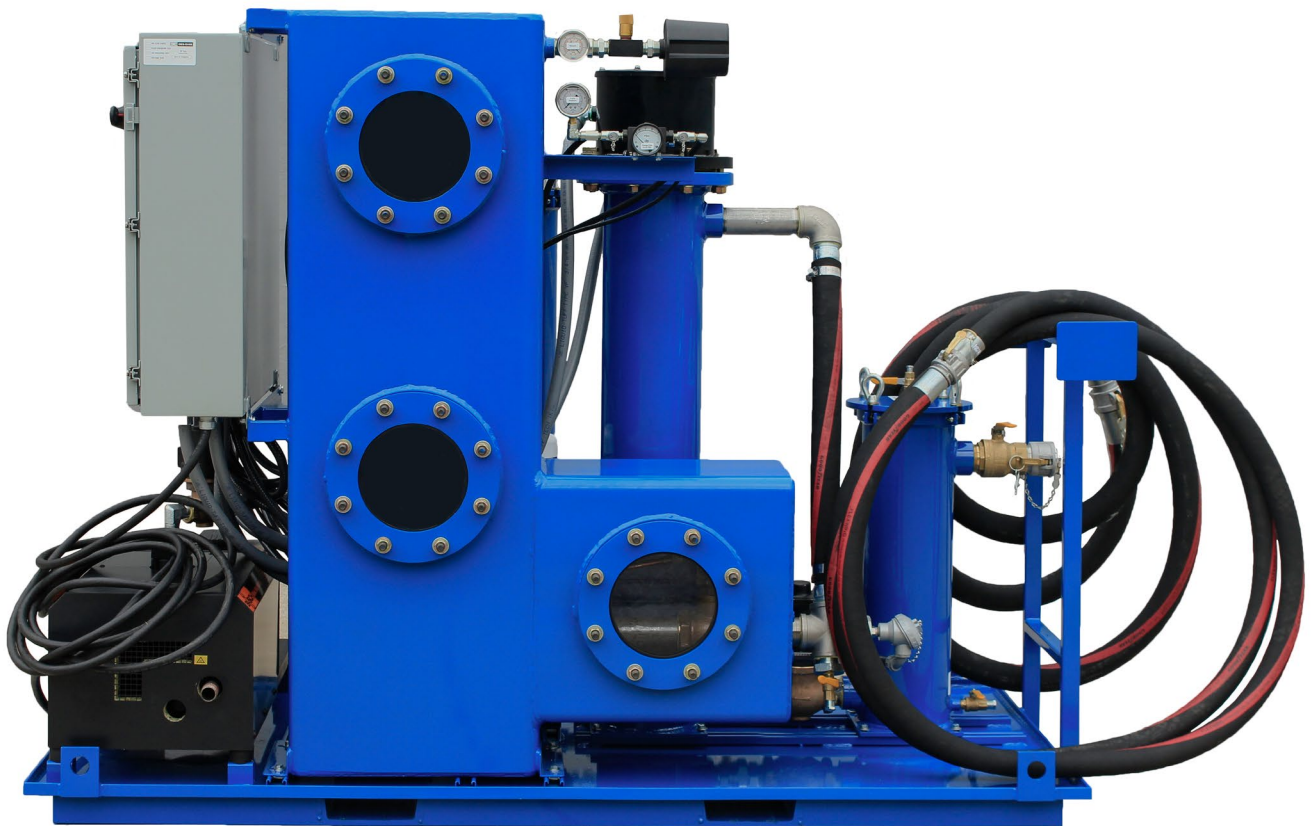


FLUID HANDLING

Vacuum Dehydration Systems (VAC)

Remove 100% of free and emulsified water and at least 90% of dissolved water from industrial oils with Des-Case's VAC. It also removes 100% of free gases and at least 90% of dissolved gases.



Overview

Our VAC Systems: 3, 5, 10, & 20gpm VAC Systems How They Work

The Des-Case vacuum dehydration system is designed to remove free, emulsified, and dissolved water; particulate; and gaseous contamination from petroleum and synthetic-based fluids.

The water removal principle used is simple and reliable and will dependably remove water well below the oil saturation point—even when tightly bound in an emulsion.

To begin the process, oil is drawn into the unit and heated. Next, it flows through permanent dispersion media (located inside the vacuum tower) and is exposed to a vacuum, normally <26"Hg (660mmHg).

Then the water and dissolved gases are boiled off and the oil is dehydrated. An outlet pump removes the dry oil from the bottom of the vacuum chamber. Lastly, the oil passes through the particulate filter housing.

A vacuum dehydrator can be properly sized to meet specific needs by evaluating the total volume of oil to be processed, the volume of water contaminating the lubricating oil, and the rate at which the water contaminates a system.

When to Choose a Vacuum Dehydrator:

- If water ingress accounts for more than filter media can absorb
- For applications with constant ingress of water
- To remove dissolved water
- For preventative measures in industries where water is used in production (i.e., Pulp & Paper)
- For water removal in Group II base stock turbine oils, only water absorbing media filtration or vacuum dehydrators have been found most effective

Typical Industries Served:

- Power generation/distribution
- Mining
- Paper manufacturing
- Food manufacturing
- Chemical manufacturing
- Municipal water treatment plants
- Auto manufacturing
- Steel rolling mills
- General industry

Typical Applications:

- Filtering hydraulic systems
- Filtering steam turbine lube systems
- Almost any industrial equipment containing oil

Did You Know?

By maintaining absolute fluid cleanliness, you can dramatically increase the life of critical electric transmission components, maintain dielectric strength and condition of insulation, minimize downtime and maximize profitability.

The Benefits

Key Benefits

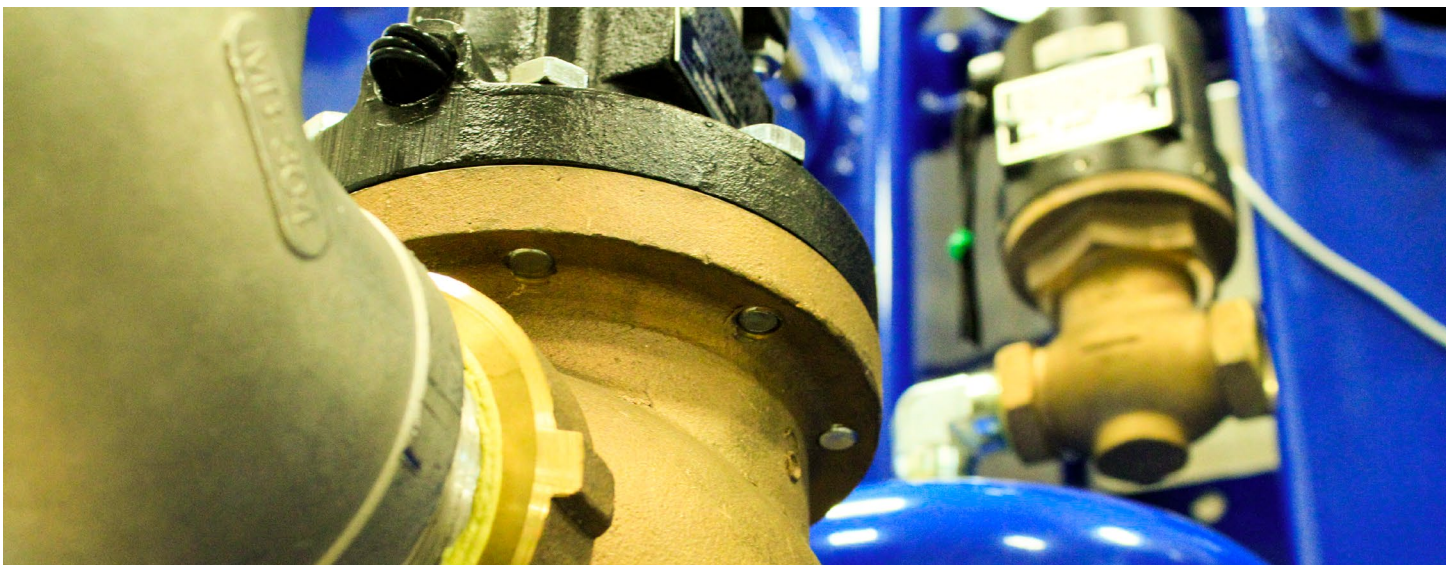
- Heavy-duty, industrial construction
- Lifting eyes, full drip pan, fork lift slots, heavy-duty casters
- Basket strainer included to protect system
- No vacuum tower maintenance needed
- Designed for continuous, unattended duty
- PLC controller is standard on all systems
- Variable Frequency Drive (VFD) is standard on all systems
- Higher water removal efficiency—as low as 20ppm for industrial systems
- No water supply needed
- Breather on the vacuum control inlet
- Several warning indicators and safety alarms, such as low flow and high pressure
- No replacement of coalescing elements needed, reducing maintenance cost
- Features a low maintenance, continuous-duty pump
- NEMA 4 electrical rating

Filters: Full-Flow Elements

- High holding capacity
- High efficiency filtration with low pressure drop
- Epoxy-coated steel support mesh upstream and downstream
- Performance to $\beta_{3(c)}=1000$ (per ISO 16889)
- Synthetic media with smooth, rounded fibers for low resistance to flow
- Excellent chemical compatibility
- Maximum differential pressure of 150psi
- Maximum flow rate of 150gpm
- Maximum viscosity of ISO VG 1000



NOTE: 3gpm model uses spin-on filter elements.



The Benefits

Technical Specifications of Common VAC Models:

Specifications	3GPM	5GPM	10GPM	20GPM
Part Number	V03-06-SP6-483	V05-16-2B-483	V10-24-3B-483	V20-32-3B-483
Input Voltage	480V/ 3 Phase/ 60 Hz	480V/ 3 Phase/ 60 Hz	480V/ 3 Phase/ 60 Hz	480V/ 3 Phase/ 60 Hz
Designed FLA (Full Load Amps)	15 AMPS	20 AMPS	30 AMPS	40 AMPS
Inlet Connection Size	¾" NPT Female Camlock	1" NPT Female Camlock	1 ¼" NPT Female Camlock	2" NPT Female Camlock
Outlet Connection Size	¾" NPT Male Camlock	¾" NPT Male Camlock	1" NPT Male Camlock	1 ½" NPT Male Camlock
Heater Output Rating	6kW	16kW	24kW	32kW
Particle Filter Type	Microfiber Glass Spin-On Elements: 6 & 3um	6x18 Industrial	6x36 Industrial	6x36 Industrial
Ultimate Vacuum Chamber Pressure Capability	37.5 torr (28.4inHg)	37.5 torr (28.4inHg)	37.5 torr (28.4inHg)	37.5 torr (28.4inHg)
Max Discharge Pressure	100psi (6.89bar)	65psi (4.48bar)	65psi (4.48bar)	65psi (4.48bar)
Normal Heater Set Point	150°F (65°C)	150°F (65°C)	150°F (65°C)	150°F (65°C)
Max Oil Viscosity	1500 SSU (323cSt)	1500 SSU (323cSt)	1500 SSU (323cSt)	1500 SSU (323cSt)
Seal Material	Buna-N & Viton®	Buna-N & Viton®	Buna-N & Viton®	Buna-N & Viton®
NEMA Rating	NEMA 4	NEMA 4	NEMA 4	NEMA 4
Weight (Approx.)	2,000lbs	2,500lbs	2,500lbs	2,600lbs
Dimensions with Casters	41"W x 41"L x 64"H	42.25"W x 88.5"L x 74"H	42.25"W x 88.5"L x 74"H	42.25"W x 88.5"L x 74"H
Dimensions without Casters	41"W x 41"L x 54.5"H	42.25"W x 88.5"L x 64.5"H	42.25"W x 88.5"L x 64.5"H	42.25"W x 88.5"L x 64.5"H

Flow Rates: 3, 5, 10, 15, and 20gpm are the most common models. Des-Case also offers 30 gpm, 50gpm, and custom units up to 100gpm in other dimensions, voltages, and designs. Contact our Technical Support team at (615) 672-8800 or sales@descase.com.

The Evaluation

The most important item to look at when comparing vacuum systems is the vacuum pump. There are basically three categories of vacuum pumps: low vacuum, which generally is capable of a maximum of 24inHg; medium vacuum, which generally is capable of a maximum of 28.5inHg; and high vacuum, which is capable of near perfect vacuum or 29.9inHg (perfect vacuum is 29.92).

Low vacuum pumps include some liquid ring, rotary vane, lobe, and diaphragm pumps. Medium vacuum pumps include some rotary vane, claw, lobe, and piston pumps. High vacuum pumps are usually oil sealed rotary vane, such as the ones used in Des-Case's vacuum dehydrators, or some piston pumps.

The pump type is important because the pressure (vacuum level) achieved by the pump determines the efficiency of the vacuum dehydration system. This is because pressure (vacuum level) determines the boiling point of water. The more vacuum achieved, the lower the boiling point of water is inside the vacuum chamber. At 24inHg, the boiling point of water is 140°F (60°C) whereas at 28.5inHg, the boiling point of water is 90°F (32°C). The lower the boiling point inside the vacuum chamber, the more efficient the vacuum dehydration process.

A vacuum dehydration system utilizing a vacuum pump that can only achieve 24inHg is removing a much lower volume of water at a much slower rate than a system utilizing a pump that achieves 28.5inHg. Field observations find that in best case situations, 24inHg systems usually can only get moisture levels down to about 150ppm whereas a 28.5inHg system can reach as low as 20ppm. This large difference is all because of the vacuum pump.

When comparing vacuum systems from various manufacturers, the most likely reason for significant price differences is the efficiency of the vacuum pump. Pumps that can only achieve 24inHg are significantly less expensive than a pump that can achieve 28.5inHg, and pumps that achieve 28.5inHg are significantly less expensive than pumps that can achieve 29.9inHg. That significant difference in costs can be in the thousands of dollars.

The Features

Standard Features:

Permanent Dispersion Media

- Located in the vacuum tower to maximize water extraction rates and eliminate the need for costly replacement of coalescing elements, while enabling the system to operate effectively on high-viscosity gear oils

Rotary Claw Vacuum Pump

- High-quality specialty pump pulls deeper vacuum and higher CFM, and requires less maintenance than other conventional vacuum pumps

Variable Frequency Drive

- Enables operator to dial in the optimal flow rate and enhances the system's overall performance during cold start-ups, on higher viscosity oils, or when a restricted inlet condition exists

Single Utility

- Requires electric service only—not a chilled water supply

System View Windows

- Enables operator to observe system operation and performance

Filter Change Indicator Light

- Positive indication when the particulate removal filter element is plugged and needs to be changed

On-Site Training

- All prices include 1-day on-site training, installation, and a leave-behind manual (Continental United States only*)

Additional Options

- Transformer oil filtration option, low and high vacuum options, skid or caster mounts.



*Please call us for quote on international orders.

FLUID HANDLING:

The Entire Des-Case Line

We offer a full range of fluid handling and filtration products in Portable Filtration, Dedicated Filtration, Water Removal, Lubricant Storage & Filtration, Filter Elements, and Adapter Kits to suit your needs.

**Customize your system today at
www.descase.com.**