MINIMAC®
Systems pvt. ltd.

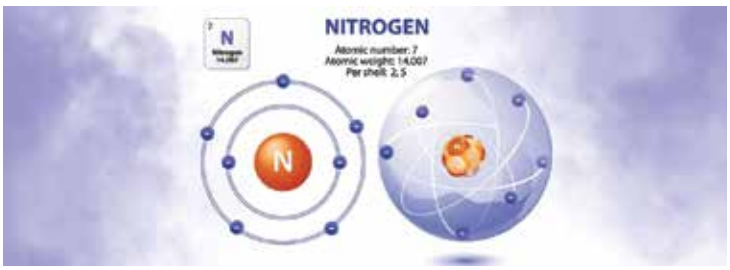
ISO 9001:2015 ISO 14001:2015 OHSAS 18001 2007

FRF Conditioning System

Minimac MLC LVDH-TRIX is a high-end technology machine popularly used for filtration(fine solid particle removal), dehydration (moisture removal), and Removal of TAN (total acidic number) lubricating from synthetic fluids like fire-resistant fluid, electro-hydraulic oil, other lubricants & EHC Oils. This 4-stage conditioning system removes all three forms of contamination from Phosphate Ester, also known as Fire Resistance or Electro-Hydraulic Control System Fluid used in Turbine Control systems.

Technology:

- Mechanical Filtration
- Low Vacuum Dehydration
- Tan Reduction by Ion Exchange
- Nitrogen Gas Blanketing



MLC LVDH -TRIX -20-TCIS

MLC LVDH -TRIX -40-TCIS

Watch Video Product Details Read Article

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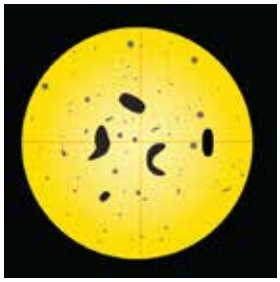
Why Oil Purification Important

A lubrication system generates metallic wear particles (of < 5-micron size) during its operations.

Metallic wear particles are highly abrasive in nature. Increase of wear particles is highly damaging to machine components. Wear particles typically cause 50% of all failures. These multiply due to wear and tear on the surfaces of machine components. The most harmful particles are trapped in the dynamic tolerance, like bearings.

Another critical issue is the presence of free, emulsified, and dissolved water in lube oils which is detrimental to the overall performance of the lubricating system. This causes Oil oxidation and breakdown, Sludge formation, Seal Deterioration and leakages, Metal etching through Corrosion, etc.

This system helps reduce three types of contaminants from lubricating and hydraulic systems. The system is beneficial in reducing the total acid number (TAN) from higher levels to acceptable levels maintaining solid contaminants and water contamination in the oil within acceptable limits. The system comprises a nitrogen blanketing arrangement to eliminate any contamination ingress into the oil from the tank header space.



Types of fluid which can be cleaned

- FRF-Synthetic Fire Resistant Fluid
- EHC Oil
- EH Oil
- Control Oil

Nomenclature - Model No. MLC-LVDH -TRIX

T1 TCIS SS

T1	Pump Flow Rate (LPM)	Filtration Capacity (LPM)
20 LPM	20 LPM	20 LPM
40 LPM	40 LPM	40 LPM

Fluid Type
EHC Oil
EH-Oil
Control Oil
FRF-Synthetic fluid

No. of Filtration Stages Present
1 stage filtration
2 stage filtration

Filter Clogging Indications
1 stage filtration
Electrical Indicaition

For customizations please contact Minimac® Sales Representative.

All specifications and configurations are indicative and should be verified with Minimac® Sales Office prior to ordering

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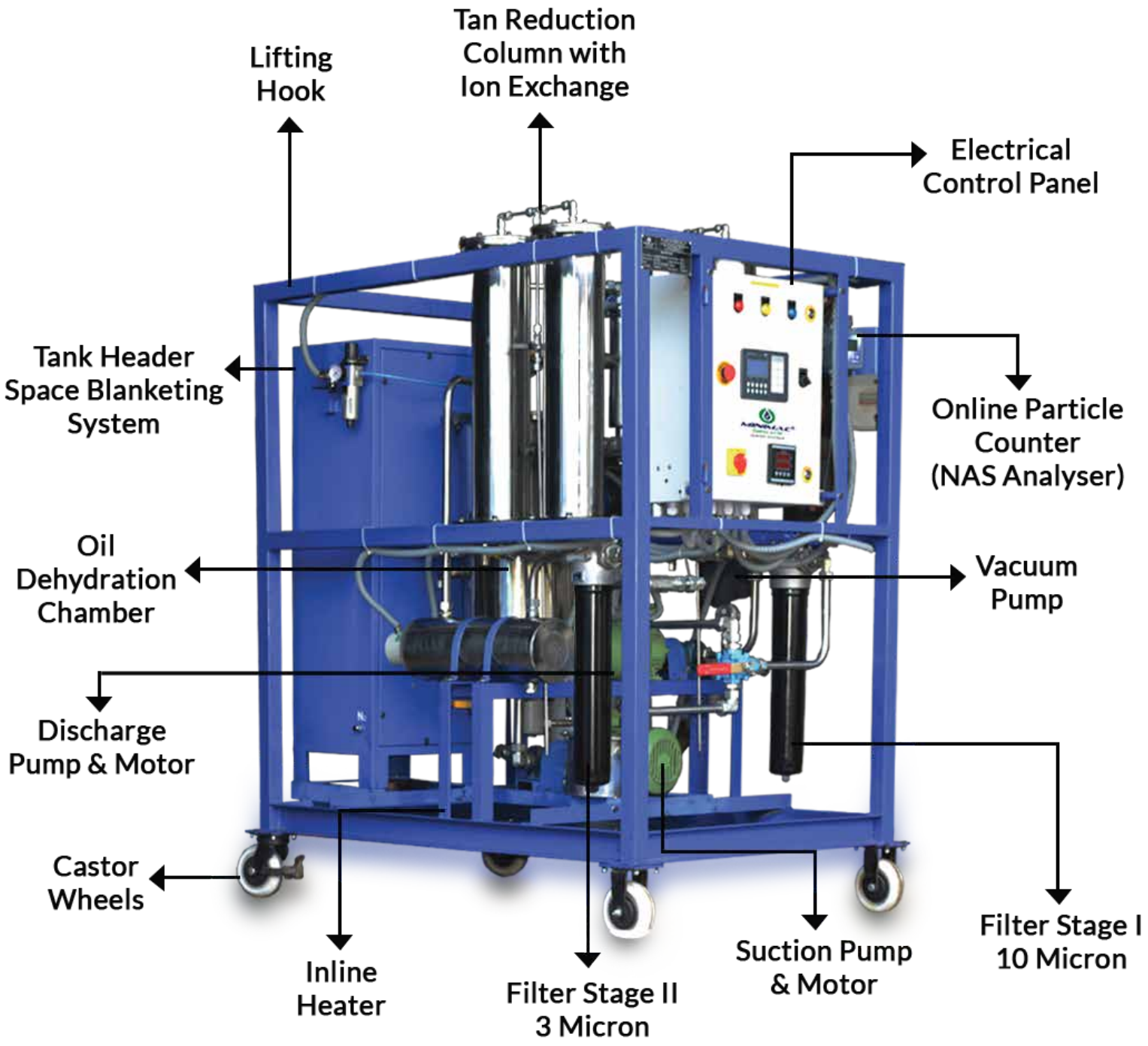
Features



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Specifications

Installation Scheme	Trolley Mounted, Portable Machine
Working	Online / Offline. Fitted externally to oil reservoir as a by-pass oil purification system
Operational Principle Filtration Principle	Stage Filtration of reducing microns Depth Type filters : The complete volume of the filter serves as a filtration media and provides efficient filtration of dust, metallic particles, sludge, soot etc.
Moisture Removal Principle	Thin Film Evaporation : Removes dissolved, emulsified and free moisture in oil. A very thin film of oil is allowed to spread evenly on fountain like evaporation plate, under a warm and un-saturated air chamber. Moisture in oil exposed to the vacuumized chamber gets converted to vapour form and escapes from the oil film. Low vacuum Dehydration : By creation vacuum pressure in air-tight chamber, the vapour conversion process is boosted in the in stage.
TAN Removal Principle	TAN Reduction Column with ION Exchange maintains the oil's desired acid level. Next is a blanketing system for tank header space that eliminates oxygen in the Oil tank through nitrogen blanketing.
Benefits Filtration Capacity	NAS 4-5
Moisture Removal Capacity	Below 300 PPM
Moisture Separated	100% Moisture removal from oil in Dissolved, Emulsified or Free form
TAN Removal Capacity	≤ 0.15 mgKOH/gm
Resin	4 Number of Resin Columns for TAN Reduction Mechanism Machine Body, Pipeline, Tank & Resin Assembly.
Viscosity	0-100 CST; for higher viscosities customized model is to be ordered.
Oil Types handled	Hydraulic, Turbine, Gear, Lube, FRF, EH-Oil
Prevents oil oxidation	By removal of solid particles and moisture in oil
Ensures Higher Oil Life	By retaining Viscosity, TBN, Flash Point, Additive level etc.
Prevents Valve Failures	Due to removal of sticky sludge
Prevent Pump Failures	Due to removal of micronic particles
Increases bearing life	Due to moisture & sludge free oil
Oil Flow Systems Oil in-take system	Gear Type Monobloc Pump
Oil delivery System	Pressurized
Moisture discharge system	Diaphragm Type / Vane Type - Vacuum Pump
Filters Suction line Strainer	149-micron mesh (Washable) It can be provided in 2 Stages of filtration in the range of 0 - 100 microns. Customized filtration can be provided as per oil and conditions within range.
Vacuum Chamber Capacity	Customised Vacuum Chamber as per flow rate.

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Specifications

Oil & Air Drive Systems **Inlet Pump Details** Type	 Mechanical Gear Pump
Nominal Flow Rate	Same as desired LPM model
Operating Pressure	0-10 Bar, Max – 10 Bar
Motor Power	As per required capacity.
Discharge Pump Details Type	 Mechanical Gear Pump
Nominal Flow Rate	Same as desired LPM model
Operating Pressure	0-10 Bar, Max – 10 Bar
Motor Power	As per required capacity.
Pre-heating of oil	6 KW customized heating can also be provided.
Vacuum Pump	a. 284 LPM b. Drive- Direct Driven
Operating Vacuum	Up To 760 Mm Of Hg
Electrical Controls Dry Run Protection	Yes Temperature Controller / Thermostat
Pre-heater temp control	Yes
Overload pump protection	RCCB / ELCB based
Supply Protections	Double safety, based on level float switch
Anti Flood Protection	
Indications Oil Pressure	 0 - 10 bar
Suction & Stage Filter Clog	Compound Gauge & Differential Pressure Gauge (optional)
Oil Temperature	Thermometer / Digital Display
Hour Meter	Analogue
Lamp Indications	Phase, Pumps Operation, Heaters Operation, Over-flooding, Low Press.
Hose Pipes	Teflon
Seals	Viton
Material	SS-304 Grade
Electrical Cable	10 M (4 core)
Fabrication Structure	MS (powder coated) structure frame Castor Wheels with swivel, bearing and pad brakes
Accessories	Online particle counters can be integrated with the machine for continuous condition monitoring of the oil.

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Credentials

Clients	City	Country	Capacity
Coastal Energen Pvt Ltd	Tuticotin	India	20 LPM
Essar Power Gujarat Ltd	Devbhoomi Dwarka	India	20 LPM
Essar Power MP Ltd	Singrauli	India	20 LPM
High Grade Industries (I) Pvt Ltd	Silvassa	India	20 LPM
Hinduja National Power Corporation Ltd	Visakhapatnam	India	20 LPM
Kawai Thermal Power Project	Baran	India	20 LPM
KEPCO Plants Service and Engineering Co Ltd	Mansa	India	20 LPM
Maruti Clean Coal and Power Ltd	Pali Korba	India	20 LPM
Meenakshi Energy Pvt Ltd	Nellore	India	40 LPM
Nabha Power Ltd	Patiala	India	20 LPM
NTPC GE Power Services Pvt Ltd	Sambalpur	India	Service - 15400 Liters
Raipur Energen Ltd	Raipur	India	20 LPM
Steag Energy Services India Pvt Ltd	Jharsuguda	India	Service - 91000 Liters

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