FLUID CONTAMINATION ANALYSIS KIT Cat.XI47TA

Vacuum / Pressure Pump (39302112)

This oil free pump is a portable AC powered source of vacuum to 550 mm/ 22" Hg or pressure to 4 bar/ 45 psig for filtration of liquids or gases or other continuous or intermittent use with all types of filter holders.

Air flow rates at different vacuum and pressure settings are given behind (for vacuum operation, pump exit pressure is 1 atmosphere).

The motor is permanently oil free, and is protected by a PTFE coated
Make- AONE

A-one Filter Holder (39302113)

Vacuum filtering liquids for analysis of particulate or biological contamination analysis via vacuum filtration. Funnel, base and support screen are made of SS/Glass anodized locking, Metal TO Metal Seal, grounding set and silicon stopper
Make- **AONE**

Vacuum Trap (39302117)

During the vacuum filtration of Liquids, to prevent liquids or mist entering the pump, use of vacuum trap
Between vacuum pump and filter holder.
This assembly consists of vacuum filtering
Flask, silicone stopper, SS tube and Vacuum hose

Vacuum Filtering Flask (39302213)

Used for vacuum filtration with A-one filter holders. Side arm connects to vacuum source with vacuum hose. Also used as water trap to prevent liquid/ entering the pump.

Membrane filter Paper 5um (39301201)

47 mm diameter, mixed cellulose esters (MCE) membrane, hydrophilic, white, 100 discs. ... Biologically inert mixtures of cellulose acetate and cellulose nitrate (SMWP04700) Make- Millipore

Dispensing Pressure Vessel (39302215) With Sprayer Dispenser (39302114)

Dispensing Pressure Vessel holds liquid for filtration through pressure operated filter holders made of 316 SS, In-build NRV, Pressure Relief Valve Silicon O-ring and base is mounded with Styrene butadiene rubber. Used to spray concentrated jet of ultra clean solvent or rinse solution on surfaces for cleaning. A-one filter holder with support screen Pressure Up to 5 Bar, Wetted Part SS With 25 mm Gun Holder

Petri Dish (39302116)

Holds filter securely in place. Transparent cover allows microscopic examination without removal. Rectangular base has rounded corners for mounting on microscope stage. Recommended for storage
MOC- Borosilicate, Size- 4"

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Industrial Tray
(39302118)(Optional)
For Washing Component Pressure Sprayed
MOC- SS304

Desiccators **(39302119)** (Optional)
Desiccators are sealable enclosures containing desiccants used for preserving moisture-sensitive items such as cobalt chloride paper for another use. A common use for desiccators is to protect chemicals which are hygroscopic or which react with water from humidity
MOC- Borosilicate

Analytical balance **(39302120)** (Optional)

For Measuring Membrane Weight
Type – Auto Self Calibrated
(Least Count: 1.0 mg / 0.1 mg)
Make- Citizen

Laboratory Hot Air Oven **(39302121)** (Optional)

Holds filter securely in place. Transparent cover allows microscopic examination without removal. Rectangular base has rounded corners for mounting on microscope stage. Recommended for storage
Size- 300 x300 x 300 mm
Temperature - 50 to 300 °C with Digital Inbuilt PID Controller,

Make- **AONE**

Washing Solvent **(39217457)** (Optional)

N-PROPYLBROMIDE (5 ltr Bottle)
Make- Fine Chemical/ Merck

Silica Gel **(3345120)** (Optional)
Silica gel packets are used to absorb moisture and keep things dry Wetted Membrane

Hand Gloves **(21354)** (Optional)

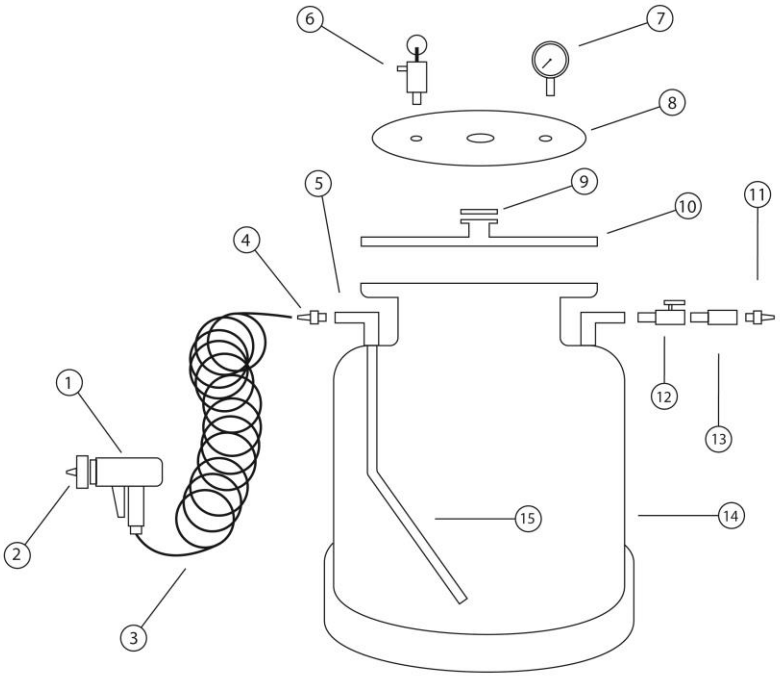
Chemical Resistant Powder Free Hand Gloves
Size- M/L

Sefty Googles **(34125)** (Optional)
Size- Free

Face Mask **(58745)** (Optional)

Chemical Resistant Face Mask
Size- Free
Make- 3M

ASSEMBLY



1	Dispenser gun	8	Gasket
2	25 mm SS adaptor	9	Filing Point TC
3	Flexible Tube	10	Vessel Lid
4	Tube Adaptor 1/4(Quick Fitting)	11	Tube Adaptor ¼(Quick Fitting)
5	Outlet Deep Tube	12	Valve 1/4
6	Safety Valve	13	Pressure NRV
7	Pressure Gauge	14	Dispenser Vessel

PROCEDURE

1. All containers and their parts used in testing to be Thoroughly cleaned and dried before usage (filter Holder assembly, containers, petridish, pans, Forceps).

2. Remove 5µ membrane with the help of forceps, Handling by edge only, and place in a Petri dish.

3. Dry membrane at 80±2°C for 15 minutes and cool in a Desiccators to room temp. (Nearly 10 minutes).

4. Remove 5µ membrane with the help of forceps, Handling by edge only, and place centrally on Calibrated weighing scale pan.

5. Note down the weight of pre-dried membrane to ± 0.1 mg (W1).

6. Wash the components with a known volume of pre Filtered solvent (V).

6.1 While washing, direct the contaminants away from Component and into the collecting pan.

6.2 For components with L/D> 1, place horizontally and clean in 2 phases (at least).

6.3 For large and hollow components clean active surfaces.

6.4 Follow routines for different profiles.

7. Collect washed component's solvent into a clean beaker.

8. Wash component container with a known volume of Pre filtered solvent and transfer into beaker (as per Step 7) (repeat once).

9. Using clean forceps, place weighed dry membrane centrally in the filter holder assembly and lock the ring in place.

10. Pour stirred solvent as in step 7 & 8 and start vacuum pump.

11. As liquid level drops down, clean the SS filter holder wetted internals with about 25 ml of pre-cleaned solvent to remove any adhering contaminations on SS filter holder assembly.

12. After filtering these solvents continue vacuum pump for 10 seconds.

13. Gently remove locking ring, hold contaminated Membrane with clean forceps, handling by edge only, And place in a petridish.

14. Dry membrane for 15 minutes and cool in a desiccators For 2 minutes.

15. Place the contaminated membrane with the help of clean forceps, handling by edge only, and place centrally on the pan of calibrated weighing scale.

16. Note down the contaminated membrane to 0.1mg (W2).

17. Observe nature of contaminants and record under following heads.

- Abrasive (like steel chips, sand, steel bristles, CI, AI, etc.)
- Non Abrasive (like paint, fibers, fiber, bristles, cotton waste, etc.)

CALCULATIONS

Gravimetric Contamination in part (C) in mg / sq. m

$$C = \frac{W2 - W1}{A}$$

Where
W2=Mass of loader 5µ membrane (mg)
W1 =Mass of clean & dry 5µ membrane (mg)

REPEATABILITY TEST

Recheck on already checked component (one in ten)
If 'C' Value Original 'C' Value

Increase the duration of washing of the parts at washing stage. (Ref. step 6 in 10% increments and refreeze the volume V).

IMPORTANCE OF CRITICALPARTICLE SIZE

- If part drawing specifies critical particulate size, Subject loaded membrane to Microscopy (with X 40 microscope).
- Note total number of particles on the entire membrane, >specified critical size and record the nature of contaminant as in step 17
- For size, use longest dimension as the measure. Also record the largest observed particle's dimension

Standards	Apply
ARP 598	Procedure for the determination of particulate contamination of hydraulic fluids by the particulate count method
ARP 1953	Acceptance test procedures and standards to ensure clean fuel system components
ARP 785	Aerospace - Procedure for the determination of particulate contamination in hydraulic fluids by the control filter gravimetric procedure
ARP 4252	Instrumental methods of determining surface cleanliness 2002-01-0078: Metal quality - the effects on die casters and end users

Sr.No	Cat.no.	FLUID CONTAMINATION ANALYSIS KIT Cat.XI47TA
1	39302112	Vacuum / Pressure Pump
2	39302113	Ss Filter Holder Size 47 Mm
3	39302213	Vacuum Filtering Flask 1 Ltr
4	39302117	Vacuum Trap
5	39302115	Filter Forceps 4 "
6	39302215	Dispensing Pressure Vessel 5ltr
7	39302114	Filter Jet Solvent Dispenser
8	39301202	Membrane Filter Paper 25 Mm X 1.2 Um (RAWP02500) Make – Millipore
9	39301201	Membrane Filter Paper 47 Mm X 5um (SMWP04700) Make – Millipore

Sr.No	Cat.no.	Optional Accessories
1	39302119	Vacuum Desiccators Size 150 Mm
2	39217457	Washing Solvent –5 Ltr
3	39302120	Analytical Balance 0.1mg
4	39302121	Laboratory Hot Air Oven
5	39302118	Industrial Tray Ss 304
6	3345120	Silica Gel 500gm
7	34125	Safety Goggles
8	21354	Hand Glows Powder Free Nitrate Size - M
9	58745	Face Mask