

READ AND SAVE THESE INSTRUCTIONS

# DRI-STEEM CRU<sup>®</sup> SERIES ELECTRIC STEAM HUMIDIFIERS

Installation Instructions  
and  
Maintenance Operations  
Manual

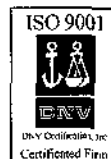


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**DRI-STEEM<sup>®</sup>**  
HUMIDIFIER COMPANY



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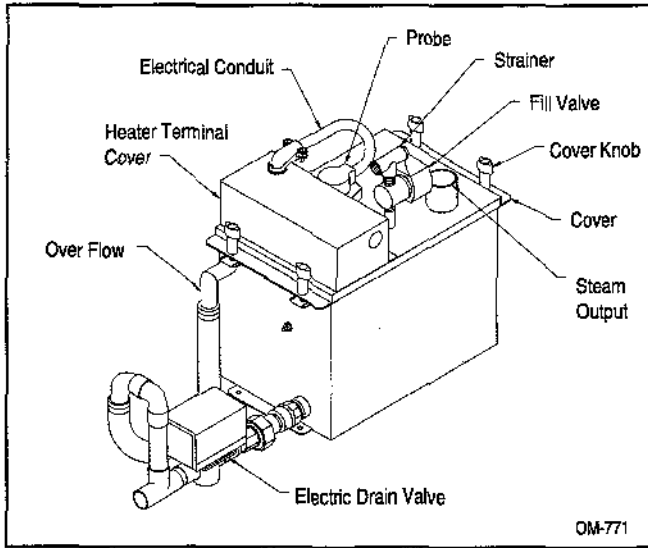
Thank you for purchasing our CRU® Series humidification equipment. We have designed and built this equipment to give you total satisfaction and many years of trouble-free service. Proper installation and operating practices will assure you of achieving that objective. We therefore urge you to become familiar with the contents of this manual.

DRI-STEEM Humidifier Company

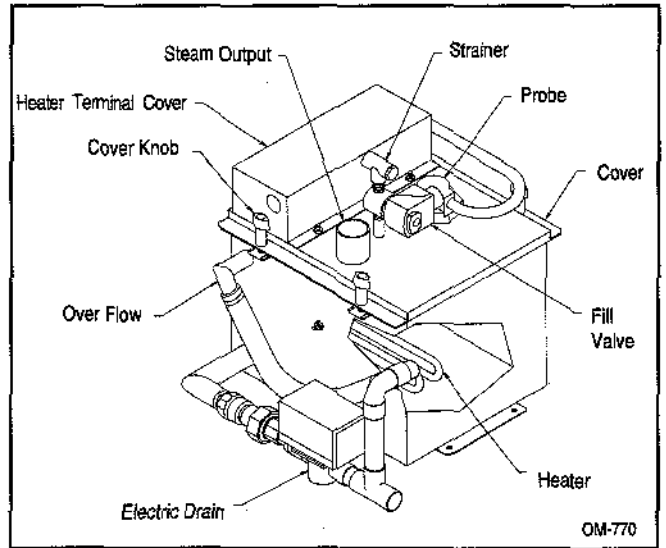
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# CRU® SERIES HUMIDIFIERS

**Figure 3-1: The CRU Humidifier**



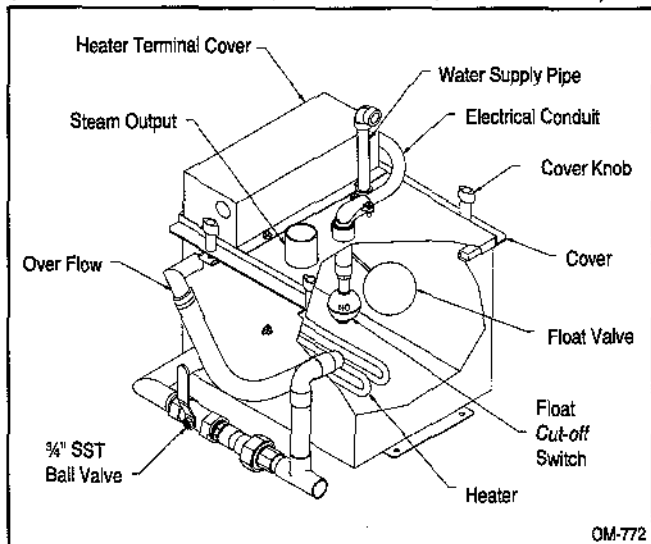
**Figure 3-2: The CRUV Humidifier (CRUV 2-16 shown, CRUV 25,34 not shown)**



## CRU Series Humidifiers

This humidifier is designed to be used with either softened or unsoftened water (softened water will reduce humidifier maintenance and improve overall system performance). The probe-type level control system requires water conductivity of at least 100  $\mu\text{S}/\text{cm}$  (34 mg/l) to function, and therefore will not operate with demineralized water. For humidification using demineralized water, see CRUV-DI below.

**Figure 3-3: The CRUV-DI Humidifier (CRUV-DI 2-16 shown, CRUV-DI 25,34 not shown)**



## CRUV-DI Humidifiers

The evaporating chamber of this humidifier is constructed of corrosion-resistant stainless steel alloy to resist the corrosive effects of mineral-free water. Since the CRUV-DI humidifier is designed for use with deionized or RO demineralized water, there is no need to clean the unit, although an annual inspection of the evaporating chamber is recommended.

# INSTALLATION

Locate the CRU® humidifier near an electric power source, water supply and a drain.

## In an Air-Conditioning Unit

When installing a humidifier inside an air conditioning unit, provide adequate support; allow easy access for removing and servicing the evaporating chamber, and provide adequate clearance to install the vapor hose and tube (see figure 4-1).

## In a Duct

When installing the dispersion tube in a duct, allow for a continuous pitch of the vapor hose back to the evaporating chamber. Otherwise use a water seal and drain (see examples in figures 4-2 and 5-1). The dispersion tube can also be placed vertically in the duct with some models (see figure 5-2).

Place the electrical sub-panel in a grounded protective metal enclosure and mount in a dry and accessible location.

If draining the evaporating chamber by gravity is not possible, use a small condensate lift pump, rated to pump 100° C water.

## Examples of Installation in an Air Stream

Figure 4-1: Installation in an Air-Conditioning Unit

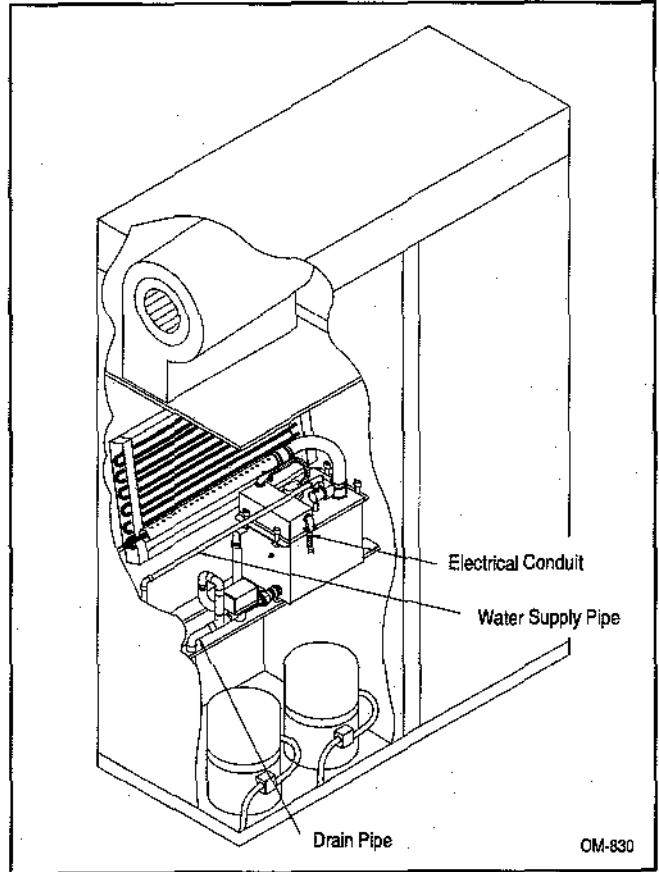
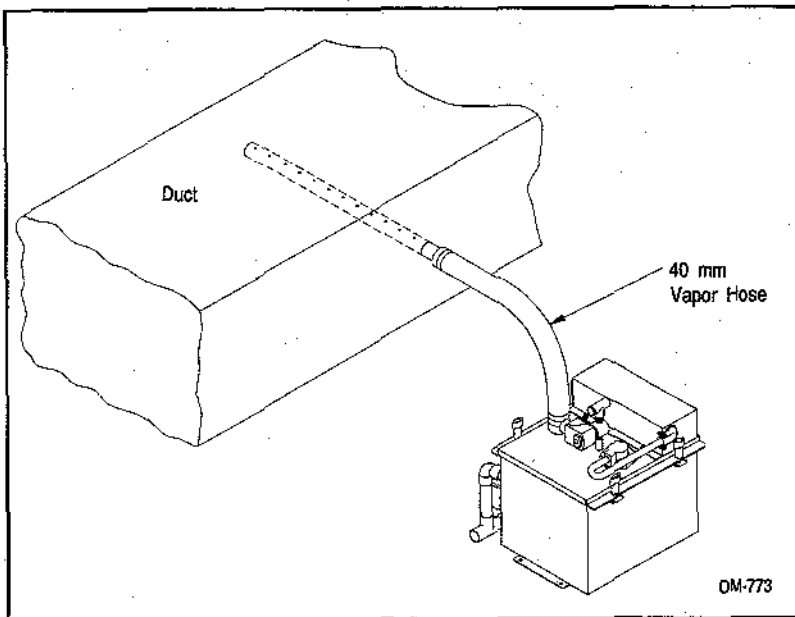


Figure 4-2: Horizontal Dispersion Tube

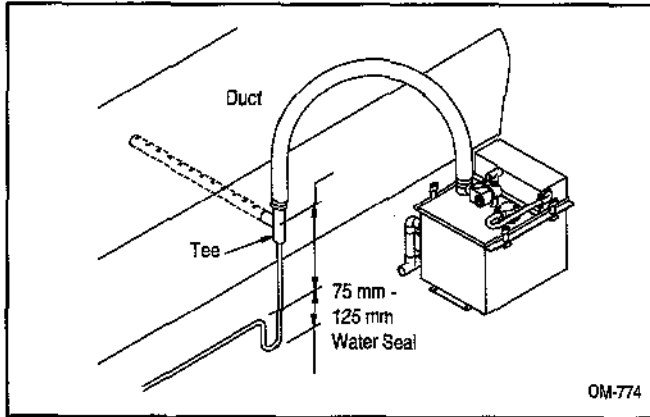


Horizontal mounting of dispersion tube in a duct, connected via vapor hose to a wall-mounted CRU Series humidifier.

# INSTALLATION

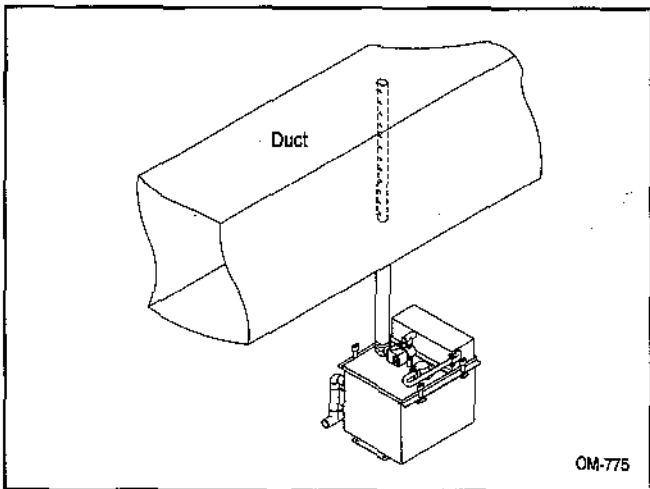
**Caution: Only qualified electrical personnel should perform installation procedures.**

**Figure 5-1: Horizontal Dispersion Tube Lower Than Humidifier**



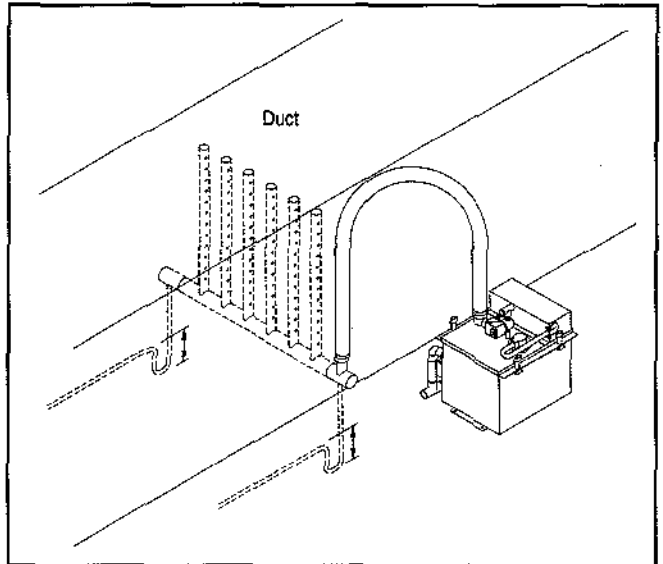
When horizontally mounting the dispersion tube in an air stream that is located lower than the CRU® Series humidifier, a water seal (to prevent steam from escaping at the open drain) must be provided in the drain line and line extended to open drain, as shown, to drain the condensate. **A multiple dispersion tube bank must be used with CRUV-34 because of its high output (see figure 5-3).**

**Figure 5-2: Vertical Dispersion Tube**



The dispersion tube can be mounted vertically in the duct. Note: When dispersion tube is more than 3 metres from unit, insulated, 38 mm diameter minimum, rigid tubing or pipe should be used instead of vapor hose. **Not recommended for CRUV-16, -25, and -34.**

**Figure 5-3: RAPID-SORB™ Rapid Absorption Tube Bank**



When rapid absorption is extremely critical, a RAPID-SORB multiple-tube bank can provide 100% steam absorption within one metre or less - at any duct temperature. **Also required for CRUV-34.**

For complete information on calculating the number of dispersion tubes required to satisfy steam absorption distance requirements, consult your sales representative, the DRI-STEEM factory, or use DRI-STEEM's DRI-CALC II Humidification Sizing and Selection Software.

## PIPING

Water make-up piping may be of any code-approved material (copper, steel, or plastic). The final connection size is 1/4". In cases where water hammer may be a possibility, a shock arrester should be considered (water pressure 170 kPa minimum to 520 kPa maximum).

Drain piping may be of any code-approved material (copper, steel, or plastic rated for 100° C minimum). If drainage by gravity is not possible, a small lift pump should be used.

The final connection size is 20 mm O.D. for evaporator drain. This connection size should not be reduced. (Refer to applicable codes, allowing minimum one fixture unit per humidifier, for drain pipe sizing requirements.) The evaporator drain should be piped to and discharged into a floor drain.

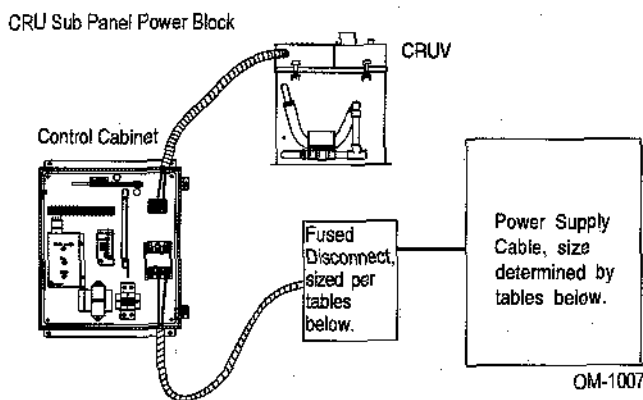
# WIRING

All wiring must be in accordance with all governing codes, and with CRU® or CRU-DI wiring diagram. The diagram is located inside the removable front panel on the right-hand side of the humidifier cabinet. Power supply wiring should be rated for 105° C temperature.

Refer to the amp draw on the rating plate, and use the following tables to determine the appropriate wire, conduit and fused disconnect requirements.

When selecting a space to install the CRU avoid areas close to sources of electromagnetic emissions such as power distribution transformers.

**Figure 6-1: Field Wiring Requirements**



Control wiring and power wiring must be run in dedicated or separate earthed metal conduit, cable trays or trunking.

**Grounding Requirements:**  
The earth must be made by solid metal to metal connections. The ground must be a good radio frequency earth. Ground wire should be same size as power wiring.

**Table 6-1: Conduit and Wire Size**

**Amp Draw	Incoming Wire Size		Conduit Size (Ø mm)	
	AWG	KcMIL (mm <sup>2</sup> )	2 Conductor and Ground	3 Conductor and Ground
	0-12.5	14	2.5	20
12.6-16.7	12	4.0	25	32
16.8-25.0	10	6.0	25	32
25.1-41.7	8	10.0	32	32
41.8-54.2	6	16.0	32	40

**Table 6-2: Conduit and Wire Size**

**Amp Draw	Incoming Wire Size		Conduit Size (Ø mm)
	AWG	KcMIL (mm <sup>2</sup> )	4 Conductor and Ground*
0-10.0	14	2.5	32
10.1-13.3	12	4.0	32
13.4-20.0	10	6.0	32
20.1-33.3	8	10.0	40
33.4-43.3	6	16.00	40
43.4-56.7	4	25.0	50

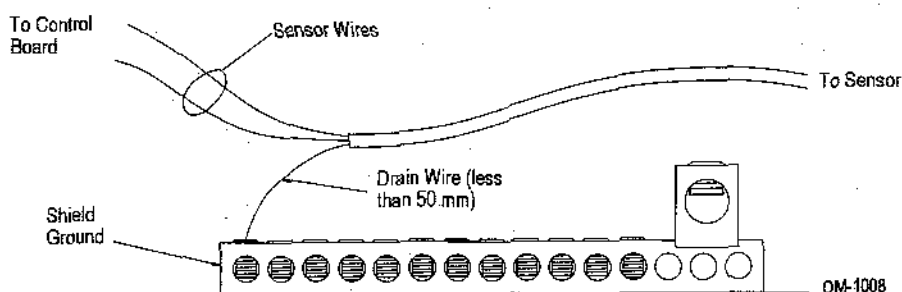
\* For use with star wiring for 240V heaters used with 415V supply.

\*\*Refer to Amp Draw on Rating Plate

**Table 6-3: Fuse/Breaker Requirements**

**Amp Draw	Breaker Size (A)
0-11.3	13
11.4-13.9	16
14.0-17.4	20
17.5-19.2	25
19.3-21.7	25
21.8-27.8	32
27.9-34.8	40
34.9-43.5	50
43.6-52.5	63

**Figure 6-2: Shielded Cable Drain Wire Connection to Earth Bar**

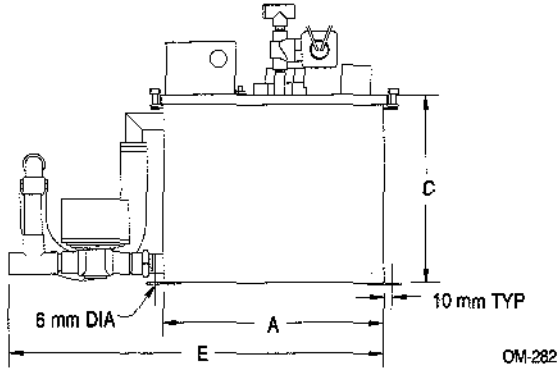


For maximum E.M.C. effectiveness, all humidity, temperature and air flow controls should be wired using multi-conductor shielded plenum-rated cable with a drain wire for the shield. The drain wire should be connected to the shield ground terminal with its length kept to less than 50 mm.

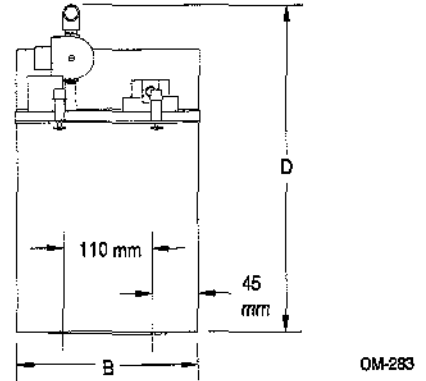
# SPECIFICATIONS, CAPACITIES, AND DIMENSIONS

## CRU® Series Mechanical/Electrical Specifications

**Side Elevation**



**End Elevation**



**Table 7-1: CRU Dimensions (in millimetres)**

Model	A	B	C	D	E
CRU-2 & 4	286	197	216	318	540
CRU-6 & 8	362	197	241	343	616

NOTE: The "CRU" differs from the "CRUV" in evaporating chamber size, heater KW and arrangement of drains and overflow plumbing.

**Table 7-2: CRU Mechanical/Electrical Specifications and Capacities**

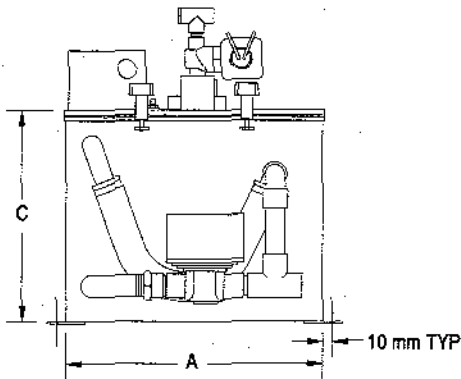
	CRU-2	CRU-4	CRU-6	CRU-8
<b>Operating Weight</b>	17.5 kg	18 kg	24.1 kg	24.1 kg
<b>Shipping Weight *</b>	14.1 kg	14.5 kg	15.9 kg	15.9 kg
<b>230V/1</b>	8.0	16.0	24	31.9
<b>kW</b>	1.84	3.68	5.52	7.36
<b>Output kg/h</b>	2.5	5	7.5	10
<b>400V/3</b>	--	8.7	13.0	17.3
<b>kW</b>	2	4	6	8
<b>Output kg/h</b>	2.7	5.4	8.2	10.9

\* Subtract 4 kg from total weight for models without pre-wired subpanel.

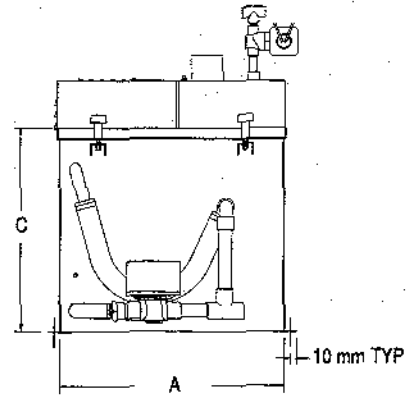
# SPECIFICATIONS, CAPACITIES, AND DIMENSIONS

## CRUV® Series Mechanical/Electrical Specifications

### Side Elevation

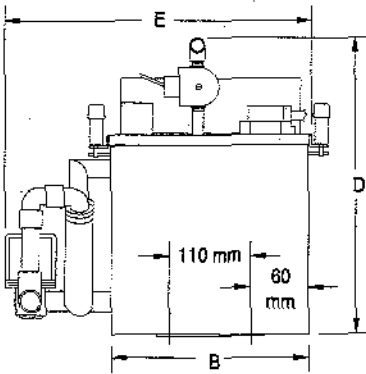


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### End Elevation



OM-286

**Table 8-1: CRUV Dimensions (in millimetres)**

Model	A	B	C	D	E
CRUV/CRUV-DI-2 & 4	288	229	216	318	343
CRUV/CRUV-DI-5, 8 & 10	365	264	241	343	378
CRUV/CRUV-DI-12 & 16	365	264	286	400	378
CRUV/CRUV-DI-25 & 34	365	264	403	454	378

NOTE: Charts shown here can be used for CRUV-DI sizing.

**Table 8-2: CRUV Mechanical/Electrical Specifications and Capacities**

	CRU-2 CRUV-DI-2	CRU-4 CRUV-DI-4	CRU-6 CRUV-DI-6	CRU-8 CRUV-DI-8	CRU-10 CRUV-DI-10	CRU-12 CRUV-DI-12	CRU-16 CRUV-DI-16	CRUV-21	CRU-25 CRUV-DI-25	CRU-34 CRUV-DI-34
<b>Operating Weight</b>	17.5 kg	18 kg	24.1 kg	24.1 kg	25.7 kg	30.4 kg	30.4 kg	47.5 kg	47.5 kg	52.5 kg
<b>Shipping Weight*</b>	14.1 kg	14.5 kg	15.9 kg	15.9 kg	17.5 kg	20.7 kg	20.7 kg	26.2 kg	26.2 kg	31.2 kg
<b>230V/1</b>	8.0	16.0	24.0	31.9	39.9	47.9	--	--	--	--
<b>kW</b>	1.84	3.68	5.52	7.36	9.2	11.04	--	--	--	--
<b>Output kg/h</b>	2.5	5	7.5	10	12.5	15	--	--	--	--
<b>400V/3</b>	--	8.7	13.0	17.3	15.2	17.3	23.1	30.3	36.1	49.1
<b>kW</b>	2	4	6	8	10	12	16	21	25	34
<b>Output kg/h</b>	2.7	5.4	8.2	10.9	13.6	16.3	21.8	28.6	34	46.3

\* Subtract 4 kg from total weight for models without pre-wired subpanel.



# START-UP AND OPERATION

## Start-up and Checkout Procedures

After the system has been properly installed and connected to both electrical and water supplies, it may then be started.

### Mounting

Check mounting to see that the unit is level and securely supported before filling with water.

### Piping

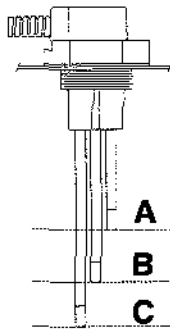
Verify that all piping connections have been completed as recommended and that water pressure is available.

### Electrical

Verify that all wiring connections have been made in accordance with all governing codes and the enclosed wiring diagram.

**Caution: Only qualified personnel should perform start-up procedure.**

**Figure 9-1: Electronic Probe Control for Maintaining Proper Water Level (CRU® and CRUV)**



OM-211

A simple three-probe conductivity sensor cycles a solenoid-operated water fill valve to maintain the proper water levels.

The CRU Series humidifiers are available with either the standard LW 415 Electronic Water Level Control Module or the optional VAPOR-LOGIC<sub>2</sub> microprocessor control system. If the system is equipped with the VAPOR-LOGIC<sub>2</sub> system, see the VAPOR-LOGIC<sub>2</sub> Operations and Maintenance Manual for more information. Then continue reading this manual beginning at the maintenance section on page 11.

## LW415 Electronic Water Level Control Module

When the power is activated the solenoid-operated water fill valve will open, filling the evaporating chamber. Filling will continue until water reaches level A, at which time the fill valve will close. To ensure that a water seal is created in the overflow hose, disconnect probe plug and cable from probe rod assembly (located on cover,) allowing the fill valve to re-energize and overflow humidifier tank. This process will take only seconds; probe plug and cable must then be reconnected. A call for humidity will then energize the heating element.

### Water Refill

During operation, when the water line drops to level B the fill valve opens, and remains open until the water line returns to level A.

### Heater Protection

Should the water line ever drop below level C, the heaters will then de-energize and remain OFF until the water line has been restored to level C. This feature provides heater protection in the event of a low-water condition.

### Surface Skimmer

Each time the evaporating chamber refills, the upper 6 mm of water is immediately drained off through the skimmer. This drains away the mineral residue formed during the previous evaporating cycle. This skimming action effectively removes most of the mineral precipitate in much the same way as a surface blowdown does in a steam boiler. This simple device greatly reduces the time between evaporating chamber cleanings.

## START-UP AND OPERATION

### Drain/Flush Feature

This control module contains an integral electronic timer which tracks the humidifying time of the unit. When this accumulated time reaches what has been set in the timer, the drain/flush cycle is activated. Upon activation, the following sequence occurs:

1. The drain valve opens and begins to drain surface water and minerals from the evaporating chamber.
2. When the height of the water drops to the REFILL level, the fill valve opens.
3. The drain and fill valves remain open for ten more minutes, flushing the chamber.
4. The drain valve then closes, the chamber refills, and the fill valve closes. The timer resets and the unit resumes normal operation.

The electronic timer comes factory-set for drainage after 40 hours of operation. Alternate settings of 20 hours and 80 hours are available. See wiring diagram(s) attached to unit for timer board location and instructions for changing the timer setting.

### Test Cycling the Drain/Flush System

The level control board contains four pairs of terminal pins which are marked 20, 40, 80 and T (TEST). To test:

1. Pull the pin block off the pair of pins in use, move it to the T pair, and push it on.
2. Set the humidistat high enough so that unit will remain on call for at least one hour.
3. After about 35 minutes of operation, activation will take place, causing the drain valve to open. The water level will then drop to level B (see figure 9-1 on page 9) and cause the fill valve to open. Both valves will remain open for about 10 minutes.
4. The drain valve will then close, and the water level will rise to level A (see figure 9-1 on page 9), causing the fill valve to close.
5. Once the test cycle is complete, move the pin block back to the desired pair of pins. **Failure to do so will result in a drain/flush cycle every 35 minutes.**

### CRUV® Make-up Water Piping

If the water pressure is above 415 kPa and/or water hammer would be objectionable, a pressure-reducing valve or shock arrester should be installed. Even though the humidifier has an internal 25 mm air gap, some local codes may require a vacuum breaker.

**Important:** Minimum water supply pressure is 172 kPa.

### CRUV-DI Water Level Control System

The basic water level system and circuit for heater protection in the event of a low-water condition is common to all DI humidifiers and can be found in the wiring diagram shipped with the unit.

### CRUV-DI Start-Up Procedure

- a) Adjust humidistat to call setting.
- b) Open shut-off valve on water supply line. Unit should begin filling with water through the fill valve.
- c) Shortly before the fill valve shuts off, the float-operated heater cut-off switch will "make". When this switch "makes", the heating element contactor(s) will be actuated. A time delay circuit relay prevents contactor chatter due to bouncing of heater cut-off float.
- d) Check heater cut-off circuit.
  1. Close manual valve on water supply.
  2. Open drain valve and start draining unit.
  3. When water level drops past switching level on the heater cut-off float, the heating element contactor(s) will drop out.
  4. When step 3 has been satisfactorily completed, close drain valve.
- e) Check function of field-installed safety controls, such as the fan proving switch. Contactor(s) should drop out when any proving switch is open.
- f) Check heater draw by testing and recording voltage and amperage in each phase. Readings should match name plate readings; name plate is located on the humidifier housing.
- g) Inspect installations for steam or air leaks while operating the humidifier. Any leaks should be sealed.

**Caution: Overtightening will cause leaks.** All cover knobs are turned down at the factory until the bottom of the knob makes contact with the flange, then one half turn further. If more compression is required, turn all knobs a half turn more. Do not turn knobs more than a half turn before identifying that a leak still exists.

## MAINTENANCE

**Caution:** Allow unit to cool before performing any maintenance. Manually open the drain valve and the fill valve will be energized. Let the fill water run until the tank is cooled then shut off the contractor installed supply water valve.

### CRU® and CRUV Humidifiers (Non-DI humidifiers with either the LW 415 or VAPOR-LOGIC<sub>2</sub> Control Systems)

#### Mineral Precipitate

As evaporation takes place in the CRU humidifier, some of the minerals dissolved in the water precipitate out and float on the water surface. The minerals not removed by the skimmer will settle to the bottom of the evaporating chamber.

#### Cleaning the Evaporating Chamber

The heating element itself is self-cleaning. The mineral buildup on the element flakes off after reaching a thickness of about 2 mm, and settles to the bottom of the chamber.

Long heater element life can be expected when the operation of the humidifier is observed for a few weeks following initial start-up. By observing the mineral build-up rate, the frequency of both drain/flush use and manual cleaning can be determined and adjustments made.

Cleaning once or twice a season is usually adequate, assuming the water has no more than 260 milligrams of dissolved solids per litre.

**CAUTION:** Before this mineral scale builds up on the underside of the heating element, it must be removed. Failure to do so may result in premature heater burn-out.

The CRU humidifier is designed for convenient cleaning and maintenance.

#### To Service:

1. Shut off all electrical power to humidifier. Drain evaporating chamber by manually opening DRAIN valve. Do this by moving lever on valve to MANUAL position and lock in place.
2. Disconnect flexible vapor hose from evaporating chamber.
3. Unscrew utility knobs and remove cover.
4. Disconnect overflow hose and drain valve.
5. Remove evaporating chamber and clean.
6. Unscrew probe-rod assembly. Scale should flake off easily. Build-up on tips should be scraped off to remove any mineral residue.

7. Replace chamber cover, making sure chamber is sealed tight.
8. Reconnect flexible vapor hose, overflow hose and drain valve.
9. Verify drain valve lever is in AUTO position.
10. The CRU humidifier is again ready to humidify when power is restored.

#### Off-Season Shutdown

1. Switch off power.
2. Turn off water supply to make-up valve.
3. Drain evaporating chamber\* and clean if necessary (see steps 1 through 10 above).
4. Leave chamber dry, power OFF and water shut-off valve closed until the next humidification season.

#### CRUV-DI Humidifier

##### To Service

1. Shut off electric power to unit.
2. Shut off water supply to make-up valve.
3. Allow time for evaporating chamber to cool.
4. Make sure evaporating chamber is drained by manually opening the drain valve.
5. Check condition of the overflow hose.
6. Remove evaporating chamber as follows: Disconnect flexible vapor hose on top of evaporating chamber. Close drain valve. Disconnect unit from drain. **DO NOT DISCONNECT ANY OF THE ELECTRICAL CONDUITS.**
7. Unscrew utility knobs and remove cover.
8. Check operation of float valve and low-water cut-out.
9. Inspect heating elements.
10. Inspect evaporating chamber and clean if necessary.
11. Inspect cover gasket, and replace if necessary.
12. Replace chamber cover.
13. Reconnect all flexible hoses.
14. Verify drain valve is in the closed position.
15. Open water supply valve and turn on electric power.
16. CRUV-DI humidifier is again ready to humidify.

#### Off-Season Shutdown Procedure

1. Switch off electrical power to unit.
2. Check overall appearance of unit.
3. Shut off water supply to make-up valve.
4. Drain evaporating chamber by manually opening drain valve.
5. Visually check electrical components of subpanel.
6. Leave chamber dry, power off, and water shut-off valve closed until the next humidification season.

\* With VAPOR-LOGIC<sub>2</sub> option, the evaporating chamber is automatically drained after 72 hours without a call for humidity.

## CRU® TROUBLE-SHOOTING GUIDE

(LW 415 Electronic Water Level System Only)\*

PROBLEM	CONTROL PANEL LIGHTS			POSSIBLE CAUSE	RECOMMENDED ACTION
	FILL	READY WATER	DRAIN		
Humidifier will not heat	Off	Off	Off	Control transformer	Verify control voltage across secondary leads of transformer. Reset transformer circuit breaker.
	Off	On	Off	Humidistat is not calling	Set humidistat to call. Inspect for faulty humidistat.
				Safety controls open	Check safety controls, air flow switch, high limit humidistat, etc.
				Faulty control board	Verify control voltage between terminals H & N.
			Probe head deterioration**	Replace probe head.	
Humidifier will not fill	On	Off	Off	No water pressure at valve.	Check water supply/shut off valves.
				Faulty water fill valve	Verify action of fill water solenoid valve by turning control module switch from standby to normal op. Audible click should be heard as solenoid operates.
				Plugged strainer	Check strainer.
				Plugged valve	Check valve.
			Faulty control board	Verify control voltage across terminals H & N.	
Humidifier does not stop filling	On	Off	Off	Lack of tank to probes electrical continuity. Water conductivity 100 $\mu$ S/cm (34 mg/l) min.	Jumper wires brown to yellow. If water stops, verify tank ground; check water supply conductivity; then consult factory.
				Fill valve is stuck open	Check valve for foreign matter.
				Drain Valve not closed Fill valve installed backward	Check for correct water flow, through valve, note arrow.
	On	Off	On	Auto-drain mode	Wait for auto sequence to end.
Low output	Off	On	Off	Electric drain valve not seating	Correct cause of leakage or replace valve.
	Off	On	Off	Fill valve is stuck open	Check valve for foreign matter.
Unit short cycles	On & Off	On	Off	Probes may be incorrectly wired or need cleaning	Confirm that unit is wired per diagram. Clean probe rod tips with steel wool.
Reduced or no output even though water is at the proper level	Off	On	Off	Heater malfunctioning	Verify that proper voltage is being applied to heaters. Check heater (amp draw and compare to wiring diagram ratings).
				Malfunctioning control system	Heater contactor not functioning—replace. Service fuses blown. Auxiliary limit controls not allowing system to operate (duct humidistat, air flow proving switch, etc.). Reset, replace or calibrate as required. Faulty or inaccurate humidistat, replace or calibrate.

\*For VAPOR-LOGIC<sub>2</sub> trouble-shooting, see the VAPOR-LOGIC<sub>2</sub> Operations and Maintenance Manual.

\*\*Probe rod corrosion or probe head material aging may cause level control system failure. This generally does not occur in the first two years of operation.

# CRUV® -DI TROUBLE-SHOOTING GUIDE

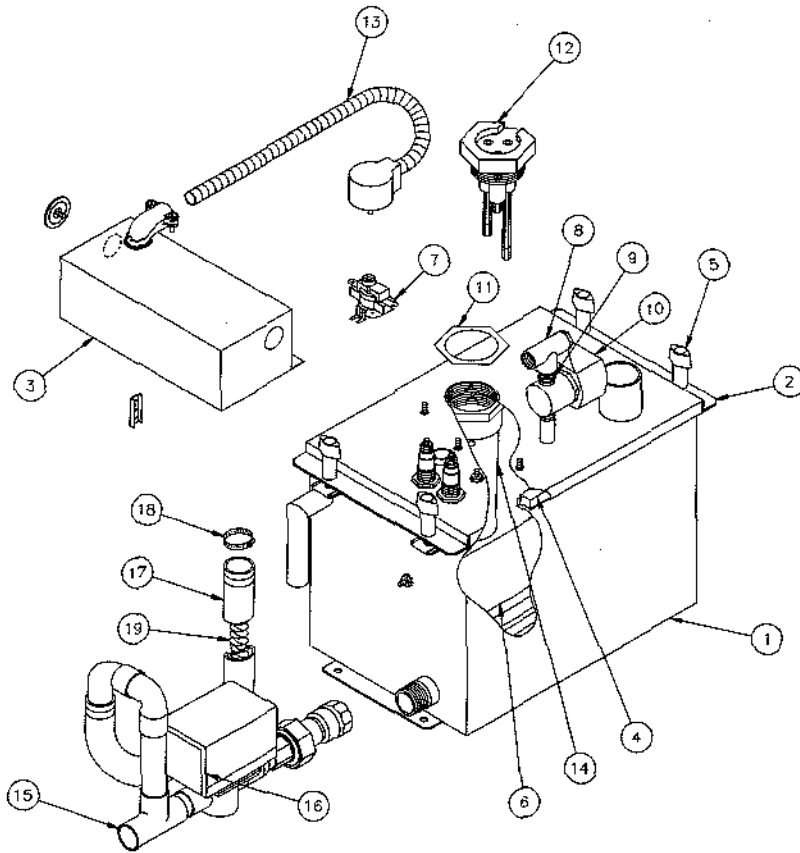
(LW 415 Electronic Water Level System Only)\*

PROBLEM	READY WATER	POSSIBLE CAUSE	RECOMMENDED ACTION
Humidifier will not heat	Off	Control transformer  Humidistat is not calling  Safety controls open  Low water float switch	Verify control voltage across secondary leads of transformer. Reset transformer circuit breaker.  Set humidistat to call. Inspect for faulty humidistat.  Check safety control. Air flow switch, high limit humidistat, etc.  Verify control voltage from float switch and transformer secondary common.
Humidifier will not fill	Off	No water pressure at valve  Malfunctioning water float valve  Plugged float valve	Check manual water supply. Valve, minimum 200 kPa water pressure.  Check to make sure that valve float & stem moves freely.  Check float valve seat.
Water float valve does not close	On	Open drain valve  Manual drain valve not closed  Malfunctioning float valve  Water passing into overflow stand pipe  Float valve stuck	Obstruction in drain valve will not allow complete closure, clean or replace valve.  Close drain valve.  Float ball has water leak. Float valve seat defective, replace.  Readjust float valve rod, so water level reaches 6 mm - 10 mm from over flow edge when water is at ambient or cold state. Excessive water pressure, 520 kPa maximum.  Obstruction will not allow float valve to seat properly, clean or replace with new seat.
Reduced or no output even though water is at the proper level	On	Heater malfunctioning  Malfunctioning control system  Time delay/interlock relays  Low water cut-off switch	Verify that proper voltage is being applied to heaters. Check heater (amp draw and compare to wire diagram ratings).  Heater contactor not functioning, replace. Service fuses blown. Auxiliary limit controls not allowing system to operate (duct humidistat, air flow proving switch, etc.). Reset, replace or calibrate as required. Faulty or inaccurate humidistat, replace or calibrate.  Delay time is factory set at 10-15 seconds. Check delay setting.  Check for proper operation.

\*For VAPOR-LOGIC® trouble-shooting, see the VAPOR-LOGIC® Operations and Maintenance Manual.

# REPLACEMENT PARTS

Figure 14-1: CRU®



OM-778

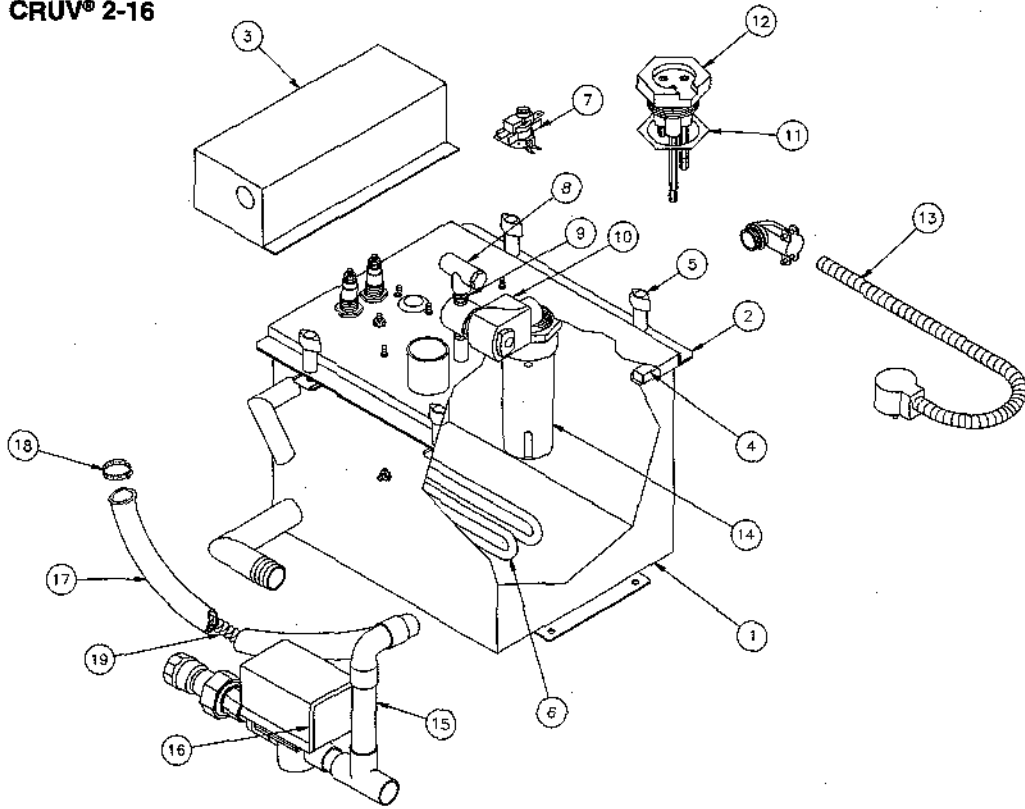
Table 14-1: CRU

No.	Description	Part No.
1	Tank	160712*
2	Cover	*
3	Cover, Heater Terminal	160750*
4	Gasket, Cover	160695*
5	Knob, T-Handled Utility	700725
6	Heater	409600*
7	Thermo Cut-Out	409560-001
8	Strainer, 1/4" Sediment	300050
9	Orifice, .041 Fill Valve	160225-002
10	Valve, 1/4" Solenoid Fill	505084
11	Gasket, Probe	309750-003
12	Probe Assembly, CRU	406220
13	Probe Plug Wire Assembly, 610 mm	406050-002
14	Probe Housing, Nylon	308500
15	Drain Assembly, CRU	180250*
16	Valve, 3/4" HW Hydronic Drain	505400-001
17	Hose, Overflow	307020-002
18	Hose Clamp, 20 mm I.D.	700560-075
19	Spring, Overflow Hose	307025

\* Specify humidifier model and serial numbers when ordering.

## REPLACEMENT PARTS

Figure 15-1: CRUV® 2-16



OM-775

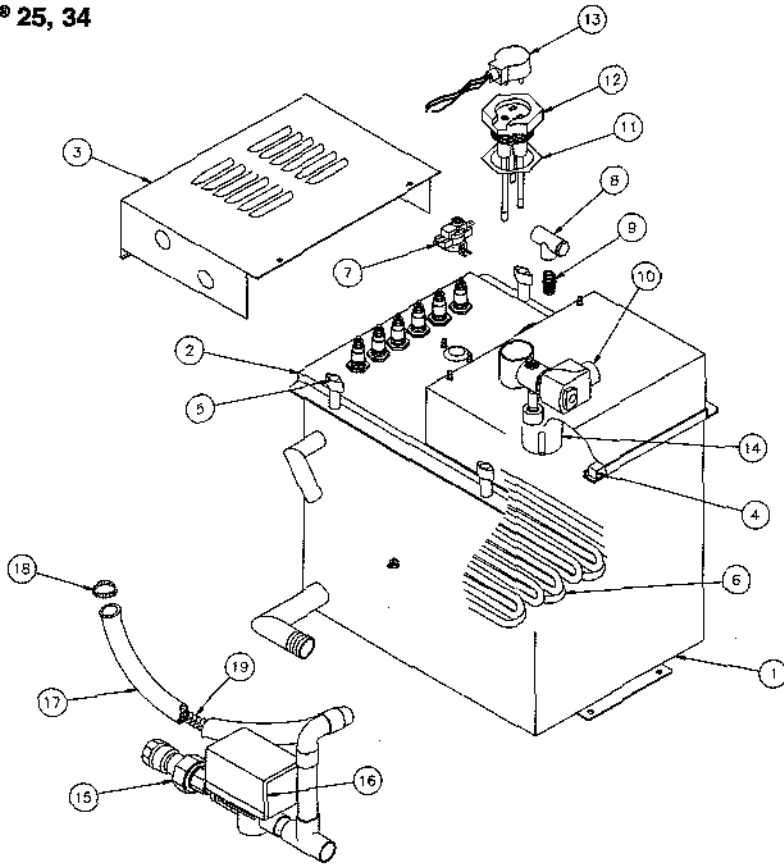
Table 15-1: CRUV 2-16

No.	Description	Part No.
1	Tank	160701*
2	Cover	*
3	Cover, Heater Terminal	160750*
4	Gasket, Cover	160695
5	Knob, T-Handled Utility	700725
6	Heater	409600*
7	Thermo Cut-Out	409560-001
8	Strainer, 1/4" Sediment	300050
9	Orifice, .041 Fill Valve	160225-002
10	Valve, 1/4" Solenoid Fill	505084
11	Gasket, Probe	309750-003
12	Probe Assembly, CRUV	*
13	Probe Plug Wire Assembly, 610 mm	406050-002
14	Probe Housing, Nylon	308500
15	Drain Assembly, CRUV	180200*
16	Valve, 3/4" Electric Drain	505400-001
17	Hose, Overflow	307020-002
18	Hose Clamp, 20 mm I.D.	700560-075
19	Spring, Overflow Hose	307025

\* Specify humidifier model and serial numbers when ordering.

## REPLACEMENT PARTS

**Figure 16-1: CRUV® 25, 34**



OM-1014

**Table 16-1: CRUV 25, 34**

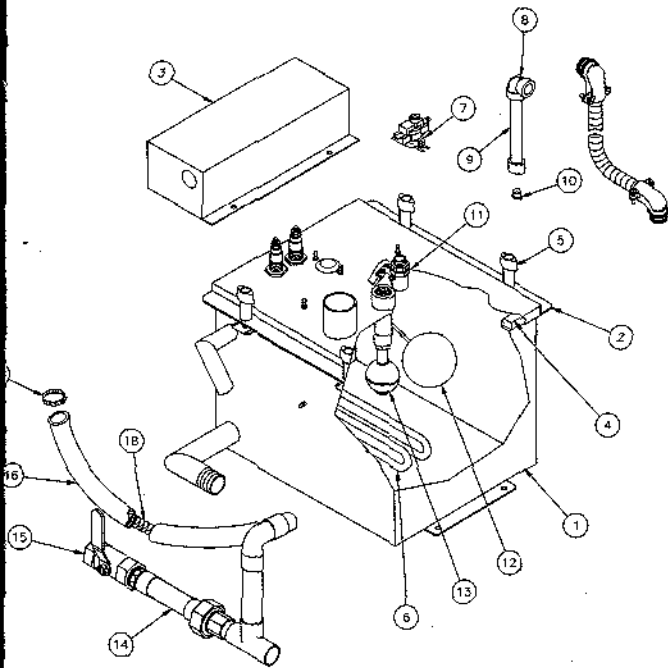
No.	Description	Part No.
1	Tank	160701*
2	Cover	*
3	Cover, Heater Terminal	160750-010
4	Gasket, Cover	160695-002
5	Knob, T-Handled Utility	700725
6	Heater	409600*
7	Thermo Cut-Out	409560-001
8	Strainer, 1/4" Sediment	300050
9	Orifice, .052 Fill Valve	160225-005
10	Valve, 1/4" Solenoid Fill	505084
11	Gasket, Probe	309750-003
12	Probe Assembly, CRUV-25, 34	406200
13	Probe Plug Wire Assembly, 610 mm (without conduit)	406050-003
14	Probe Housing, Nylon	308500
15	Drain Assembly, CRUV-25, 34	180200-007
16	Valve, 3/4" HW Hydronic Drain	505400-001
17	Hose, Overflow	307020-002
18	Hose Clamp, 20 mm I.D.	700560-075
19	Spring, Overflow Hose	307025

\* Specify humidifier model and serial numbers when ordering.



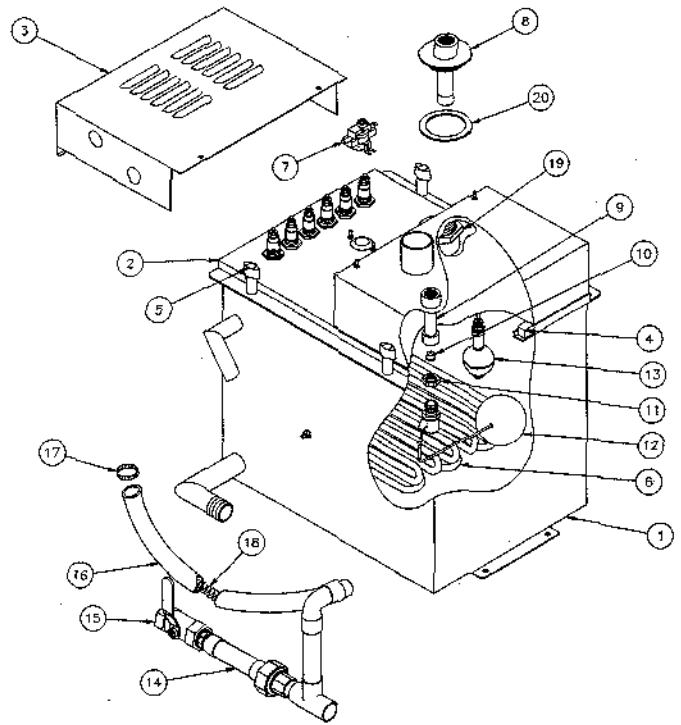
# REPLACEMENT PARTS

Figure 17-1: CRUV®-DI 2-16



OM-780

Figure 17-1: CRUV-DI 25, 34



OM-1015

Table 17-1: CRUV-DI 2-16

No.	Description	Part No.
1	Tank	160701*
2	Cover	*
3	Cover, Heater Terminal	160750*
4	Gasket, Cover	160695*
5	Knob, T-Handled Utility	700725
6	Heater	409600*
7	Thermo Cut-Out	409560-001
8	Elbow 1/4" 90°	200580
9	Pipe Weld, CRUV-DI, 2-16 Fill Valve	160210
10	Orifice, .041 Fill Valve	160225-001
11	Seal Ring, 1/4" 18	306365
12	Float Valve Assembly, CRUV-DI	*
13	Float Switch, Stainless Steel LWCO	408420
14	Drain Assembly, CRUV-DI	180180*
15	Valve, 3/4" Stainless Steel Ball	505000-001
16	Hose, Overflow	307020-002
17	Hose Clamp, 20 mm I.D.	700560-075
18	Spring, Overflow Hose	307025

\* Specify humidifier model and serial numbers when ordering.

Table 17-2: CRUV-DI 25, 34

No.	Description	Part No.
1	Tank	160701*
2	Cover	*
3	Cover, Heater Terminal	160750-010
4	Gasket, Cover	160695-002
5	Knob, T-Handled Utility	700725
6	Heater	409600*
7	Thermo Cut-Out	409560-001
8	DI Conversion Weld, CRUV-DI 25, 34	167786
9	Pipe Weld, CRUV-DI 25, 34 Fill Valve	160215
10	Orifice, .052 Fill Valve	160225-004
11	Seal Ring, 1/4" 18	306365
12	Float Valve Assembly, CRUV-DI 25, 34	505230
13	Float Switch, Stainless Steel LWCO	408420
14	Drain Assembly, CRUV-DI 25, 34	180180-005
15	Valve, 3/4" Stainless Steel Ball	505000-001
16	Hose, Overflow	307020-002
17	Hose Clamp, 20 mm I.D.	700560-075
18	Spring, Overflow Hose	307025
19	DI Housing, Nylon	167780
20	Gasket, CRUV-DI 25, 34 Conversion Weld	160698

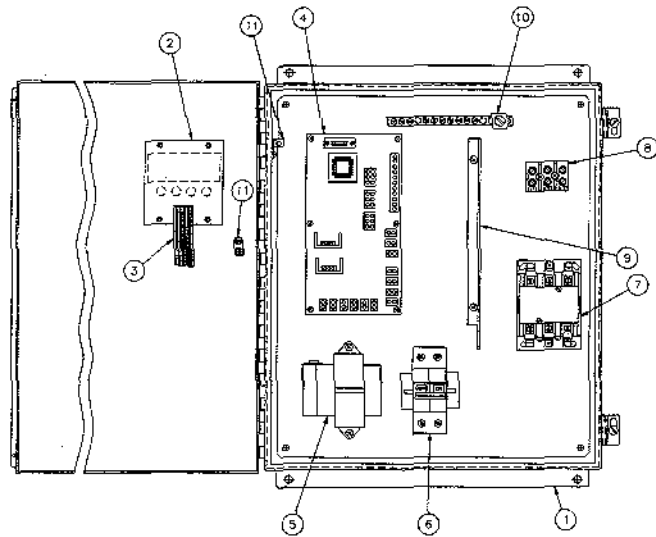
\* Specify humidifier model and serial numbers when ordering.

# REPLACEMENT PARTS

**Table 20-1: CRUV® Control Cabinet (with LW430)**

No.	Description	Part No.
1	Control Cabinet, 406 x 356 x 152	407100-005
2	Display Board, LW430	408651
3	Cable, Ribbon	408655
4	Microprocessor Board, LW430	408641
5	Transformer, 230/400/440V	408965
6	Circuit Breaker, 2 pole, 4 amp	406775-004
7	Contactor, 24V	407001
8	Terminal Block, 3-Pole	408300-002
9	Electrical Barrier	160130
10	Grounding Bar	408255
11	Ground Lug, L-35	409250-017

\* Specify humidifier model and serial numbers when ordering.

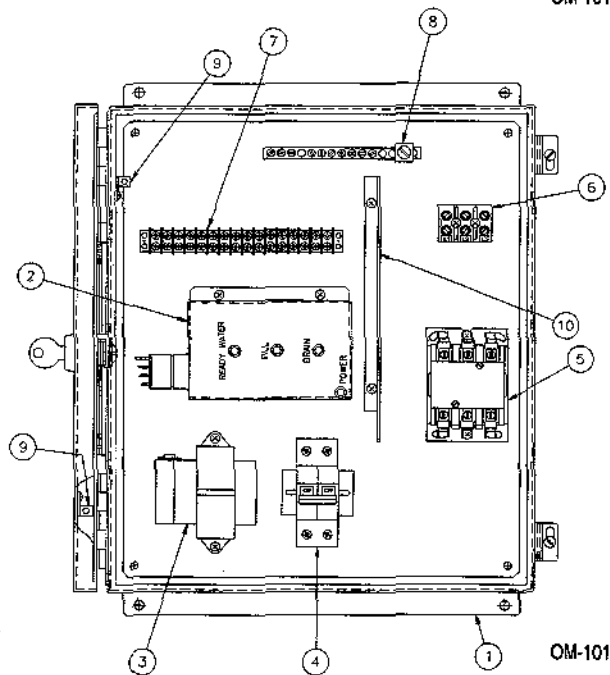


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**Table 20-2: CRU and /or CRUV Control Cabinet**

No.	Description	Part No.
1	Control Cabinet, 406 x 356 x 152	407100-005
2	LW415 Control Module Assembly	180600
3	Transformer, 230/400/440V	408965
4	Circuit Breaker, 2 pole, 4 amp	406775-004
5	Contactor, 24V	407001*
6	Terminal Block, 3 pole	408300-002
7	Terminal Block, 16-Pole	408155-106
8	Grounding Bar	408255
9	Ground Lug, L-35	409250-017
10	Electrical Barrier	160130

\* Specify humidifier model and serial numbers when ordering.

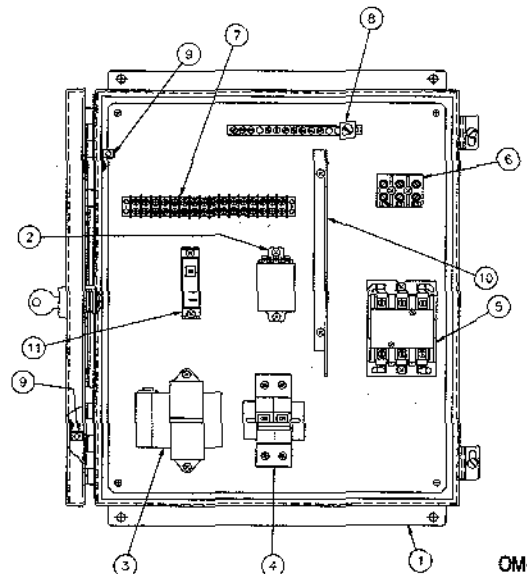


OM-1016A

**Table 20-3: CRU-DI and /or CRUV-DI Control Cabinet**

No.	Description	Part No.
1	Control Cabinet, 406 x 356 x 152	407100-005
2	Relay, 24V	407900-001
3	Transformer, 230/400/440V	408965
4	Circuit Breaker, 2 pole, 4 amp	406775-004
5	Contactor, 24V	407001*
6	Terminal Block, 3 pole	408300-002
7	Terminal Block, 16-Pole	408155-106
8	Grounding Bar	408255
9	Ground Lug, L-35	409250-017
10	Electrical Barrier	160130
11	Time Delay, 24V	408440-001

\* Specify humidifier model and serial numbers when ordering.



OM-1018A



## TWO-YEAR LIMITED WARRANTY

DRI-STEEM Humidifier Company ("DRI-STEEM") warrants to the original user that its products will be free from defects in materials and workmanship for a period of two (2) years after installation or twenty-seven (27) months from the date DRI-STEEM ships such product, whichever date is the earlier.

If any DRI-STEEM product is found to be defective in material or workmanship during the applicable warranty period, DRI-STEEM's entire liability, and the purchaser's sole and exclusive remedy, shall be the repair or replacement of the defective product, or the refund of the purchase price, at DRI-STEEM's election. DRI-STEEM shall not be liable for any costs or expenses, whether direct or indirect, associated with the installation, removal or reinstallation of any defective product.

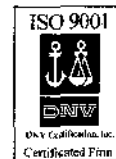
DRI-STEEM's limited warranty shall not be effective or actionable unless there is compliance with all installation and operating instructions furnished by DRI-STEEM, or if the products have been modified or altered without the written consent of DRI-STEEM, or if such products have been subject to accident, misuse, mishandling, tampering, negligence or improper maintenance. Any warranty claim must be submitted to DRI-STEEM in writing within the stated warranty period.

DRI-STEEM's limited warranty is made in lieu of, and DRI-STEEM disclaims all other warranties, whether express or implied, including but not limited to any IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, any implied warranty arising out of a course of dealing or of performance, custom or usage of trade.

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By purchasing DRI-STEEM's products, the purchaser agrees to the terms and conditions of this limited warranty.

**DRI STEEM**  
HUMIDIFIER COMPANY



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