



Series VCD™ and VCDS Vacuum Heating Units

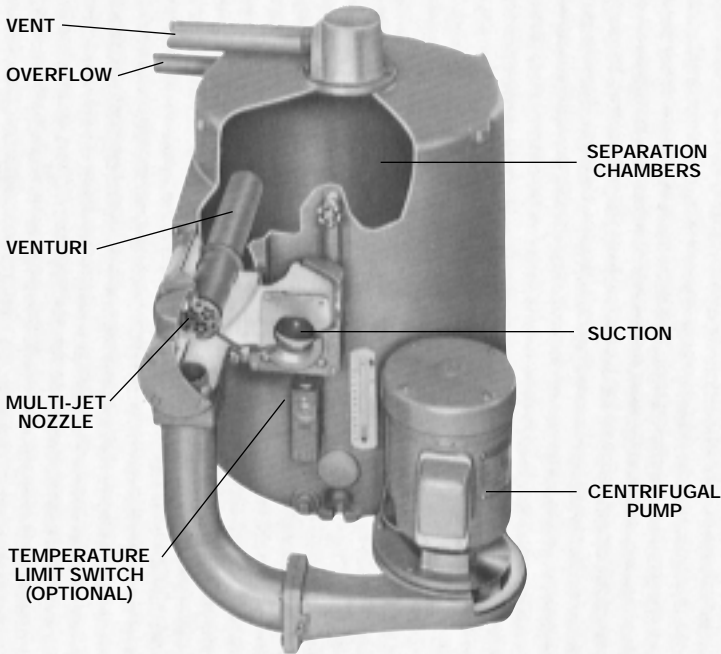
- Vertical Design for Minimum Floor Space
- Cast Iron Receiver with 20 year corrosion warranty or Steel Receiver – durable and lightweight
- Quiet Design Vacuum Pumps with low water requirements
- NEMA 2-UL Listed Control Panels
- Vertical Mounted, Bronze Fitted Centrifugal Pumps
- Low Maintenance

Domestic Pump

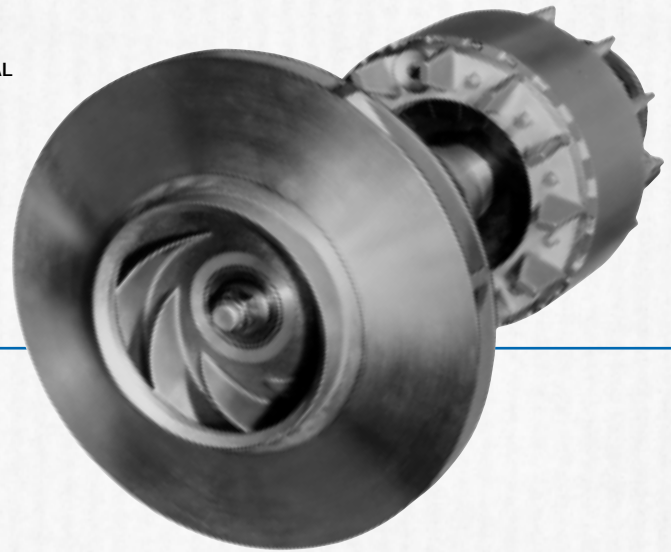


ITT Industries
Engineered for life

SERIES VCD VACUUM PRODUCER

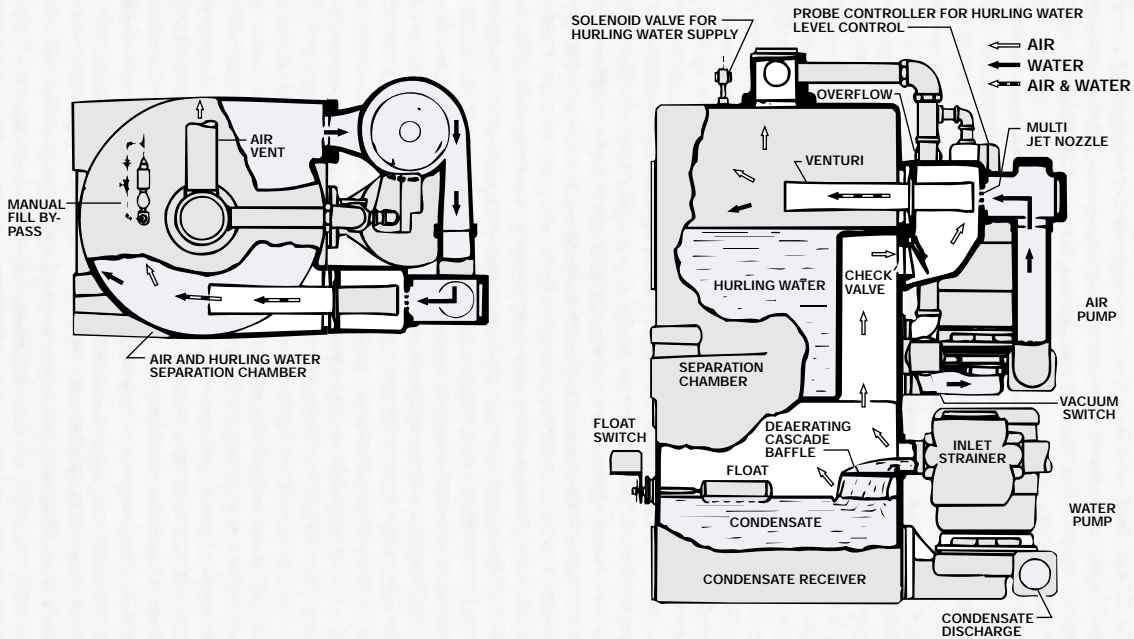


VACUUM PUMP WHEN FURNISHED AS SEPARATE UNIT



SIMPLICITY

Vacuum pumps feature only one moving part, the centrifugal pump impeller directly secured to the motor shaft ... no close clearances as required in competitive pumps ... no wear adjustment.



SERIES VCD & VCDS FEATURES

- **Original Efficiency Sustained**
Vacuum producer parts consist of multi-jet nozzle and venturi which are stationary ... retain efficiency with age.
- **Vertical Construction and Pump Design**
Protects motors from surface water and dirt ... saves floor space.
- **Built-in Quietness**
Vibration free, inherently quiet operation ... no special foundations, vibration eliminators or silencers required.
- **Rugged Construction, Low Maintenance**
Designed and built for many years of dependable service. No special tools required for maintenance ... all parts easily accessible.
- **Durable Receiver**
VCD features an all cast iron receiver that gives reliable service even when exposed to aggressive condensate. The VCDS features a lightweight steel receiver.
- **Air Suction Lines**
VCD includes cast iron suction lines. VCDS includes seamless steel pipe suction lines. Both are designed and built for years of dependable service. No rubber hoses to crack or split.
- **Manual Sequence Control**
Lead-lag manual alternation furnished as standard equipment for both air and water pumps on duplex and for water pumps on semi-duplex units. (Automatic alternator optional)
- **Water Pumps**
Genuine centrifugal single stage design, bronze fitted with stainless steel shafts, 250°F (121°C) Carbon/Ceramic mechanical seals and renewable wearing rings are all standard. Pump passages specifically designed for handling hot condensate.
- **Low Inlet Height**
Low inlet height reduces installation costs ... often makes pit construction unnecessary.
- **Generous Float Capacity in Condensate Receiver**
Prevents excessive cycling of water pumps.
- **Makeup Probe Control**
Easy maintenance probe allowing for visual indication of low level.

SERIES VCD AND VCDS OPERATION

AIR EVACUATING CYCLE

The heart of the VCD and VCDS vacuum pumps is the dependable multi-jet vacuum producer. It is a simple, effective device designed to give years of trouble free service.

The independent air evacuation cycle begins when the vacuum switch, responding to system requirements, starts the centrifugal pump. This pump circulates "hurling water" from the separation chamber through the multi-jet nozzle, venturi and returns it to the separation chamber. The water, forced at high velocity across the gap between nozzle and venturi, entrains air and gases in multiple jet streams creating a smooth, steady vacuum. The mixture is discharged through the venturi into the separation chamber. This causes the water in the separation chamber to force the water to the periphery of the chamber while the lighter air flows to the center and is discharged. Besides effectively separating the air and gases from the water, the centrifugal motion increases the pressure at the centrifugal pump suction, promoting high efficiency. The cycle ends when a vacuum corresponding to the high level vacuum switch setting (usually 8" Hg) has been reached.

AUTOMATIC "HURLING WATER" CONTROL

Replacement of the "hurling water" evaporated from the separation chamber is controlled by a solenoid valve, connected to a water supply (or discharge of water pumps as an alternate) and actuated by a probe controller. The temperature of the "hurling water" stabilizes approximately at the condensate temperature because the small amount of heat generated by the pump is readily dissipated. Refer to the Temperature Limit Switch section when applications encounter unusually high temperature condensate (above 190°F [98.3°C]).

CONDENSATE RETURN CYCLE

The water pumps are controlled by float switches on water level change in the separate condensate receiver. The operating cycle begins when a float switch starts the water pump on condensate rise. The condensate is pumped to the boiler feed unit until the factory adjusted lower float level has been reached. Entrained air is liberated when condensate flows in a thin sheet over the deaerating baffle into a vacuum.

TEMPERATURE LIMIT SWITCHES

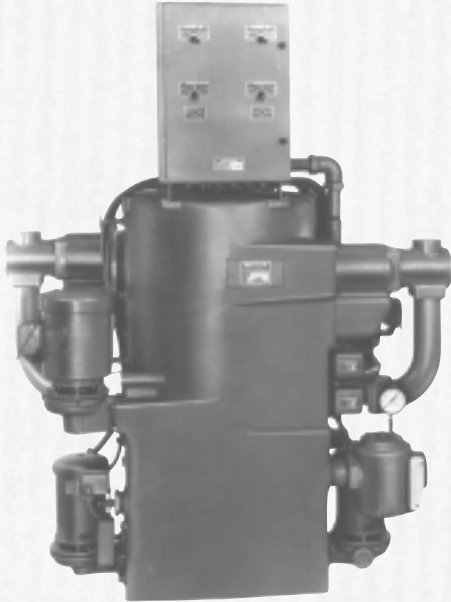
The purpose of developing a vacuum in a steam heating system is to remove air and facilitate steam flow in a cold system. Use of a vacuum in a system with hot return temperatures (above 190°F [98.3°C]) can cause condensate evaporation and potential damage to the vacuum pumps. For example, at the usual vacuum pump cut-out point of 8" Hg, condensate will evaporate at 197°F (91.7°C). Returns at this temperature would cause the vacuum pumps to operate continuously.

To protect from this scenario, Temperature Limit Switches are available to cut-out vacuum pump operation when condensate temperatures exceeds a preset (usually 180°F [82.2°C]) temperature.

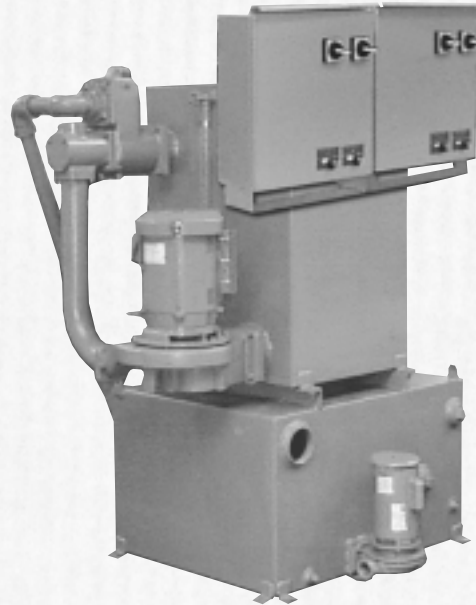
Alternatively, Temperature Limit Switches are available to add cooling water the hurling chamber dependent on the water temperature in the chamber. This set-up is utilized where it is necessary to maintain system vacuum regardless of condensate return temperature.

DOMESTIC® VCD AND VCDS SERIES VACUUM HEATING UNITS

SIMPLEX ... 1 VACUUM AND 1 CONDENSATE PUMP
SEMI-DUPLEX ... 1 VACUUM AND 2 CONDENSATE PUMPS
DUPLEX ... 2 VACUUM AND 2 CONDENSATE PUMPS
AVAILABLE IN CAST IRON AND STEEL



50 VCD3 (CAST IRON)



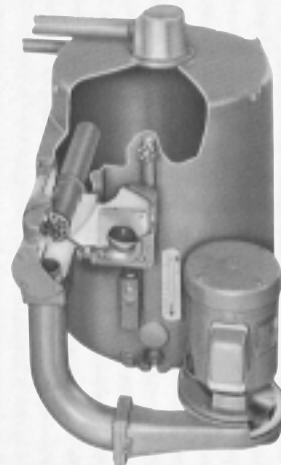
100 VCDS4 (STEEL)

INDIVIDUALLY OPERATED VACUUM AND CONDENSATE PUMPS
UNEQUALLED SYSTEM EFFICIENCY

SERIES VCL SPECIAL VACUUM HEATING UNITS

FOR LARGE SYSTEMS AND SPECIAL APPLICATIONS

Series VCL units are designed for large systems and special applications. Completely independent vacuum pumps are combined with a wide selection of water pumps operating from a group of cast iron and steel receivers. The resulting assembly, together with custom engineered control equipment, provides unusual flexibility in selecting an ideal assembly best suited to any application. Consult your DOMESTIC® Representative for application data.



SERIES MJ VACUUM PUMP

<p>Style CHD-A</p> <p>Horizontal Steel Receiver with mounted vacuum unit</p>	<p>Style CVD-A</p> <p>Vertical Steel Receiver with mounted vacuum unit</p>	<p>Style CHD-B</p> <p>Horizontal Steel Receiver with unmounted vacuum unit</p>	<p>Style CVC</p> <p>Cast Iron Receiver with unmounted vacuum unit</p>	<p>Style CVU</p> <p>Cast Iron Underground Receiver with vacuum unit</p>
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