipulated by the Air Conditioning Contractors of America.

Indoor Relative Humidity Limit for no Window Condensation (Indoor Air at 74°F/23°C Dry Bulb)

OUTDOOR TEMPERATURE °F (°C)	SINGLE PANE WINDOWS (%)	DOUBLE PANE WINDOWS (%)
40 (4)	39	59
30 (- 1)	29	50
20 (- 7)	21	43
10 (- 12)	15	36
0 (- 18)	10	30
- 10 (- 23)	7	26
- 20 (- 29)	5	21
- 30 (- 34)	3	17

Maximum Moisture Requirements*

VOLUME OF RESIDENCE CUBIC FEET (CUBIC METER)	TIGHT HOUSE		AVERAGE HOUSE	
	POUNDS (KILOGRAMS) PER HOUR	GALLONS (LITERS) PER DAY	POUNDS (KILOGRAMS) PER HOUR	GALLONS (LITERS) PER DAY
8,000 (227)	1.76 (0.8)	5.09 (19)	3.52 (1.6)	10.17 (38)
10,000 (283)	2.21 (1.0)	6.35 (24)	4.41 (2.0)	12.72 (48)
12,000 (340)	2.64 (1.2)	7.63 (29)	5.29 (2.4)	15.26 (58)
14,000 (396)	3.09 (1.4)	8.91 (34)	5.92 (2.7)	17.08 (65)
16,000 (453)	3.53 (1.6)	10.18 (39)	7.06 (3.2)	20.35 (77)
18,000 (510)	3.97 (1.8)	11.45 (43)	7.94 (3.6)	22.89 (87)
20,000 (566)	4.41 (2.0)	12.72 (48)	8.82 (4.0)	25.44 (96)
22,000 (623)	4.85 (2.2)	13.99 (53)	9.71 (4.4)	27.98 (106)
24,000 (680)	5.29 (2.4)	15.27 (58)	10.59 (4.8)	30.52 (116)
26,000 (736)	5.74 (2.6)	16.54 (63)	11.47 (5.2)	33.07 (125)
28,000 (793)	6.18 (2.8)	17.81 (67)	12.35 (5.6)	35.61 (135)
30,000 (850)	6.62 (3.0)	19.08 (72)	13.24 (6.0)	38.16 (144)

*Based on design conditions of outdoor 20°F/- 7°C dry bulb, 80% RH; indoor 70°F/21°C dry bulb, 40% RH, and minimum moisture production from residential operations for an absolute humidity difference of 0.0049 lb/hr.

NOTE: Tight house is defined as being well insulated, having vapor barriers, tight storm doors and windows with weatherstripping, and having dampered fireplaces. Average house is defined as being insulated, having vapor barriers, loose storm door and windows and having dampered fireplace.

Humidifier Replacement Water Panels and Canisters

DESCRIPTION	USED WITH	TOTALINE® ORDERING NO.
Replacement Water Panel	HUMCRLFP1518	P110- 3545 (10 packs)
	HUMCRLBP2417	
	HUMCRSBP2412	P110- 1045 (10 packs)
	HUMCRWBP2417	P110- 4545 (Five 2 packs)
Steam Canister	HUMCRSTM3134	8045HUM
Blower Activation Relay	All Models	5387

Humidifier Accessories

DESCRIPTION	USED WITH	PART NO.
HumidiTrac™ Automatic Control	HUMCRLFP1518	KUAWC0101CAC- A10
	HUMCRLBP2417	
	HUMCRWBP2417	
	HUMCRSBP2412	
	HUMCRSTM3134	
Humidistat Manual Control	HUMCRWBP2417	4363 (Totaline)
Relay	HUMCRLFP2417	HN61KQ120 (Totaline)