

# ULTIDRI® OIL CONDITIONING TECHNOLOGIES

## MODULAR • SCALABLE • PORTABLE

OIL DEHYDRATION AND FILTRATION COMPONENTS  
FOR LUBRICATION AND HYDRAULIC SYSTEMS

The ULTIDRI® Oil Conditioning solution combines filtration and membrane technologies to thoroughly remove solid contaminants, as well as, free, emulsified, and dissolved water from a wide variety of industrial and portable lubrication and hydraulic systems.

### THE IMPORTANCE OF OIL CONDITIONING

“Over 70% of equipment failures can be attributed to contamination<sup>1</sup>.” Oil conditioning is vital for achieving cleanliness goals. The ULTIDRI® technology improves the oil condition, minimizing equipment wear, maintenance expenses, and costly downtime.

Lubrication systems rely on a layer of oil to separate moving surfaces. Water contamination reduces lubricity and causes the formation of solids within this layer due to the formation of rust, corrosion, varnish deposits, or the breakdown of oils due to oxidation, additive depletion, and changes in viscosity. These particles act as an abrasive and, as a result, there is a high probability for the life of the bearings and components to be shortened.

High levels of moisture in oil can also lead to oxidation and hydrolysis. This degradation can cause changes in oil viscosity, varnish and sediment, additive depletion, and rust. The ULTIDRI® technology makes extremely low moisture levels attainable – well below the oil saturation limit in most cases. And, because the system runs continuously, oil is constantly maintained at low moisture levels.

### EASY TO INSTALL, OPERATE, AND MAINTAIN

Conveniently sized and easy to maintain, the ULTIDRI® System is well suited for applications where conventional vacuum purifiers may be too labor intensive or where the use of highly skilled operators is not desired. These self-contained units are easy to install, simple to operate, and require only minimal, periodic operator intervention.

### MODULAR, SCALABLE, AND PORTABLE OPTIONS

Providing robust protection in a compact, self-contained package, the Portable ULTIDRI® Models are popular in the field. This is attributed to their small footprint and versatility. A unit may be dedicated to a single reservoir for continuous conditioning or utilized across multiple reservoirs - for the ultimate in usage flexibility.

When volume, design, and flexibility are essential, this technology brings a whole new concept to the industry - called scalable modularity. This means that while ULTIDRI® system technology can be used for large and expensive equipment, it can also be scaled down in size for virtually any flow rate at a cost-effective price. Scalable modularity makes an ULTIDRI® System a practical and effective solution for virtually any application or reservoir size.



<sup>1</sup>Thibault, Ray. “Part I - Oil Cleanliness: The Key To Equipment Reliability.” Maintenance Technology. Sept 2007.

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## FEATURED TECHNOLOGIES



Featured Technologies shown in sample oil conditioning system.

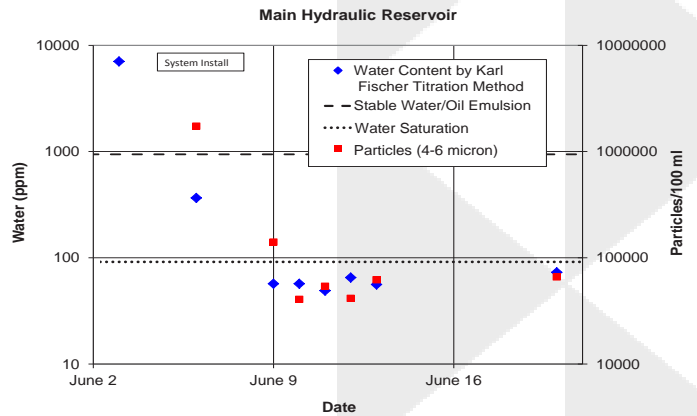
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### KEY BENEFITS

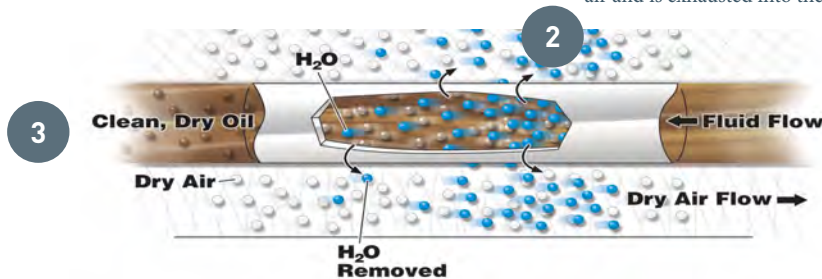
- Helps to minimize equipment wear and improve system reliability
- Helps to prolong the time between oil changes
- Easy to install, simple to operate
- Removes free, emulsified, and dissolved water, as well as particulates, from petroleum-based and synthetic oils (down to 50 ppm or less)
- Water exhausts in vapor form; no liquid waste stream to dispose of
- Operates at normal oil temperature; no heat or post process cooling required



The ULTIDRI<sup>®</sup> System utilizes the mass transfer capacity of completely dry air (<1% humidity) to effectively remove free, emulsified, and dissolved water – in most cases below the moisture saturation limit.

### HOW IT WORKS

Clean dry oil exits the ULTIDRI<sup>®</sup> contactor



Water diffuses from the oil through the DURION<sup>™</sup> membrane into the dry air and is exhausted into the atmosphere in vapor form

Oil flows through the ULTIDRI<sup>®</sup> System where the patented hollow fiber contactor distributes the oil into relatively thin films to encourage dehydration

### DURION<sup>™</sup> MEMBRANE

DURION<sup>™</sup> Membrane Technology is the future of moisture transfer. Strong and effective, this technologically advanced material is ideal for lubrication and hydraulic fluid treatment. The durability of the DURION<sup>™</sup> membrane is attributed to its high chemical resistance and mechanical strength.

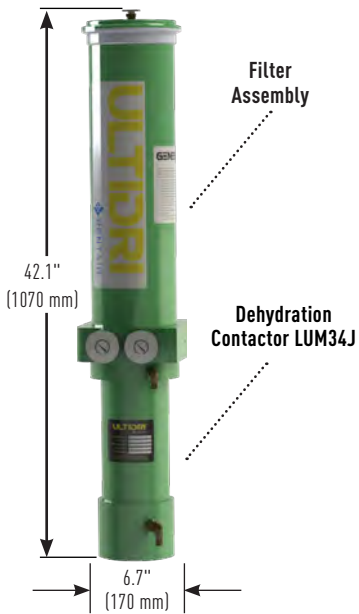
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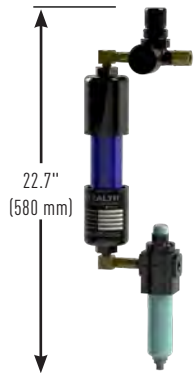
OIL DEHYDRATION AND FILTRATION COMPONENTS  
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### PORTABLE ULTIDRI® OIL CONDITIONING TECHNOLOGY

Series 34 components for use in continuous conditioning in compact, self contained portable systems.



**ULTIDRI SERIES 34  
Dehydration Assembly**  
LSA-UD-34JN04E-RV



**ULTIDRI SERIES 34  
Air Dryer**  
LSAB-100-DN

PORTABLE SERIES	
Ordering Information	Part Numbers
ULTIDRI SERIES 34 DEHYDRATION CONTACTOR with Filter Assembly (contactor, pre filter, and post filter included)	UD-ASSEMBLY-34J
ULTIDRI Series 34 Dehydration Contactor	LUM34J
Pre-filter (1 µm)	LGU4220HSBB
Last chance filter	LUF42-INT
AIR DRYER ASSEMBLY (inlet air coalescer, visual indicator, and auto-float drain included)	LSAB-100-DN
Replacement Inlet Prefilter	LFD-COAL-72C
MATERIALS OF CONSTRUCTION	
Pre-filter Housing	Anodized Aluminum
Dehydration Contactors	Aluminum
CONNECTIONS	
Oil Inlet /Outlet	1/2" NPT / 1/2" NPT
Air Inlet/Outlet	1/4" NPT / 1/4" NPT
DESIGN RATINGS	
Maximum Operating Pressure	150 psig (10.3 barg)
Recommended Operating Pressure	<75 psig (5.2 barg)
Recommended Operating Temperature	86 to 122 °F (30 to 50 °C)
Maximum Operating Temperature	140 °F (60 °C)
Minimum Operating Temperature	32 °F (0 °C)
System Flow Rate	0.5 gpm (1.9 lpm)



Example of Complete ULTIDRI SERIES 34 system shown above.

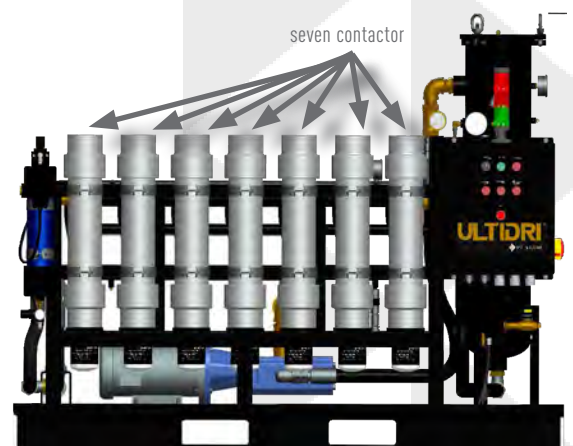
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## MODULAR ULTIDRI® OIL CONDITIONING TECHNOLOGY SERIES 408 DEHYDRATION CONTACTORS

Imagine the possibilities. Examples of single, double, triple, and seven contactor systems featuring ULTIDRI 408 Series contactors shown.



Ultidri Contactors are made with Durion® fiber to effectively remove water from oil. (Ultidri dehydration contactor LUM408-18S shown.)

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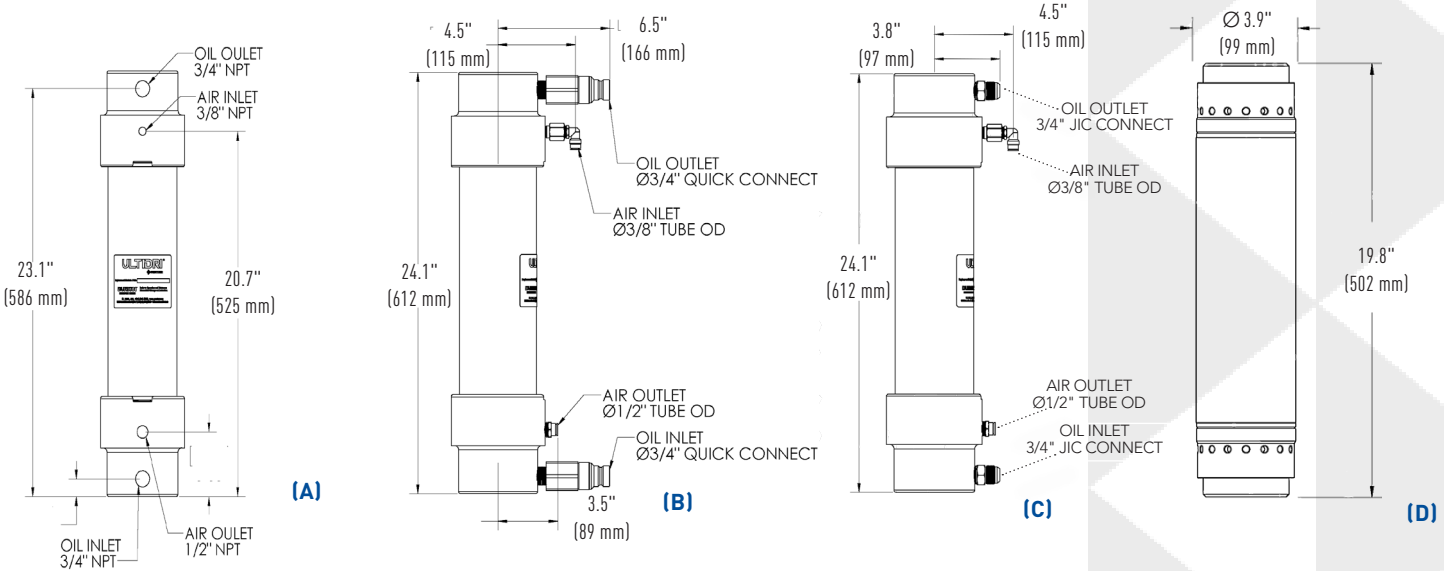
### MODULAR ULTIDRI® OIL CONDITIONING TECHNOLOGY

SERIES 408 DEHYDRATION CONTACTORS for scalable and modular oil conditioning system builds.

ORDERING INFORMATION	MODULAR SERIES
ULTIDRI SERIES 408 Dehydration Contactor with end caps	LUM408-18S (formerly LUM408-18S-L3)
with end caps and quick connect	LUM408-18S-QC
with end caps and JIC connectors	LUM408-18S-JIC
without end caps	LUM408-18S-CLR
TECHNICAL SPECIFICATIONS	
Materials of Construction	Aluminum
Maximum Operating Pressure	100 psig (6.9 barg)
Recommended Operating Pressure	<50 psig (3.4 barg)
Recommended Operating Temperature	86 to 122 °F (30 to 50 °C)
Maximum Operating Temperature	140 °F (60 °C)
Minimum Operating Temperature	32 °F (0 °C)
Maximum Flow Rate <sup>2</sup>	4 gpm (15.1 lpm) per contactor @ 1 g/ml
Air Required	Approx. 0.7 scfm @ 50 psig (19.8 slpm @ 3.4 barg)
Maximum Sweep Air Dew Point	-20 °F (-29 °C)



<sup>2</sup> For viscous fluids, use lower flows to keep pressure below the maximum.



**SERIES 408 DEHYDRATION CONTACTORS** from left to right: (A) Standard Contactor (LUM408-18S), (B) Contactor with Quick Connectors (LUM408-18S-QC), (C) Contactor with JIC Connectors (LUM408-18S-JIC), (D) Contactor without End Caps (LUM408-18S-CLR). Dimensions are for reference only.

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### MODULAR ULTIDRI® OIL CONDITIONING TECHNOLOGY

#### SERIES 408 DEHYDRATION CONTACTORS

The Ultidri prefilter assembly features filters designed and manufactured by Pentair, a market leader in filtration. These filters were engineered specifically for the removal of particulates in oil in Ultidri systems.

DESCRIPTION	PART NUMBER
Ultidri® Pre-filter Housing Assembly	UD-PREFILTER-JIC
Replacement Prefilter, Stage 0 (1 micron) <sup>3</sup>	LGU6427HSAB

#### MATERIALS OF CONSTRUCTION

Wetted Materials	Steel / Aluminum / Brass
Seal	Buna - N
Treatment Vessels	Epoxy Painted Steel

#### CONNECTIONS

Oil Inlet	1" JIC
Oil Outlet	1" JIC

#### DESIGN RATINGS

Maximum Operating Pressure	150 psig (10.3 barg)
Maximum Operating Temperature	140 °F (60 °C)
Minimum Operating Temperature	32 °F (0 °C)
Maximum Flow Rate	16 gpm (61 lpm)

<sup>3</sup> Also available in 3 µm (p/n LGU6439HSBB).



Ultidri® Pre-filter Housing Assembly  
(cutaway shown to illustrate pre-filter inside)

**MODULAR ULTIDRI® OIL CONDITIONING TECHNOLOGY**  
**SERIES 408 COMPONENT CONFIGURATOR**

NUMBER OF CONTACTORS	AIR DRYER ASSEMBLY	OIL PRE-FILTER ASSEMBLY (1 µm)	INLET COALESCING ASSEMBLY	OUTLET COALESCING AIR FILTER
1	LSAFP0200N03AAS	UD-PREFILTER-JIC	FF11N3BAPAS-K	LC21N04BMBAS-K (Replacement filter: PCX12045A03B)
2 to 3	LSAFP0600N03AAS	Replacement filter <sup>3</sup> : LGU6427HSAB	Replacement filter: PCX07025E03B	LC31N06BMBAS-K (Replacement filter: PCX22084A03B)
4 to 7	LSAFP2050N03AAS			

<sup>3</sup> Also available in 3 µm (p/n LGU6439HSBB).



**ENGINEERED FILTRATION**

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