



PHX-C4 OR C8 - 4 OR 8 GPM PORTABLE FILTER CART AND MEMBRANE DEHYDRATOR



GEAR OIL BEFORE AND AFTER 4000 PPM WATER - 50 PPM



PHX-M -1 GPM 110/220V HAND CARRY MEMBRANE DEHYDRATOR



PHX-C1 1GPM PORTABLE FILTER CART AND MEMBRANE DEHYDRATOR



Simple

Safe

Reliable

Efficient

PH₂oenix™

* Disclaimer : Membrane operation diagram is illustrative Membrane is not claimed to be defect free and very modest amounts of oil permeate over into vacuum side. Any effects of this are minimized by system design and oil dehydration is not effected!

IT'S REVOLUTIONARY



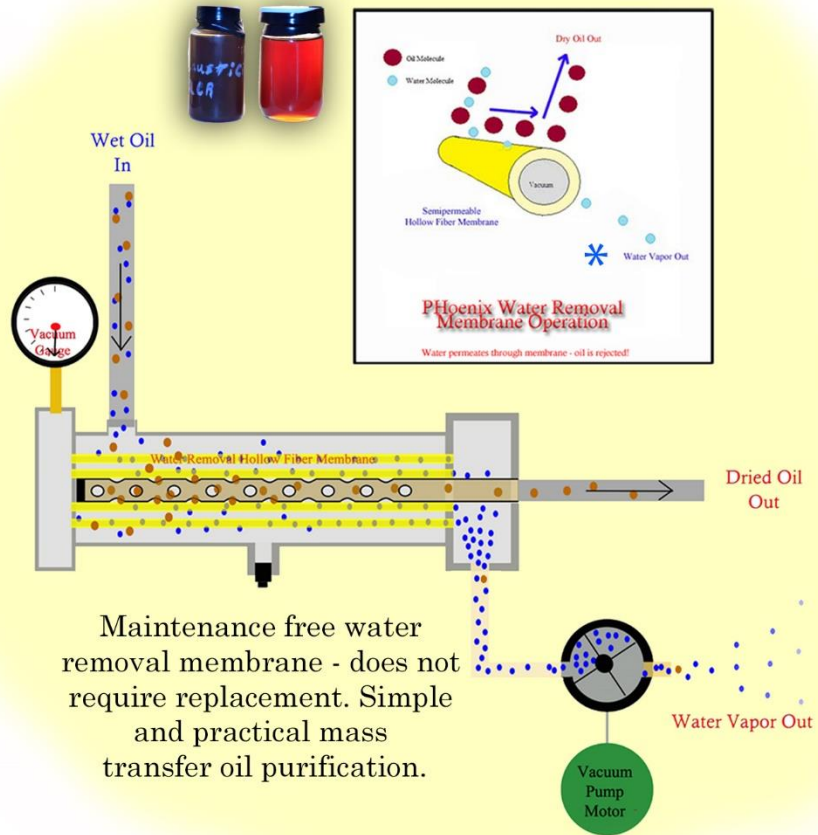
PHOENIX C4 - 4 GPM or C8-8 GPM
20 - 1000 GALLONS



PHOENIX C - 1 GPM
5 - 150 GALLONS



PHOENIX M - MINI
HAND CARRIED 1 GPM
5- 150 GALLONS



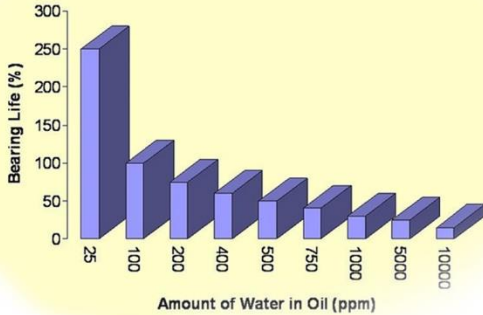
IT'S RELIABILITY THROUGH SIMPLICITY

- * Simple Design
- * Easy to use
- * Few moving parts
- * Small footprint
- * Very little maintenance required
- * Unlimited water removal
- * Autonomous
- * Extremely portable
- * Effective



Why throw away perfectly good oil? Instead flush your system or reclaim with the PHoenix .

Effect of Water on Bearing Life



Cantley, R.E.,
"The Effect of Water in Lubricating Oil on Bearing Fatigue Life"
ASLE Transactions, 20(3), 244-248, 1997.

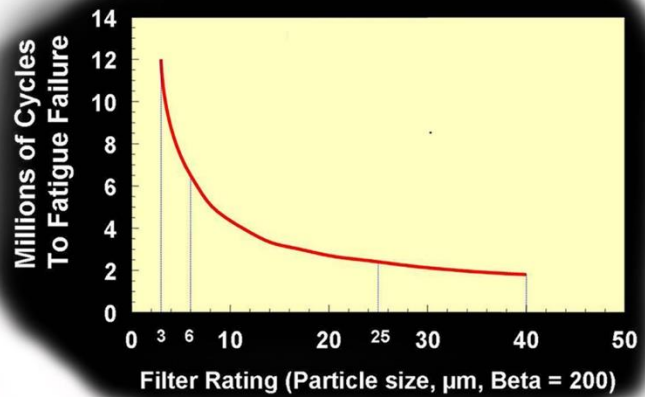
IT'S SIMPLE!

The freer your lube and hydraulic systems are of water and particulate the fewer equipment breakdowns you will experience !

This means longer uninterrupted manufacturing run times along with more profits for your organization and less stress for you!

THE PHOENIX REMOVES:

- * Free Water 100%
- * Emulsified Water 100%
- * Dissolved Water - < 50 ppm
- * Particulates - < 3 microns



Mcpherson, P., Bhachu, R., Sayles, R.,
"The Influence of Filtration on Rolling Element Bearing Life".



Water Contamination
4000 ppm

Water Reduced
to less than 100 ppm

Paper Plant - field results 220 weight
Gear Box Oil - 48 gallon reservoir

APPLICATIONS AND INDUSTRIES SERVED

ROAD CONSTRUCTION AND MINING

- * Lift Hydraulic System flushing
- * Track and Drive Train Gear Box flushing
- * Bucket Truck Dielectric Hydraulic purification
- * Transmission System flushing
- * Conveyor Gear Box flushing



MARINE PORTABLE OIL PURIFICATION

- * Used by the US Coast Guard - EAL's
- * Propeller Pitch Control Hydraulics
- * Thruster Gear Boxes
- * Steering Hydraulics Flushing/Purification
- * Outside Crane Hydraulics
- * Z Drive Systems - Tug Boats

OTHER POTENTIAL APPLICATION

Power Generation

- * Combustion Turbine Lube
- * Coal Mill Gear Boxes
- * Conveyor Gear Boxes
- * Boiler Feed Pump Lube
- * Windturbine Gear Boxes
- * EHC Control
- * ACC - WCC Gear Boxes
- * Scrubber Equipment Gear Boxes

Food and Beverage

- * Food Grade Hydraulic Oil
- * Conveyor Gear Boxes

Agriculture

- * Conveyor Gear Boxes
- * Harvesting Equipment Hydraulic

Pulp and Paper

- * Wet end/dryer lube
- * Press section lube and hydraulics
- * Boiler Feed Pump lube
- * Cooling Tower Gear Boxes

Primary Metals

- * Roll mill gear and pinion lube

Transportation

- * Ship Board Hydraulic-Lube
- * Diesel Locomotive Gear Box
- * Transmission Systems

Military

- * Military Equipment Hydraulics
- * Aircraft - Road Equipment

Light Industrial

- * Oil Reclamation
- * Blow Molding Hydraulic
- * Machine Tool Hydraulic
- * Injection Molding
- * Automotive transfer line Hydraulic Oil

Fuels and Chemical

- * Drilling Equipment Gear Box Flushing
- * Extruder Gear Boxes
- * Compressor Lube
- * Boiler Feed Pump Lube
- * Offshore Drilling Platforms

PHoenix™ C4 OR C8

4 gpm or 8 gpm portable Membrane Oil Purifier Cart for 10 - 1000 Gallon Oil Reservoirs:

(Larger reservoirs possible depending on water ingress rate)

OPTIONAL 1" INLET/OUTLET HOSES SOLD SEPERATELY

PN: PHXC4MHS - MINERAL OIL
PN: PHXC4PEHS - PHOSPHATE ESTER

PHOENIX SHOWN WITH OPTIONAL AQUATREX MOISTURE MONITORING SYSTEM (SEE PAGES 11-12 FOR DETAILS.)



LOW MAINTENANCE GAST ROCKING PISTON VACUUM PUMP

CART FINISH - CHEMICALLY RESISTANT POWDER COATING - NOT PAINTED

PANEL MOUNTED PRESSURE GAUGES

- * Oil Pressure
- * Membrane Vacuum

CART RIGGING AND LIFTING LUG

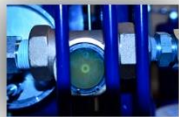
4" WATER REMOVAL MEMBRANE HOUSING

PARTICULATE FILTER PLUGGED INDICATOR

8 MICRON ABSOLUTE BETA 2000 SPIN ON FILTER

JIC OR ORB HYDRAULIC LEAK RESISTANT FITTINGS AND CONNECTIONS WHERE ALLOWABLE.

OUTLET OIL FLOW INDICATOR SIGHT GLASS



INLET OIL SAMPLE VALVE

HIGH QUALITY HEAVY DUTY BALDOR WASHDOWN DUTY MOTOR

PUMP INLET VACUUM GAUGE AND HIGH VACUUM CUT OFF SWITCH SUPPLIED WHEN AQUATREX OPTION IS PURCHASED

HIGH QUALITY 4 GPM C4 OR 8 GPM C8 VIKING GEAR PUMP

BACK



QUALITY

VERSATILITY

RELIABILITY

PHoenix™ C4 & C8

Specifications

Flow Rate: C4 - 4 gpm Gear Oils and Light Oils
 C8 - 8 gpm Light Oils ISO 32 Only
 Inlet/Outlet Connections: 1" Male JIC
 Available Voltage: 110 V or 220V 50 or 60 HZ
 Max Amp Draw: 10 Amps
 Fluid Pump Motor: 1/2 HP Washdown
 Dry Weight: 250 Lbs
 Inlet Pressure Range : -10 hg - 10 psig
 Max Outlet Pressure: 20 psig
 Maximum Oil Viscosity: 2000 Cst
 Minimum Oil Viscosity: 10 Cst
 Maximum Operating Temp: 190 F
 Minimum Operating Ambient: 34F
 Maximum Free Water Removal: 2-3 Gallons/Day
 (Depending on Water Content, Oil Temp and Oil Type)

Oil Type: Low Volatile Mineral Based
 Phosphate Ester, PEG and PAG
 Recommended Oil Reservoir Size: 10 - 1000 gallons
 (Larger Possible depending on water ingress rate)

Ordering Information

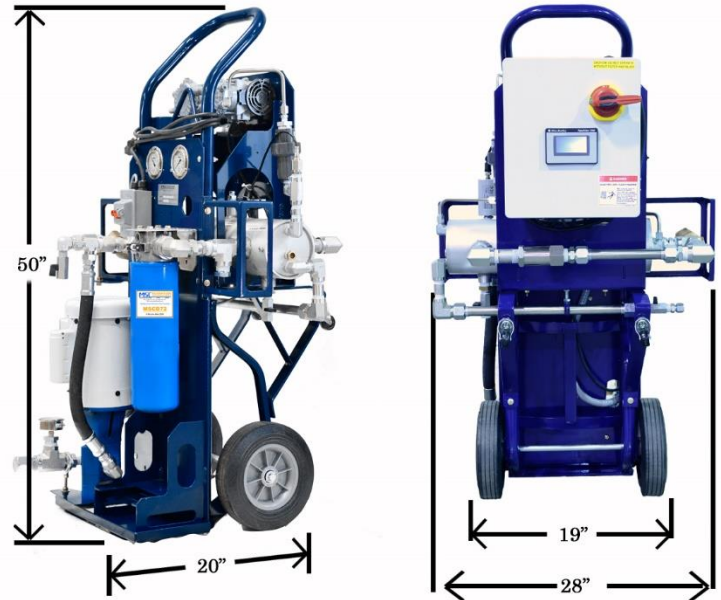
PHX-C4	Table 1	Table 2	Table 3	Table 4	Table 5
	Voltage	Aquatrex	Filter	Oil Type	Mount

Table 1: Voltage Options

A	110 V 60Hz - SP Standard
B	220 V 60Hz - SP Optional

Table 2: Aquatrex Moisture Monitoring

C	Without Aquatrex
D	With Aquatrex



Dimensions

Spare Parts	Qty	Part Number
5000 hr PmKit	1	PHX2C42KIT
8 Micron Filter	1	MSCD72

Table 3: Filter Housing Option

2	8 Micron B2000 Spin On Filter
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Table 4: Oil Type

H	Oil - Mineral, Phosphate Ester, PAG and PEG
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Table 5: Mounting

BLANK	Portable Cart
1	Permanent Mount

PHoenix™ C1

1 gpm portable Membrane Oil Purifier Cart for 5-200 gallon oil reservoirs!

Larger reservoirs possible depending on water ingress rates!

PHOENIX SHOWN WITH OPTIONAL AQUATREX MOISTURE MONITORING SYSTEM



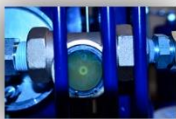
CART FINISH - CHEMICALLY RESISTANT POWDER COATING - NOT PAINTED

OPTIONAL 3/4" INLET/OUTLET HOSES SOLD SEPERATELY

PN: PHXC1MHS - MINERAL OIL
PN: PHXC1PEHS - PHOSPHATE ESTER



OUTLET OIL FLOW INDICATOR SIGHT GLASS



HIGH QUALITY HEAVY DUTY BALDOR WASHDOWN DUTY MOTOR

PUMP INLET VACUUM GAUGE AND HIGH VACUUM CUT OFF SWITCH SUPPLIED WHEN AQUATREX OPTION IS PURCHASED

HIGH QUALITY 1 GPM VIKING GEAR PUMP

BACK

QUALITY

VERSATILITY

RELIABILITY

PHoenix™ C1

Specifications

Flow Rate: 1 gpm constant
 Inlet/Outlet Connections: 3/4" Male JIC
 Available Voltage: 110 V or 220V
 Max Amp Draw: 7 Amps
 Fluid Pump Motor: 1/2 HP Washdown
 Dry Weight: 180 Lbs
 Inlet Pressure Range : -10 hg - 10 psig
 Max Outlet Pressure: 40psig
 Maximum Oil Viscosity: 3000 Cst
 Minimum Oil Viscosity: 10 Cst
 Maximum Operating Temp: 190 F
 Minimum Operating Ambient: 1/2 C or 33F
 Maximum Free Water Removal: 1 - 2 Gal/Day
 (Depending on Water Content, Oil Temp and Oil Type)
 Dimensions: 19"W X 20" D X 50" H
 Oil Type: Low Volatile Mineral Based
 Phosphate Ester , PAG and PEG

Recommended Oil Reservoir Size: 5-200 gallons
 (Oil Temperature and Water Ingression Dependent)

Ordering Information

PHX-C	Table 1	Table 2	Table 3	Table 4	Table 5
	Voltage	Aquatrex	Filter	Oil Type	Mount

Table 1: Voltage Options

A	110 V 60Hz - SP Standard
B	220 V 60Hz - SP Optional

Table 2: Aquatrex Moisture Monitoring

C	Without Aquatrex
D	With Aquatrex



Dimensions

Spare Parts	Qty	Part Number
6000 hr PmKit	1	PHX2C42KIT
7 Micron Filter	1	MSCD72

Table 3: Filter Element

2	8 Micron B2000 Spin On Filter
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Table 4: Oil Type

H	Oil - Mineral Based, Phosphate Ester, PAG, PEG
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Table 5: Oil Type

BLANK	Portable Cart
1	Permanent Mount

PHoenix™ M

Mini - 1 gpm hand carried portable Membrane Purifier for oil reservoirs between 5 and 200 gallons.

(Larger reservoirs possible depending on water ingress rate)

OPTIONAL AQUATREX MOISTURE MONITORING SYSTEM NEMA 4 CONTROLBOX



4" WATER REMOVAL MEMBRANE HOUSING WITH GLYCOL FILLED OIL PRESSURE AND VACUUM GAUGES



SHOWN WITHOUT OPTIONAL AQUATREX MOISTURE MONITORING SYSTEM

EASY TO GRAB LIFT HANDLE

LOW MAIN' GAST ROCK VACUUM PI

WATER SENSOR SUPPLIED WITH OPTIONAL AQUATREX MOISTURE MONITORING SYSTEM



CHEMICAL RESISTANT POWDER COATED ALUMINUM FRAME



QUALITY

VERSATILITY

RELIABILITY

PHoenix™ M - Mini - Customer Supplied 1 GPM Fluid Pump

Specifications

Flow Rate: 1 gpm constant
 Inlet/Outlet Connections: 1/2" Male JIC
 Available Voltage: 110 V or 220V
 Max Amp Draw: 4 Amps
 Dry Weight: 55 Lbs with Aquatrex
 35 Lbs without Aquatrex
 Max Outlet Pressure: 25 psig
 Maximum Oil Viscosity: 3000 Cst
 Minimum Oil Viscosity: 10 Cst
 Maximum Operating Temp: 190 F/
 Minimum Operating Ambient: 1/2 C or 33F
 Maximum Free Water Removal: 3/4 - 1 Liter/Day
 (Depending on Water Content, Oil Temp and Oil Type)

Oil Type: Low Volatile Mineral Based ,Phosphate Ester
 PAG, PEG

Recommended Oil Reservoir Size: 5-150 gallons
 (Larger Possible depending on water ingress rate)

Ordering Information

PHX-C

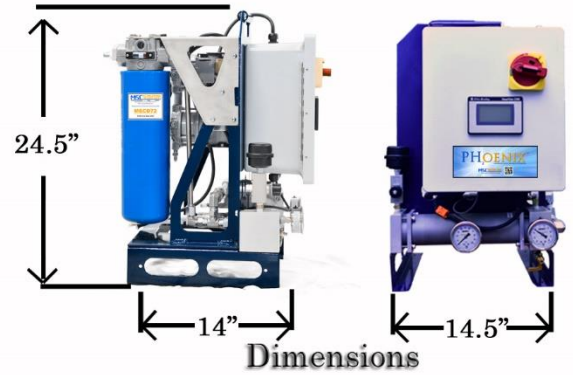
Table 1	Table 2	Table 3	Table 4	Table 5
Voltage	Aquatrex	Housing	Oil Type	Mag Rails

Table 1: Voltage Options

A	110 V 60Hz - SP Standard
B	220 V 60Hz - SP Optional

Table 2: Aquatrex Moisture Monitoring

C	Without Aquatrex
D	With Aquatrex



Spare Parts	Qty	Part Number
6000 HrPmKit	1	PHXC42KIT2
MSCD72	1	8 Micron Filter

Table 3: Filter Housing Option

2	8 Micron B 2000 Spin On Filter
F *	No Filter Housing Supplied

Table 4: Oil Type

H	Phosphate Ester
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Table 5: Magnetic Rails

I	With Magnetic Rails
J	Without Magnetic Rails

* Only use option F if Phoenix is to be used with existing Donaldson 7 micron or lower filtration such as permanent filter/pump skids or Filter/Pump Cooler Packages.



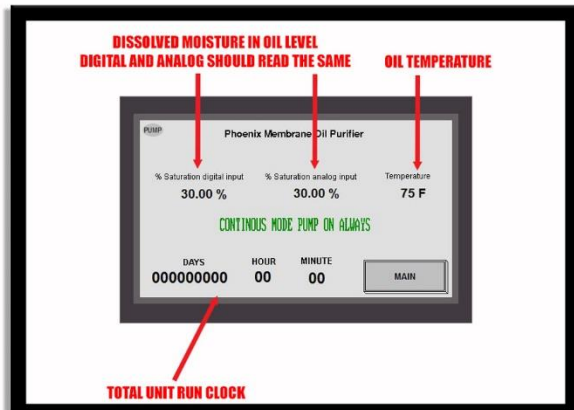
DO I EVEN HAVE WATER IN MY OIL?



Water Saturation Probe



Optional PHoenix Aquatrex 2G Moisture Monitoring System



Moisture Display in % Saturation

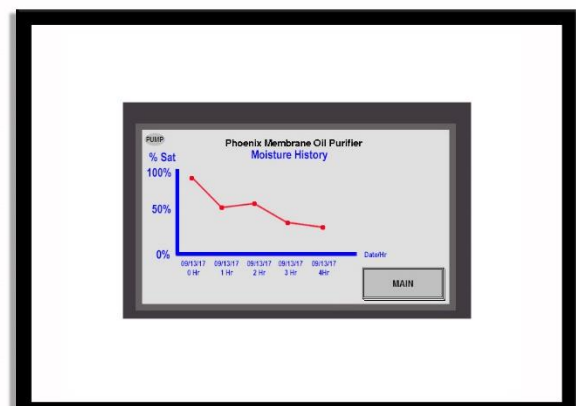
HOW CAN I TELL I HAVE WATER ?

The optional Aquatrex 2G Moisture Monitoring System measures the level of water contamination in your oil using a water sensor and displays it in real time on the Aquatrex touchscreen in % saturation.

HOW DO I KNOW IT'S WORKING ?

The Aquatrex 2G Moisture Monitoring System has a moisture history trending screen where past moisture content of your oil can be compared to your current moisture content.

Nothing is left to chance !



Moisture Trending

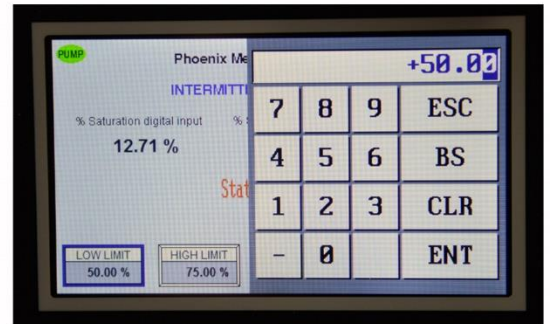
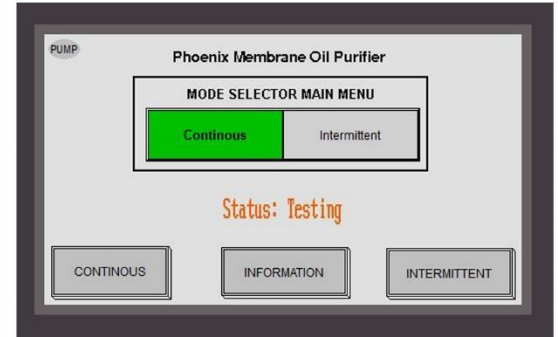
WHAT ELSE CAN IT DO ?

ALLOWS YOU TO RUN INTERMITTENTLY!

The optional Aquatrex 2G programmable controller allows operators to run the PHoenix in continuous mode or intermittent mode by just selecting one of two buttons.

Continuous Mode: Phoenix will run 24/7.

Intermittent Mode : The PHoenix will run each day for a field programmable period of time and as long as the moisture content in the oil has dropped below an operator programmed set point, will shut down and go into hibernation. Hibernation time is also field programmable based on operator preference.



Field Programmable Setpoints



Alarm Explanations and PM Reminders

BUT THAT'S NOT ALL!

In addition to all that the Optional Aquatrex 2G moisture tracking system also includes:

- Alarm History Page
- Alarm Indications and Explanation Page
- Vacuum Pump PM Auto Reminder

Optional Aquatrex 2G System Includes

- * Weather Resistant Nema 4 Control Box
- * Water Sensor
- * Touchscreen Display, PLC and Components
- * C1 & C4 only: Fluid Pump Vacuum Switch

PHoenix™

MSC **FILTRATION
TECHNOLOGIES**

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