

## VCMA Condensate Pump Series

This pump automatically removes condensate water that drips from an air conditioner evaporator coil, refrigeration equipment coil, condensing furnace, or condensing boiler. The pump is controlled by a float switch mechanism, which automatically starts and stops the pump.

Some models also include a high-water level switch, which opens a thermostat circuit when the pump reservoir is full, stopping production of condensate. Alternatively, this switch can be reconfigured to close a circuit, which can operate an external alarm or relay, (purchased separately).

This product is covered by a Limited Warranty for a period of 12 months from the date of original purchase by the consumer. For complete warranty information, refer to [www.LittleGiant.com](http://www.LittleGiant.com).



## Specifications

Model	Volts	HZ	Amps	Watts	Shut Off
VCMA-15	115	60	1.0	60	15' (4.6 m)
VCMA-20	115	60	1.5	93	20' (6.1 m)
VCMA-20	230	50/60	0.5	75	17' (5.2 m)

## SAFETY INSTRUCTIONS

### Before Getting Started

This equipment should be installed and serviced by technically qualified personnel who are familiar with the correct selection and use of appropriate tools, equipment, and procedures. Failure to comply with national and local electrical and plumbing codes and within Little Giant recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure.

Know the product's application, limitations, and potential hazards. Read and follow instructions carefully to avoid injury and property damage. Do not disassemble or repair unit unless described in this manual.

Failure to follow installation or operation procedures and all applicable codes may result in the following hazards:

#### **⚠ DANGER**



**Risk of death, personal injury, or property damage due to explosion, fire, or electric shock.**

- Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc.
- Do not use in explosive atmospheres or hazardous locations as classified by the NEC, ANSI/NFPA70.
- Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface, or in water.
- When a pump is in its application, do not touch the motor, pipes, or water until the unit is unplugged or electrically disconnected.
- If the power disconnect is out of sight, lock it in the open position and tag it to prevent unexpected application of power.

## SAFETY INSTRUCTIONS

### Before Getting Started

#### **⚠ WARNING**



#### **Risk of severe injury or death by electrical shock.**

- To reduce risk of electrical shock, disconnect power before working on or around the system.
- Wire pump system for correct voltage.
- Be certain that this pump is connected to a circuit equipped with a ground fault circuit interrupter (GFCI) device if required by code.
- Check electrical outlets with a circuit analyzer to ensure power, neutral, and ground wires are properly connected.
- Some pumps are supplied with a grounding conductor and grounding-type attachment plug. To reduce risk of electric shock, be certain that it is connected only to a properly grounded grounding-type receptacle. Do not remove the third prong from the plug. The third prong is to ground the pump to help prevent possible electric shock hazard.
- Some pumps are supplied with lead wires and are intended to be hardwired using a junction box or other approved enclosure. The pumps include a grounding connector. To reduce risk of electric shock, be certain that it is properly connected to ground.
- In a 230 V direct wire installation, one side of the line going to the pump is always electrically energized, regardless of whether the liquid level control switch is open or closed. To avoid hazards when installing or servicing, install a double-pole disconnect near the pump installation.
- The flexible jacketed cord assembly mounted to the pump must not be modified in any way, with the exception of shortening the cord to fit into a control panel. Any splice between the pump and the control panel must be made within a junction box and comply with the National Electrical Code.
- Check local electrical and building codes before installation. The installation must be in accordance with their regulations as well as the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
- Do not use the power cord for lifting the pump.
- Do not use an extension cord.
- The pump should only be used with liquids compatible with pump component materials. If the pump is used with liquids incompatible with the pump components, the liquid can cause failure to the electrical insulation system resulting in electrical shock.

#### **⚠ CAUTION**



#### **Risk of bodily injury, electric shock, or equipment damage.**

- This equipment must not be used by children or persons with reduced physical, sensory or mental abilities, or lacking in experience and expertise, unless supervised or instructed. Children may not use the equipment, nor may they play with the unit or in the immediate vicinity.
- Equipment can start automatically. Lockout-Tagout before servicing equipment.
- An inoperative or malfunctioning pump could lead to flooding, resulting in personal injury or property damage.
- Operation of this equipment requires detailed installation and operation instructions provided in this manual. Read entire manual before starting installation and operation. End User should receive and retain manual for future use.

#### **NOTICE**

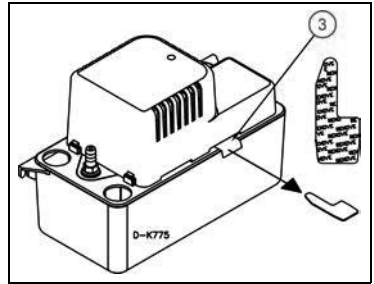
#### **Risk of damage to pump or other equipment.**

- Before installing pump, allow air conditioner to cycle several times, collecting condensate in a separate container to help flush any residual oils that may remain in the system. Failure to flush the system can result in damage to the pump and drain line plumbing components.
- When operating in a gas furnace environment, care must be taken to ensure acidity of condensate does not fall below the average pH of 3.4 (to prevent a localized pocket of acid that acts like a battery causing pitting) by routinely cleaning or flushing tank with fresh water.
- Support pump and piping when assembling and when installed. Failure to do so may cause piping to break, pump to fail, motor bearing failures, etc.
- Do not install the pump in a manner that will subject it to splashing or spraying.
- Periodically inspect pump and system components. Regularly check hoses for weakness or wear, making certain that all connections are secure.
- Schedule and perform routine maintenance as required and in accordance with the Maintenance section of this manual.
- Pump is for indoor use only.
- Do not use this pump inside an air plenum.

## INSTALLATION

### Physical Installation

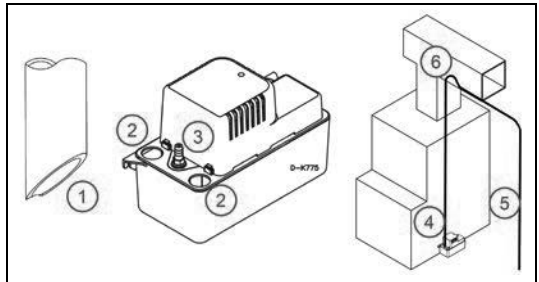
1. Install the pump on a flat, level surface with the inlet below the coil drain, making sure not to block the air vents around the motor housing.
  - The mounting surface must support the weight of the pump and the water filled tank.
2. The pump can also be mounted on a wall using the mounting slots at each end of the tank.
3. Carefully remove the cardboard insert used to prevent switch movement during shipping.



**IMPORTANT:** Failure to remove the cardboard insert will cause the pump to overflow.

### Piping Connections

1. Cut end of pipe(s) from evaporator or furnace drain at a 45° angle to prevent pipe(s) from sealing closed against the tank's floor.
2. The pump will accept up to three drain lines. Make sure that total inflow does not exceed the rated output of the pump to prevent overflow. Route drain pipe(s) downward into one or more pump inlet openings 1 to 3 inches, ensuring no interference with float operation. Keep any unused openings closed using the supplied cap plugs.
3. Install outlet tubing or piping onto outlet check valve and secure with hose clamp (not provided).
  - Use 3/8" inside diameter maximum tubing or piping to prevent excessive flow back to unit.
4. Route outlet tubing straight up, not exceeding 75% of total dynamic head capacity of the pump.
5. At the top, slope discharge line down slightly to a point above the drain area. Then, turn down and route to a suitable drain at a point below or approximately level with the bottom of the pump, if possible. This will produce a siphoning effect which will improve efficiency of the pump.
6. If it is not possible to slope the discharge line down, make an inverted "U" trap directly above the pump at the highest point.



### Electrical Connections

Connect the power cord to a constant source of power matching the pump nameplate voltage.

- The pump should be connected or wired to its own circuit, with no other electric receptacles or equipment in the circuit. Do not connect to a fan or any device that runs intermittently.
- The fuses or circuit breaker should be of ample capacity.
- Connect to a circuit equipped with a ground fault circuit interrupter (GFCI) if required by code.

Some models are supplied with a stripped wire cord end. Power connections must be made within a junction box, and must comply with the National Electrical Code. Wires are color coded as follows:

- Green/yellow = Ground; Brown = Line; Blue = Line (230 V) or Neutral (115 V)

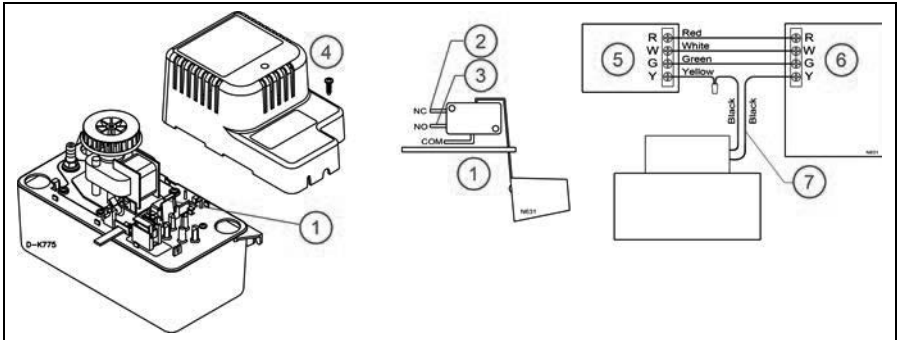
**IMPORTANT:** If the power cord is damaged, the whole unit must be replaced.

## High Water Level Switch Connection

### ⚠ CAUTION

#### Risk of bodily injury or property damage.

- In applications where property damage and/or personal injury might result from an inoperative or leaking pump due to power outages, discharge line blockage, or any other reason, a backup system(s) (e.g. auxiliary switch) and/or alarm should be used and monitored.
- The high level switch should be connected to a Class II Low Voltage circuit. The two switch wires are black. Do not confuse these wires with the line voltage power conductors.
- The high level switch is placed in an orientation that reverses the normal function of normally open and normally closed terminals. Pay close attention to the following instructions.



1. High Water Level Switch
2. NC terminal. Connect here to activate an external alarm or relay.
3. NO terminal. Connect here to shut off the condensing unit of the heating/cooling system.
4. Motor Cover and Screw
5. Thermostat
6. Air Conditioner/Furnace
7. High Water Level Switch wiring leads

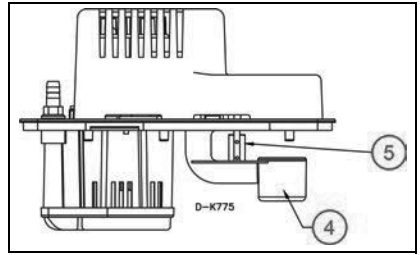
There are two options for connecting the high level switch:

1. The switch is factory wired to the NO and COM terminals. This will **open** (break) a low voltage electrical circuit when the switch is activated by a high water level in the reservoir. This can be used to stop the condensing unit(s) of the heating/cooling system.
  - Refer to the thermostat and heating/cooling unit's Operating Manual for expected switch operation and wiring connections. Connect the switch leads (7) in series with the thermostat circuit as specified in the manual.
2. The switch can be reconfigured to the NC terminal to **close** a low voltage circuit in the event of high water level, activating an external alarm or relay (purchased separately). Use the following procedure if an NC configuration is required:
  - Remove the pump's motor cover (4).
  - Support the switch and carefully change the lead from the NO terminal to the NC terminal (3).
  - Re-install the motor cover.
  - Connect the switch leads in series with the low voltage external component as specified in the component's manual.

Place the included "Attention Service Technician" label in a visible location.

## Operation Testing

1. Disconnect the pump from the power source.
2. Remove tank cover assembly.
  - The cover snaps on to the reservoir.
  - Pull out on the slot on the long side of the top. Place a finger in one of the larger corner holes and carefully lift off the cover. Hold level.
3. Turn on power to the pump.
4. Test pump operating switch by raising the pump switch float.
  - The motor should turn on before the float contacts the tank cover.
5. Test high level switch by raising the high level switch float.
  - The switch should activate before the float contacts the tank cover.
  - If wired to NO terminal, air handling device should shut down.
  - If wired to NC terminal, external component (alarm or relay) should activate.
6. Disconnect the pump from the power source.
7. Replace the tank cover assembly.
8. Turn on power to the pump.



## MAINTENANCE

### **⚠ CAUTION**

#### **Risk of bodily injury or property damage.**

- Do not allow the tank to overflow during this maintenance.
- Inspect and test the condensate removal system condition and operation every 6 months (more frequently in heavy-use applications).

To inspect and clean the tank and other components, follow these steps:

1. Disconnect the pump from the power source.
2. Remove tank cover assembly from the tank.
  - The cover snaps on to the reservoir.
  - Pull out on the slot on the long side of the top. Place a finger in one of the larger corner holes and carefully lift off the cover. Hold level.
3. Be sure the floats move freely. Clean as necessary.
4. Remove the check valve and backwash the discharge port into the volute over a sink.
5. Clean the tank with warm water and mild soap.
6. Flush tank with fresh water to ensure that residual condensate does not create localized pockets of acid that could cause pitting.
7. Check inlet and outlet piping. Clean as necessary. Be sure there are no kinks that would inhibit flow.
8. Inspect the check valve and clean with warm water and mild soap if necessary.
9. Replace the tank cover assembly.
10. Test operation of the system.

# Troubleshooting

Problem	Probable Causes	Corrective Action
Pump does not start when tank is full of condensate water.	Pump is not connected to electrical power.	Connect pump to a dedicated GFCI circuit.
	Circuit breaker off or fuse removed.	Turn on circuit breaker or replace fuse.
	Accumulation of debris or build-up on float.	Clean float; a dirty float could be too heavy to operate correctly.
	Float movement obstruction.	Remove the tank. Check float movement path. Remove any debris or obstruction.
	Defective switch.	Replace pump.
	Defective motor.	Replace pump.
Condensate is overflowing from the tank.	Pump is not connected to electrical power.	Connect pump to a dedicated GFCI circuit.
	Liquid inflow matches or exceeds pump output capacity.	Larger pump required. The high level switch should shut off the A/C unit or signal an alarm in this condition if connected in the circuit correctly. Check to ensure that the pump high level switch is connected to the A/C unit (or alarm circuit), and that the leads are connected to the correct switch terminals for the application. Refer to "High Water Level Switch Connection" on page 4.
	Pump is not level.	Check to ensure that the pump is level. If the pump is not level, it may not activate, causing water to overflow from the tank. Place unit on a flat and level surface.
	Accumulation of debris or build-up on float.	Clean float. A dirty float could be too heavy to operate correctly.
	Check valve stuck or plugged	Remove check valve and inspect for proper operation.
	Outlet flow is blocked.	Check outlet tubing to ensure that it is not kinked or blocked. Clear blocked tubing of slime and debris. Clean inlet and outlet piping.
	Pump impeller is not turning.	Clear any blockage in the impeller housing.
	Defective switch.	Replace pump.
	Defective motor.	Replace pump.
Pump will not shut off.	Float movement obstruction.	Remove the tank. Check float movement path. Remove any debris or obstruction.
	Liquid inflow matches or exceeds pump output capacity.	Larger pump required. The high level switch should shut off the A/C unit or signal an alarm in this condition if connected in the circuit correctly. Check to ensure that the pump high level switch is connected to the A/C unit (or alarm circuit), and that the leads are connected to the correct switch terminals for the application. Refer to "High Water Level Switch Connection" on page 4.
	Defective switch.	Replace pump.
Pump runs but does not discharge liquid.	Check valve stuck or plugged.	Remove check valve and inspect for proper operation.
	Lift too high for pump.	Check rated pump performance.
	Inlet to impeller plugged.	Pull pump and clean.
	Outlet flow is obstructed.	Check outlet tubing to ensure that it is not kinked or blocked. Clear blocked tubing of slime and debris. Clean inlet and outlet piping.
Pump does not deliver rated capacity.	Check valve stuck or plugged.	Remove check valve and inspect for proper operation.
	Lift too high for pump.	Check rated pump performance.
	Low voltage, speed too slow.	Check that supply voltage matches nameplate rating.
	Impeller or discharge pipe is clogged.	Pull pump and clean. Check pipe for scale or corrosion.
Pump cycles continually.	Check valve leaking.	Remove check valve and inspect for proper operation.



For technical assistance, parts, or repair, please contact:

**800.701.7894** | [littlegiant.com](http://littlegiant.com)

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**LittleGIANT®**

Franklin Electric Co., Inc. | Oklahoma City, OK 73157-2010

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## Serie de bombas de condensado VCMA

Esta bomba para condensado elimina automáticamente el agua condensada que gotea del serpentín del evaporador de aire acondicionado, el serpentín de un equipo de refrigeración, un calentador de condensación o una caldera de condensación. La bomba es controlada por un mecanismo de interruptor flotante, que arranca y detiene automáticamente la bomba.

Algunos modelos también incluyen un interruptor de nivel de agua alto, que abre un circuito de termostato cuando el depósito de la bomba está lleno, deteniendo la producción de condensado. De manera alternativa, este interruptor puede ser reconfigurado para que cierre un circuito que opera una alarma externa o relé, (se adquiere por separado).

Este producto está cubierto por una garantía limitada por un período de 12 meses desde la fecha original de compra por parte del consumidor. Para obtener información completa sobre la garantía, consulte [www.LittleGiant.com](http://www.LittleGiant.com).



## Especificaciones

Serie de modelos	Voltios	Hertz	Amperios	Vatios	Apagado
VCMA-15	115	60	1.0	60	15' (4.6 m)
VCMA-20	115	60	1.5	93	20' (6.1 m)
VCMA-20	230	50/60	0.5	75	17' (5.2 m)

## INSTRUCCIONES SOBRE SEGURIDAD

### Antes de empezar

La instalación y el mantenimiento de este equipo deben estar a cargo de personal con capacitación técnica que esté familiarizado con la correcta elección y uso de las herramientas, equipos y procedimientos adecuados. El hecho de no cumplir con los códigos eléctricos y de plomería nacionales y locales y con las recomendaciones de Little Giant puede provocar peligros de descarga eléctrica o incendio, desempeños insatisfactorios o fallas del equipo.

Lea y siga las instrucciones cuidadosamente para evitar lesiones y daños a los bienes. No desarme ni repare la unidad salvo que esté descrito en este manual.

El hecho de no seguir los procedimientos de instalación o funcionamiento y todos los códigos aplicables puede ocasionar los siguientes peligros:

### PELIGRO



#### **Riesgo de muerte, lesiones personales o daños materiales por explosión, incendio o descarga eléctrica.**

- No usar para bombear líquidos inflamables o explosivos como gasolina, fueloil, kerosene, etc.
- No usar en atmósferas explosivas ni lugares peligrosos según la clasificación de la NEC, ANSI/NFPA70.
- No manipule la bomba ni el motor de la bomba con las manos mojadas o parado sobre una superficie mojada o húmeda o en agua.
- Cuando haya una bomba en su aplicación, no toque el motor, las tuberías ni el agua sino hasta haber desenchufado o eléctricamente desconectado la unidad.
- Si la desconexión de alimentación está fuera del sitio, bloquéela en la posición abierta y etiquétela para evitar una conexión ine-

# INSTRUCCIONES SOBRE SEGURIDAD

## Antes de empezar

### ▲ ADVERTENCIA



#### Riesgo de lesiones graves o muerte por descarga eléctrica.

- Para reducir el riesgo de descarga eléctrica, desconecte la energía antes de trabajar en el sistema o cerca de él.
- Cablee el sistema de bombeo para los voltajes correctos.
- Asegúrese de que esta bomba esté conectada a un circuito equipado con un dispositivo interruptor de circuito por falla de conexión a tierra (GFIC) si es requerido por el código.
- Revise los tomacorrientes con un analizador de circuito para garantizar que los cables de alimentación, neutro y a tierra estén conectados correctamente. De lo contrario, un electricista calificado y autorizado deberá rectificar el problema.
- Algunas bombas vienen con un conector de puesta a tierra y un enchufe de seguridad de tipo de conexión a tierra. Para reducir el riesgo de descarga eléctrica, asegúrese de que esté conectado únicamente a un receptáculo de tipo de conexión a tierra conectado a tierra como corresponde. No quite la tercera clavija del enchufe. La tercera clavija sirve para conectar la bomba a tierra, lo que ayuda a evitar posibles peligros de descarga eléctrica.
- Algunas bombas vienen con cables conductores y están ideadas para que se conviertan en conexiones permanentes mediante una caja de empalmes u otro gabinete aprobado. Las bombas incluyen un conector de puesta a tierra. Para reducir el riesgo de descarga eléctrica, asegúrese de que esté conectado a tierra como corresponde.
- En una instalación de cables directos de 230 V, un extremo de la línea que va hacia la bomba tiene electricidad siempre, sin importar si el interruptor del control de nivel del líquido está abierto o cerrado. Para evitar peligros a la hora de realizar la instalación o el mantenimiento, instale un interruptor de desconexión bipolar cerca de la instalación de la bomba.
- El conjunto de cables recubiertos flexibles montado a la bomba no se debe modificar en modo alguno, salvo para acortar el cable para adecuarlo al interior del panel de control. Todos los empalmes entre la bomba y el panel de control deben realizarse dentro de una caja de conexiones y deben cumplir con el Código Eléctrico Nacional.
- Compruebe los códigos eléctricos y de construcción locales antes de la instalación. La instalación debe estar de acuerdo con sus regulaciones, así como el National Electrical Code (NEC) más reciente y la ley de Seguridad y Salud Ocupacionales (OSHA).
- No use el cable eléctrico para levantar la bomba.
- No use un prolongador.
- La bomba solo se debe utilizar con líquidos compatibles con los materiales que componen la bomba. Si la bomba se utiliza con líquidos incompatibles con los componentes de la bomba, el líquido puede causar fallas en el sistema de aislamiento eléctrico, lo que resulta en una descarga eléctrica.

### ▲ PRECAUCIÓN



#### Riesgo de lesiones corporales, descargas eléctricas o daños al equipo.

- Este equipo no deben usarlo niños ni personas con capacidades físicas, sensoriales o mentales reducidas, ni aquellos que carezcan de experiencia y capacitación, salvo que estén bajo supervisión o instrucción. Los niños no podrán usar el equipo ni jugar con la unidad o en las cercanías inmediatas.
- El equipo puede encenderse en forma automática. Realice los procedimientos de bloqueo/etiquetado antes de efectuar el mantenimiento del equipo.
- Una bomba que no funciona o funciona mal podría provocar una inundación y provocar lesiones personales o daños materiales.
- La operación de este equipo exige instrucciones detalladas para su instalación y operación que se encuentran en este manual para su uso con este producto. Lea la totalidad del manual antes de comenzar la instalación y la operación. El usuario final debe recibir y conservar el manual para usos futuros.

### AVISO

#### Riesgo de daños a bomba u otros equipos.

- Antes de instalar la bomba, permita que el aire acondicionado realice varios ciclos y recolecte el condensado en un recipiente separado para poder enjuagar todo aceite residual que pueda permanecer en el sistema. Si no se enjuaga el sistema, se pueden provocar daños en los componentes de plomería de la línea de drenaje y la bomba.
- Al operar en un entorno de hornos de gas, se debe tener cuidado para asegurar la acidez del condensado no descienda por debajo del pH promedio de 3,4 (para evitar un bolsillo localizado de ácido que funciona como una batería que genera picaduras), para ello, se debe limpiar o enjuagar el tanque con agua dulce con regularidad.
- Sostenga la bomba y la tubería durante el ensamblaje y cuando estén instaladas. Si esto no se realiza, la tubería se puede romper, la bomba puede tener fallas, los cojinetes del motor pueden tener fallas, etc.
- No instale la bomba de manera que lo someta a salpicaduras o aspersión.
- Inspeccione periódicamente los componentes del sistema y la bomba. Revise regularmente las mangueras para controlar si están débiles o gastadas y asegúrese de que todas las conexiones sean seguras.
- Programe y realice servicios de mantenimiento de rutina, tal como se indica en la sección Mantenimiento del sistema.
- La bomba es sólo para uso en interiores
- No utilice esta bomba dentro de los plenums de aire.