

IN USE WORLDWIDE



KLEENOIL FILTRATION INDIA PVT LTD

**KLEENOIL**®

[www.kleenoilindia.com](http://www.kleenoilindia.com)

OIL CLEANING MACHINES & BY-PASS FILTERS

LOW VACUUM DEHYDRATION MACHINES

CENTRIFUGAL & OIL RECOVERY SYSTEM

COOLANT PURIFICATION & OIL SKIMMERS

CHIP / SLUDGE REMOVAL MACHINE

MAGNETIC FILTRATION

OIL ANALYSIS EQUIPMENT



Before  
KLEENOIL Filtration



After  
KLEENOIL Filtration

### KLEENOIL BY-PASS FILTER

The Kleenoil "High Pressure" oil filter can be fitted on the "by-pass" basis to any hydraulic systems or any equipment with oil at pressure up to 3000psi / 200bar.

The flow through the Kleenoil filter is controlled to approximately 4 LPM at 40psi. A flow rate which is low enough to have negligible effect on most "system pressures", yet high enough to ensure that oil is being kept in "as new" condition 24/7.

At a slow speed, it is possible to remove particles down to 1 micron(3 absolute), remove 99.95% of all water, greatly reducing machine and component wear.

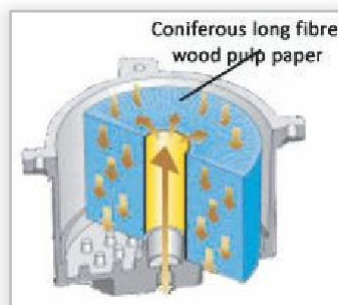
### OPERATING PRINCIPLE

The Kleenoil Filter Cartridges are made of densely wound pure coniferous long fiber wood pulp paper and manufactured by Kleenoil UK itself. The filter cartridge acts both by "**Absorption and Adsorption**" in a continuous recycling process.

The long fibre of the paper attracts the water formed either through the combustion process or by condensation and absorb it like a sponge, at the same time rejecting the larger oil molecules, which are forced to pass between the tight windings of the cartridge.

As the oil passes through the cartridge, minute carbon, wear metals and silicon are extracted from the oil by adhering to any of the surfaces of the filter - A process known as **adsorption**.

The filter cartridge has an additional "**Polypropylene disc**" at the bottom to remove any particle that may pass through - offering a second stage of filtration.



Hydraulic by-pass fitment  
on hydraulic lift



Hydraulic by-pass filter fitment  
on earth moving equipment



Hydraulic by-pass filter fitment on  
plastic injection moulding machine



Hydraulic by-pass filter fitment  
on H.P. Power Pack

### FILTRATION LEVELS

Particulate contamination in accordance with

- **Filter efficiency** to sub-micron levels (1 micron nominal and 3 micron absolute).
- **BS5540 Part4:1981.**
- **ISO/DIS 4406 ISO 16/14/11**, equivalent to **NAS Class 5** (Hydraulic oil specification).

### UNIT DESIGN

- Aluminium pressure die casting unit available in a variety of sizes appropriate to its use.
- Casting subjected to batch and individual testing.
- Constructed of Aluminium BS1490 LM6 (M).



MODEL OF FILTER UNIT WITH CARTRIDGE	HYDRAULIC OIL TANK CAPACITY UPTO	DIMENSIONS				WATER RETENTION <0.025%
		UNIT		CARTRIDGE		
		H	Dia	H	Dia	
HDU9778KU50 / HDFC1878KF50	500 ltrs	165 mm	150 mm	100 mm	145 mm	0.56 ltr
KU65 / KF65	1000 ltrs	165 mm	180 mm	100 mm	175 mm	0.95 ltr
SDU9788KU85 / SDFC1888KF85	1500 ltrs	165 mm	220 mm	100 mm	200 mm	1.20 ltr
*SDPC2088 Polypropylene Cartridge suitable for SDU9788KU85  *Suitable for Water Glycol and water emulsified fluids	—	—	—	100 mm	195 mm	—

### KLEENOIL MICRON FILTRATION SYSTEM™

The Kleenoil Micron Filtration Systems can be used for the following applications :

- Hydraulic Oil Filtration
- Fuel Filtration
- Water Glycol Filtration
- Gear Oil Filtration
- Mineral oils
- Neat Cutting Oil
- Turbine Oil Filtration
- Rust Preventive Oils
- EDM oils



MODEL: COMPACT MFS 1XKU65  
(for dedicated filtration)

Electrical Motor:  
0.37kw/0.5HP/415v  
3 phase 1450 rpm

Flow Rate: 200LPH  
Dimensions : 625x500x500 (mm)  
Weight: Approx. 30 kg



MODEL: SMFS 1XSDU9788

Electric Motor :  
0.37kw/0.5HP/415V  
3 Phase 1450rpm  
Flow rate : 300LPH  
Dimensions : 790x405x635 (mm)  
Weight : Approx. 50 kg



MODEL: SMFS 2XSDU9788

Electrical Motor:  
0.37kw/0.5HP/415V  
3 Phase 1450rpm

Flow Rate: 600LPH  
Dimensions: 990x460x635 (mm)  
Weight: Approx. 100 kgs



MODEL: MFS 1XSDU+KM

Electrical Motor:  
0.37kw/0.5HP/415V  
3 Phase 1450rpm  
Flow Rate: 300LPH  
Dimensions: 700x600x1100 (mm)  
Weight: Approx. 120kg's  
\*Additional Magnetic Filter



MODEL: MFS 2XSDU+KM

Electrical Motor:	
Up to 220 cSt	Up to 680 cSt
0.37kw/0.5HP/415kv	0.75kw/1HP/415V
3 Phase 1450rpm	3 Phase 960rpm
Flow Rate: 600LPH	Flow Rate: 1500LPH
Dimensions: 700x700x1100 (mm)	
Weight: Approx. 140 kg	
*Additional Magnetic Filter	



MODEL: MFS 4XSDU

Electrical Motor:	
Up to 220 cSt	Up to 680 cSt
0.75kw/1HP/415V	0.9kw/1HP/415V
3 Phase 1450rpm	3 Phase 960rpm
Flow Rate: 900LPH	Flow Rate: 2100LPH
Dimensions: 950x700x1100 (mm)	
Weight: Approx. 180kg's	



MODEL: MFS6XSDU 9788

Electrical Motor:  
0.75kw/1HP/415V  
3 Phase 1450rpm  
Flow Rate: 1200LPH  
Dimensions: 1200x700x1100 (mm)  
Weight: Approx. 220 kg



MODEL: MFS 8XSDU 9788

Electrical Motor:  
0.9kw/1HP/415V  
3 phase 960rpm  
Flow Rate: 2100LPH  
Dimensions: 1450x700x1100 (mm)  
Weight : Approx. 250 kg

\*Dimensions are LxWxH (mm).

All models are also available with an On-Line Particle Counter S-120 for Real time analysis of fluid cleanliness.

### SALIENT FEATURES

- The Kleenoil filter removes contaminant particles down to less than 1 micron nominal and 3 micron absolute.
- It removes water up to capacity of cartridge through "Absorption process".
- The Kleenoil machine is a 3-in-1 filtration system which is able to attract moisture, ferrous as well as contamination.
- There is no storage tank and oil is cleaned instantly.
- The only consumables are the filter cartridges which can be changed within minutes.
- All properties of oil being cleaned are maintained.
- Each filter housing, in all the machines, have magnetic rods of 4,500 gauss.

**\*Flow Rate:** It is impossible to state an exact rate because it is dependent upon many factors such as viscosity, temperature, degree of contamination of fluid, pump pressure and degree of contamination of cartridge. As an approximate guide, the Flow rate of hydraulic oil at room temperature through Kleenoil cartridges has been given above.





## FILTERS & BY-PASS FILTRATION SYSTEM

### KLEENOIL LOW VACUUM DEHYDRATION (LVDH) MACHINE

With the LVDH being the most cost friendly and reliable way to remove water from hydraulic oil, the machine is most suitable in situations where large amounts of water get emulsified into the oil.

#### APPLICATIONS

- Gearbox oils.
- Compressor oils.
- Steam Turbine Lube Systems.
- Purifying Transformer oil.
- Synthetic oils.

#### ADVANTAGES of the KLEENOIL LVDH

- Easy to operate for an efficient method for continuous removal of moisture from oil.
- No damage to oil and the unit offers dry, dehydrated oil.
- Significantly reduced residence time with fast and efficient heat transfer.
- Reduced pressure drop.
- High evaporation ratios (> 95%).
- Easy to clean/maintain equipment.
- Ability to process materials that are sensitive to thermal degradation or prone to fouling and ability to process high-viscosity and high-solids materials.



Form of Water	Free Water	Emulsified Water	Dissolved Water
<b>Description</b>	Water content well above fluid saturation point. Water exists in the form of a completely separate layer with the oil.	Water content above fluid saturation point. Water is emulsified with the oil, forming a cloudy mixture.	Water content below fluid saturation point. Water is solubilized in the oil, resulting in a clean and normal looking lubricant.
<b>Impact</b>	Severe Rusting Lube oil degradation.	Rusting Clogged Filters Improper lubrication Lube oil degradation.	Additive depletion Lube Oil degradation.
<b>Method of Separation</b>	Draining via gravity Centrifuge Coalescers Cellulose Media Vacuum Dehydrator.	Offline Filtration (Centrifuge, Cellulose Media, Vacuum Dehydrator).	Offline Filtration (Vacuum Dehydrator).

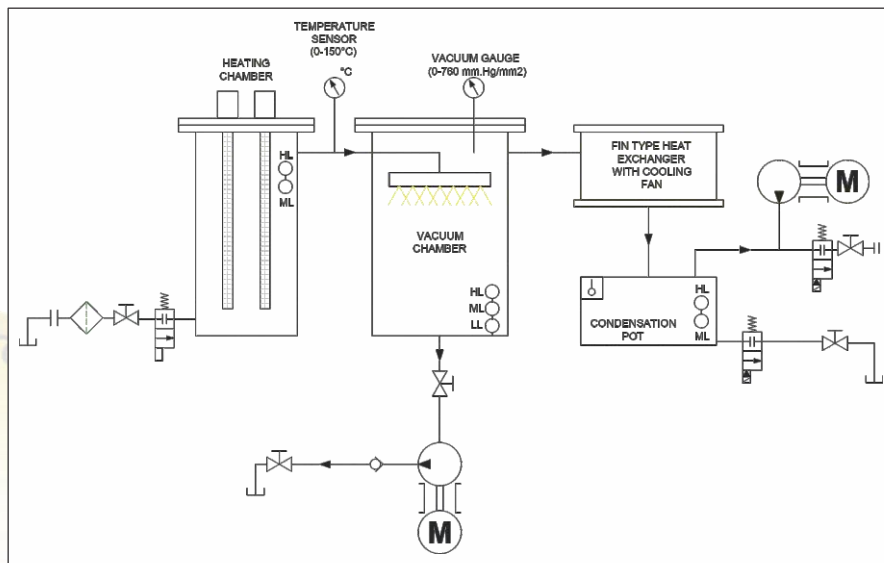
Our Low Vacuum De-Hydration Systems are recommended for use on the following applications:

- Turbine Lube Oils.
- Transformer Oils (Mineral Based).
- Refrigerant Oils.
- Compressor Oils.
- Hydraulic Oils.
- Gear Oils.
- Lube Oils.

#### VALUE PACKED STANDARD FEATURES

- Process flow rates upto 300 lpm.
- No other utilities other than electricity are required (no costly water consumption).
- Dry Running Claw Vacuum Pump – Pulls deeper vacuum than conventional vacuum pumps, dramatically increasing water extraction rates.
- Requires virtually no maintenance – no vanes to wear out and no lubricating oil to become contaminated by a wet air stream.

#### SCHEMATIC DRAWING THE LVDH MACHINE



Hence the Kleenoil LVDH:

- Removes water and dissolved gases from oil.
- Water reduction below 200 ppm.
- No oil quality damaged since temperature ranges between 45 to 60 degrees.
- Plug and Play.
- Run both offline and online.

## KLEENOIL INDIGENOUS PRODUCTS

### OIL RECOVERY CENTRIFUGE MACHINE

The Centrifugal oil burr separator works on the principal of basic laws of physics such as centrifugal motion. It causes a centrifugal motion due to the rotation of a shaft. With the help of a belt and pulley arrangement the power is supplied to the motor due to which the bucket carrying net spins at a high rpm.

Oil recovery centrifuge works on the principle of centrifugal separation. The rotor is made of perforated mild steel. Burr for which oil is to be recovered are loaded in the motor bucket Centrifugal force created in the rotor separates oil from surface of burr.

Collected oil is depleted out by opening valve located at the base of unit.

#### ADVANTAGES

- Complete Oil Recovery.
- Substantial savings on cost of oil.
- Reduced pollution and environmental impact.
- Improved Product Finish.
- Clean and dry waste.
- Efficient waste management.

#### INDUSTRIES USED IN

- Gear Manufacturing.
- Fastener Manufacturing.
- Spring Manufacturing.
- Gun Drilling.
- Tapping Machines.
- CNC Machines.
- VMC Machines.
- Auto Components.
- Plating Industries.



Inside of the Oil Recovery Centrifuge

### CENTRIFUGAL OIL FILTRATION MACHINE

Kleenoil has developed a filtration machine which is able to remove contamination from the oil - first through centrifugal force and then divert the same to the coniferous wood pulp 1 micron paper.

The Super KLEEN Kleenoil oil filtration centrifugal fine filtration machine is ideal for application with heavy and continuously generating contamination yet requiring the cleanest of oils.

The centrifugal force operating on the turbine principal, first removes all the heavy contamination and particles up to 50 microns with no consumable force. Oil enters the centrifuge underpressure and passes into the rotor through the hollow rotor shaft.

The oil pressure and flow is converted in rotational energy as the oil escapes through the jets, producing speed to 6000 RPM and above.

The resultant centrifugal force removes dirt from the oil depositing it on the inner wall of rotor in a dense cake-like form.

Clean oil drains back directly to the tank.

After 5 passes, the KLEENOIL machine requires the operator to divert the valve to the Super Duty filter cartridge which will then remove contamination under 1 micron and 99% of moisture in the oil.

The machine ensures lower consumption of filter cartridge at the same time removing all heavy and small contamination particles from the oil.

#### SUITABLE APPLICATIONS

- Wire drawing oil.
- Quenching oil.
- Heat furnace oil.
- Heavy carbon particle presence.

#### SUITABLE OILS

- Hydraulic.
- Quenching.
- Neat cutting.





## FILTERS & BY-PASS FILTRATION SYSTEM

### KLEENOIL INDIGENOUS PRODUCTS

#### COOLANT MAGNETIC ROLLER

At Kleenoil, through our manufacturing expertise and experience in the field of lubricants, we have developed an all-new Magnetic Roller for the removal of ferrous metal contamination from a wide spectrum of cutting fluids and oils.

##### TYPICAL APPLICATIONS

- Grinding
- Honing
- Milling
- Shaving
- Turning
- Hobbing Machine
- Broaching

Appropriate for Cylindrical, Centerless, surface & Internal Grinding Machines, Thread Grinders, etc.

##### SUITABLE FLUIDS

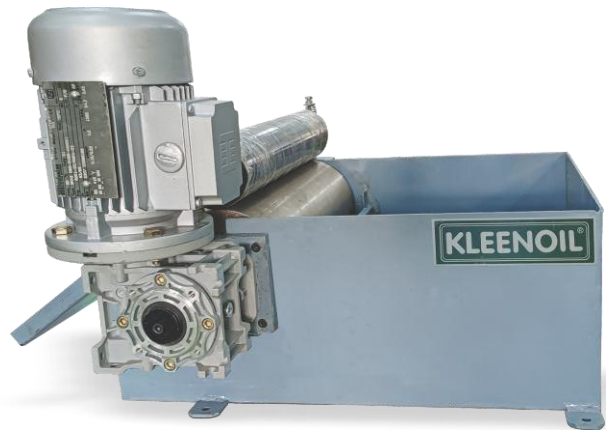
- All neat oil and water based fluids.

##### SUITABLE LOCATIONS

- Between machine and fluid tank (on the return line).

##### ADVANTAGES of the KLEENOIL Magnetic Roller

- Continuous Automatic cleaning
- High collection capacity
- Removes coarse sized contamination
- Scalable to suit any flow rate
- Rare Earth high intensity magnetic material
- Adjustable baffle plate
- Low maintenance
- Maximizes fluid recovery
- Ready to recycle waste



Model: MCC-100 - Suitable for Filtering: 100 LPM,  
Fitted with gear motor 0.25 HP, 3 Phase  
Magnetic Roller size: 150 x 360 MM Length,  
SS shell type design with Rubber Roller, scrapper etc.

#### OIL SKIMMER

Our belt oil skimmer efficiently removes oil from the surface of oily effluent. It works on the principle of the difference in surface tension of oil and water. A rotating endless oleophilic belt passes through the oily effluent, which breaks the surface tension of the water to attract and collect the floating oil. The belt is passed through a set of wiper blades where the oil is wiped off from both sides of the belt.

##### SALIENT FEATURES

- Belt Skimmer.
- High-quality aluminium case.
- Oil-feeding special belt.
- Construction requires little space.
- Low priced system.
- Simple and low-cost operation.

##### APPLICATION

- Grinding
- CNC
- VMC
- Hobbing

Removes floating leakage oil from the tank surface.  
High-performance oil skimmer for continuous operation.



Oil skimmer attached to a grinding machine



Output	Approx. 4 l/h
Bandwidth	40 mm
Max. immersion depth	1500 mm
Power unit	110 V / 220 V
Casing size	155 x 85 x 148 mm
Weight	1.8 kg



## Cutting Coolant Purification Equipment - BEST-1

**Specializes in improving oil-water separation and problems involving bad odor in the coolants**

- Filters suspended debris, to avoid backwash.
- Removes slide oil & foreign body oil on surface to achieve oil-water separation.
- Effectively kills bacteria which causes coolant to deteriorate.
- Does not change the clarity of the coolant.
- Save on cost of waste oil recycling treatment.
- Extend life of coolant as well as tool life.
- Improve bad odour working conditions causing harm to human body.



BEST-1 MINI



BEST-1

### PRODUCT DATA

Product	Dimensions	Net Weight	Capacity	Power Supply	Power Consumption	Filter Specs	Pump Flow	Pump Caliber	Ozone Valve
Best-1	520x410x880 mm	45 kg's	30 ltrs	Single Phase 220V/AC 50Hz	1Kw/24 hrs	0.4 mm (Max Particle)	10-30 ltrs/min (Max Amount)	3/8"	500 mg/hr
Best-MINI	520x370x770 mm	33 kg's	10 ltrs	Single Phase 220V/AC 50Hz	1Kw/24 hrs	0.4 mm (Max Particle)	10 ltrs/min (Max Amount)	3/8"	500 mg/hr

## Chip / Sludge Removal Machine - FOODIE

- Used for water -based, oil -based cutting fluids, metal cuttings, aluminium powders and non-magnetic metal particles.
- No downtime and one can easily solve problems of sludge deposition.
- Surface floating debris & sediments at the bottom can be processed and recycled.
- The double-filtration (optional - precision type) grinding powder can be easily recycled.
- On-line filtration system - no need to remove the coolant from tank.
- Only one user required for operation - complete mobile solution.



FOODIE

### PRODUCT DATA

Model	Dimensions	Net Weight	Capacity	Max. Processing Cap.	Filtration Accuracy	Filter Material
Standard Type	56 x 42 x 100 cm	63 kg's	15 ltrs	120-180 ltrs/min	190 µm	304 SS

## MICROMAG MAGNETIC FILTER - MANUAL CLEANING



Magnetic filtration can be used to :

- Sub micron filtration.
- Remove ferrous contamination from all industrial fluids where ferrous and para-magnetic contamination of a liquid is a problem.
- Improve surface finish and increase tool life.

The Micromag compact magnetic filter can be easily installed on new or existing equipment. With a high intensity magnetic core and patented fluid flow path, the Micromag ensures removal of almost 100% of ferrous contamination.



Using the supplied cleaning tool a fully contaminated core can be cleaned in under 30 seconds



Fitment of Micromag MM10 on a Centerless Grinding machine

## PRODUCT DATA

Product number	Flow rate Itrs/min.	Contamination capacity kgs	Max. operating pressure bar	Connection 'BSP	Temperature range °C	Construction	Dimensions (mm)	
							H	W
MM5	70	1	12	1	5 – 50	SAN housing, aluminum lid	190	95
MM10	100	2	12	1	5 – 50		315	100
MM20	150	4	12	1½	5 – 50		605	100
MM5/HP/50	70	1	50	1	0 – 140	Full aluminum construction	247	116
MM10/HP/50	100	2	50	1	0 – 140		365	116
MM20/HP/50	150	4	50	1½	0 – 140		625	116
MM5/HP/80	70	1	80	1	0 – 140	Full stainless steel construction	247	116
MM10/HP/80	100	2	80	1	0 – 140		365	116
MM20/HP/80	150	4	80	1½	0 – 140		625	116

## APPLICATIONS

• Super Finishing • Lapping • Honing • Grinding • Shaving • Thread Rolling • Gun Drilling etc

**In the following industries :** Automotive, Bearings, Gear Manufacturing, Fasteners, Machine tools, Steel Rolling, CNC machinery, Pump protection and Pre-filtration, Quenching operations.

## AUTOFILTREX - AUTO CLEANING

- Latest generation in cost-effective fluid filtration.
- Fully automated operating & cleaning.
- Provides huge cost savings in fluids & filter consumables.

## BENEFITS

- Cleaner fluid delivery to the machine.
- Reduced expenditure on filter media.
- Fully automated cleaning.
- Reduced waste disposal.
- Increased fluid lifespan.
- Improved surface finish and accuracy.
- 24/7 uninterrupted filtration.

## PRODUCT DATA

Product Number	Flow rate ltrs/min	Number of Rods	Magnetic Strength gauss	Connections mm	Contamination Capacity kgs	Weight kgs
AF1	60	1	9000	19	1	30
AF3-RC	150	3	9000	31	3	122
AF5-RC	200	5	9000	38	5	145

\*Also comes with a coolant roller in some model.





## ONLINE OIL ANALYSIS PARTICLE COUNTER S-120



### DIMENSIONS:

160mm x 145mm x 166mm (WXDXH)

Weight: 1.5 kgs

### AFFORDABLE ACCURATE ANALYSIS

- NAS Class 1638, ISO 4406 and SAE AS4059 Standard Analysis.
- Provides particle counts for 4,6,14,21,38 & 70 micron sizing (6 channels).
- Can be installed directly on your system.
- Cost effective contamination control.
- Equipped with a 4.3" LCD touchscreen.
- Option to add a sensor for measuring water content (RH%).
- Fluid compatibility: Diesel & oil (hydraulic, lubrication, mineral, synthetic).



The S-120 installed on the  
KLEENOIL Filtration System  
Model : MFS4XSDU9788



- QR Code reporting tool to instantly generate report on mobile device.
- Computer software for achieving data & trends.
- Accuracy is +/-0.5 of an ISO Code.
- Eliminates air bubbles to categorize contamination, for more actual results.
- Gives data for root cause of the contamination type.  
(Fatigue, sliding, cutting, fiber).

## PORTABLE OIL AND FUEL DIAGNOSIS - PARTICLE PAL FS9V2



Portable oil and fuel cleanliness just got better. Whether on - site or in the laboratory, the Particle Pal will provide instant cleanliness readings to allow you to fully understand the condition of your oils fuels.

A self contained system, complete with integral pump and controlled flow rate. Portable Oil and Fuel Diagnosis FS9V2 Particle Pal will provide instant cleanliness. Add a High Pressure System to use FS9V2 series online up to 350 Bar.

**THE PARTICLE PAL FS9V2 FAMILY OF PRODUCTS ARE SUITABLE FOR A WIDE RANGE OF APPLICATIONS.**

### FS9V2 Particle Pal

Live ISO/NAS/SAE particulate readings for Oils & Diesel Fuels.

### FS9V2 - RH Particle Pal

Live Particulate and % RH (Parts Per Million).  
Water content (diesel fuel only).

### FEATURES

- Single LCD Display showing all sensors connected.
- Diesel fuel testing, Laser counter.
- Improved fluid flow, pump feature set.
- Trending Software, Internal memory.
- Water sensors.

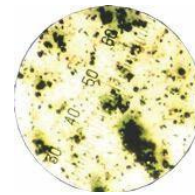
## CONTAMINATION OIL PATCH TESTING KIT



### Contents of Kit

1. Vacuum pump with flexible pipe.
2. Conical Flask.
3. Funnel.
4. Mixing Cylinder.
5. Membrane holder.
6. Clamp.
7. Benzene bottle.
8. Cellulose Membrane filter packet.
9. Electric hot plate for testing water contamination.
10. Tweezer.
11. Microscope (Optional).

### Patch Test:



Before  
NAS Value 12  
ISO 21/18



After  
NAS Value 4  
ISO 13/10

## NAS GRADE TABLE

NAS GRADE (National Aerospace Standard 1638) is a widely adopted standard to measure the contamination degree of hydraulic oil.

### NAS GRADE (nos. in 100 ml.)

Particle Size (μ)	1	2	3	4	5	6	7	8	9	10	11	12
5-15	500	1000	2000	4000	8000	16000	32000	64000	128000	256000	512000	1024000
15-25	89	178	356	712	1425	2850	5700	11400	22800	45600	91000	182000
25-50	16	32	63	126	253	506	1012	2025	4050	8100	16200	32400
50-100	3	6	11	22	45	90	180	360	720	1440	2880	5760
>100	1	1	2	4	8	16	32	64	128	256	512	1024

KLEENOIL PURIFIED OIL 
 NEW HYDRAULIC OIL

## A FEW OF OUR ESTEEMED CUSTOMERS



## OUR DEALER NETWORK



OFFICES

DEALERS

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