

VACUUM DEHYDRATION SYSTEMS FOR INDUSTRIAL OILS

Model 858, 929, and 989 vacuum dehydration-distillation method systems remove water and particulate from industrial oils. These systems are excellent oil purification solutions for high viscosity oils and poor water shedding oils. These vacuum dehydration-distillation method systems are continuous duty, off-line (kidney-loop) oil purification systems for industrial oil reservoirs used in paper mills, steel mills, mining, refineries, and power generation.



858 Series Vacuum Dehydration Oil Conditioning System

Keep Oils Free From Water and Particulate

Regardless of the industry, oil conditioning provides reliable, effective, long-term equipment protection.

Kaydon Vacuum Dehydration Systems provide superior performance with industrial oils using vacuum distillation technology.

Kaydon 858 series of vacuum dehydration oil conditioning systems keep oils free of water and particulate contamination to achieve long-term, predictable and profitable performance. Separation of water from oil by removing it in the form of water vapor, rather than removing it in the liquid state, is the principle used in Kaydon's distillation technology. In this way, water can be removed from oil without regard to the degree of emulsification. This technology allows for water removal in a number of liquids and applications that cannot be addressed through coalescing. Even the most stubborn, stable oil/water emulsions can be separated.

Kaydon Oil Purification Method

The 858 vacuum dehydration systems are different than other dehydration processes as they take water from the liquid state and transforms it into water vapor so it can easily be removed. In the distillation process, as water is vaporized from oil, oily water foam forms and is drawn into the vacuum pump. As the foam is transported through the condenser by the suction of the vacuum pump, the foam coats the inside of the condenser, reducing heat transfer. In addition, the oily foam releases through the system waste water discharge, requiring further wastewater treatment. Unlike other vacuum systems that do not provide effective foam control and must be constantly monitored, Kaydon Filtration prevents the intrusion of the oily water foam with the installation of a foam control device that retards oily water foam from growing. Additionally, the 858 systems continuously and automatically balance incoming and outgoing oil flow eliminating ongoing operator adjustment and involvement. The 858 systems are equipped with an easy to understand full status control panel, a vacuum gauge on the vacuum chamber, and a differential pressure gauge on the pre and polishing elements.

The 858 technology successfully removes damaging water from lubricating oil used in lube systems at power plants, paper mills, steel mills, aluminum mills, and etc. 858 technology provides continuous protection from water contamination in hydraulic oil, therefore safeguarding sensitive hydraulic power unit components. It removes harmful water from transformer oil so the oil provides the needed cooling, insulation and corrosion protection for the transformer.

All 858 systems require customer-supplied water. The 858 vacuum dehydration systems are available in a wide array of configurations and options including explosion proof systems. Contact Kaydon Filtration technical support to discuss your specific requirements.

Applications

| | |
|-----------------------------|--|
| 858-600, 858-1200, 858-1800 | removes water and particulate contamination from lube, hydraulic, and transformer oils |
| 858-300 MINI-VAC | removes water and particulate contamination from lube and hydraulic oils |
| 858-300-HIVAC | removes water, particulate and gases from transformer oils and sour seal oils |
| 858-300-EHC | removes water, acids, and particulate from phosphate ester fluids |

Features

Distillation process tower chamber-in-chamber

Pre and Polishing filter

Vacuum chamber port hole

Air release valves

Oil Heater

Benefits

Internal water condensing utilizing Kaydon disperser elements provides swifter and more efficient water removal than external water condensers

Removes damaging particulate and debris from the oil exits.

Provides visual indication into the interior of the vacuum vessel, oil clarity, and vacuum chamber oil level

Allows for efficient removal of trapped air in the pre-filter and polishing filter vessels to enable complete use of the element surface area

Quickly brings the oil to the optimum temperature for distillation



858-300 MINI-VAC



858-600 / 858-1200



858-1800

858 Series Vacuum Dehydration Oil Conditioning System

Specifications and Details

| | | | | | |
|---------------------------|--|-------------------------------|--|---------------------------------------|------|
| System Flow (Maximum) | Model | gpm | lpm | | |
| | 858-300 Series | 5 | 19 | | |
| | 858-600 | 10 | 38 | | |
| | 858-1200 | 20 | 76 | | |
| | 858-1800 | 30 | 114 | | |
| Reservoir Sizing | Model | Gallons | Liters | | |
| | 858-300 Series | 100 - 900 | 378 - 3,406 | not for use for reservoirs < 100 gal. | |
| | 858-600 | ≤ 1,800 | ≤ 6,800 | | |
| | 858-1200 | ≤ 3,600 | ≤ 13,600 | | |
| | 858-1800 | ≤ 5,400 | ≤ 20,435 | | |
| Environmental Parameters | Model | NEMA | IP | | |
| | 858-300 Series | 4 | 54 | | |
| | 858-600 / -1200 / -1800 | 12 | 54 | | |
| | Minimum Temperature: 32° F / 0° C Maximum Temperature: 130° F / 54° C | | | | |
| Operating Voltage | Model | VAC | PH | HZ | AMPS |
| | 858-300 Series | 460 | 3 | 60 | 37 |
| | 858-600 | 460 | 3 | 60 | 70 |
| | 858-1200 | 460 | 3 | 60 | 110 |
| | 858-1800 | 460 | 3 | 60 | 130 |
| Vacuum Pump/Motor | Model | Pump | Motor | Requirement | |
| | 858-300 MINI-VAC / EHC | Liquid Ring | 1.5 HP / 1.12 KW | .5 gpm / 1 lpm water flow | |
| | 858-300 / HIVAC | Piston | 1.5 HP / 1.12 KW | | |
| | 858-600 | Liquid Ring | 2.5 HP / 1.87 KW | .5 gpm / 1 lpm water flow | |
| | 858-1200 / -1800 | Liquid Ring | 1.5 HP / 1.12 KW | .5 gpm / 1 lpm water flow | |
| Discharge Pump/Motor | Model | Pump | Motor | | |
| | 858-300 MINI-VAC / HIVAC | Positive Displacement (screw) | 1 HP / .75 KW | | |
| | 858-600 | Positive Displacement (screw) | 2 HP / 1.49 KW | | |
| | 858-1200 / -1800 | Positive Displacement (screw) | 5 HP / 3.73 KW | | |
| Materials of Construction | Model | Elastomers | Paint | | |
| | 858-300 MINI-VAC / HIVAC / 858-600 / -1200 / -1800 | Buna-N | Epoxy | | |
| | 858-300 EHC | Fluroelastomer | Compatible with phosphate ester fluids | | |
| | Metals: Carbon Steel, Bronze, Stainless Steel | | | | |
| Inlet/Outlet Connections | Model | Inlet | Outlet | | |
| | 858-300 Series | 1 inch / 25.4 mm | 1 inch / 25.4 mm | | |
| | 858-600 | 1.5 inch / 38.1 mm | 1 inch / 25.4 mm | | |
| | 858-1200 / -1800 | 2 inch / 50.8 mm | 1.5 inch / 38.1 mm | | |
| | Type: NPT | | | | |
| Dimensions | Model | Inches (L x W x H) | mm (L x W x H) | | |
| | 858-300 MINI-VAC | 48 x 27 x 80 | 1220 x 686 x 2032 | | |
| | 858-300 EHC | 48 x 27 x 72 | 1220 x 686 x 1830 | | |
| | 858-300 HIVAC | 48 x 42 x 76 | 1220 x 1067 x 1930 | | |
| | 858-600 / -1200 / -1800 | 72 x 48 x 86 | 1830 x 1220 x 2185 | | |
| Weight (approximate) | Model | lbs. | kg | | |
| | 858-300 MINI-VAC | 1,000 | 454 | | |
| | 858-300 EHC | 1,100 | 500 | | |
| | 858-300 HIVAC | 1,200 | 545 | | |
| | 858-600 | 3,850 | 1,750 | | |
| | 858-1200 / -1800 | 4,000 | 1,815 | | |

| | | | | |
|---------------------------|---|---|--|---|
| System Pressure (Maximum) | 100 psig / 7 BAR | | | |
| Fluid Compatibility | Model | Type | | |
| | 858-600 / -1200 / -1800 858-300 MINI-VAC / HIVAC 858-300 EHC | Mineral base lube oils Mineral base lube oils (maximum viscosity = ISO 150 @ >100° F) ISO 32, 46, and 68 Phospahte Ester Fluids | | |
| Performance | Model | Water | Acid | |
| | 858-300 MINI-VAC / HIVAC / -600 / -1200 / -1800 858-300 EHC Particulate: ISO Cleanliness Code 16/14/12 ¹ | Removal to less than 25 ppm ² Removal to less than 1000 ppm ² | Removal to less than .1 mg KOH/g | |
| Filter Stages | Model | 1st Stage | 2nd Stage | 3rd Stage |
| | 858-300 MINI-VAC / HIVAC 858-300 EHC 858-600 / -1200 / -1800 | Water removal Water removal Pre Filtration | Post Filtration acid removal Water removal | N/A Post Filtration Post Filtration |

1. As measured with in-line automatic particle monitor calibrated to ISO 11171 and influent no greater than ISO 22/19/17.

2. Total Water content (free, emulsified and dissolved) as measured by ASTM D6304-04 (Karl Fischer method).

All design specifications are subject to change without notice.

