

# VPAF100

Patch test kit



## Description

### Automatic Particle Counters

#### Kit for the fluids sampling and the visual analysis of the solid contaminants

#### > Features & Benefits

In hydraulic fluid power systems, power is transmitted through a liquid under pressure within a closed circuit.

The use of more and more sophisticated devices forces users to keep fluids under control, particularly in monitoring solid contamination.

The presence of solid contamination causes wear, reduces efficiency and the lifespan of components, and adversely affects functionality and performance.

Fluids generally used in fluid power systems are:

- Mineral oil
- Synthetic oil
- Vegetable oil
- Water based emulsions
- Water glycol

Their physical and chemical properties are influenced by following parameters:

- Working pressure
- Solid particles contamination
- Liquid contamination (other fluids or water)
- Modification of original additives

One of the simplest methods to keep fluids under control is to check solid particle contamination; for this reason is useful to have special devices such as a fluid contamination kit.

The VPF100 kit has been created to enable static and dynamic fluid sampling in power systems.

The dynamic sampling is possible when the system has special devices such as valves, pressure reduction, points of sampling, etc.

#### Kit composition

- Bag 1 pc.
- Monocular microscopy 100X 1 pc.
- Electrical vacuum pump 1 pc.
- Glass filtration apparatus ml 250 1 pc.
- Sprinkler 500 ml with Swinnex filter 1 pc.
- Glass Beaker 500 ml 1 pc.
- Manual pump for fluid samples 1 pc.
- Graduated cylinder in 50 ml 1 pc.
- Valve for manual samples collection 1 pc.
- Bottle for solvent fluid 500 ml 1 pc.
- Bottles for sampling fluid 250 ml 3 pc.
- Tweezers 1 pc.
- Membrane 0.8 mm f 25 for Swinnex filter 100 pc.
- Membrane 1.2 mm f 47 for samples 50 pc.
- Minimes tube 1 m 1 pc.
- Minimes tube 2 m 1 pc.
- Labels for bottles 50 pc.
- Sheet for membrane f 47 50 pc.
- Adhesive for membrane f 47 3 pc.
- Instruction guide 1 pc.

#### Principal components technical data

Microscope:

- Monocular microscope.
- Achromatic lens 10x. (100 magnifications)
- Focusing with knob.
- Revolving battery light.
- Rotating base, with vertical or inclined vision.
- Anti-dust cover.

Pump

- Single-phase 230 V 50 Hz
- Power absorbed: 50 W
- Current absorbed: 0.55 A
- Fuses: 2 - 1 A

Pumps are designed for:

- Air, gases and vapours from + 5 to + 40 °C
- Keep purity of fluid also when a high precision is required.
- Functioning with a maximum overpressure of 2.4 bar.

#### Microscope analysis

Microscope analysis allows determining nature and sizes of solid particles inside the fluid.

Table below shows a statistical list of contaminants inside the fluids.

“Other” indicates for example paints, additives precipitation, residuals, etc. Colour, geometric shape and particles brightness constitute some of parameters to classify contaminants.

Nature of contaminants

- Bright metal
- Dark metal
- Silica
- Rubbers and plastic
- Fibres
- Other

#### Particles Quantitative analysis

After determination of the nature (and sizes) of particles inside the fluid, it is useful to quantify the contamination inside system.

Determination of quantitative contamination is done by taking fluid sample from the system (preferably in working conditions) and following the sample fluid analysis with an automated particle counter or with a portable particle counter that is linked directly to the system.

They give immediate results according to standard ISO 4406 or NAS 1638. Both particle counters, portable or not, have values and counter indications. Please note the portable particle counters need a minimum pressure to work correctly. They produce immediate results.

## Technical data

### Sampling

Static: manual pump

Dynamic: Kit minimess + tap + probe

### Patch test

Membrane  $\varnothing$  47-1.2  $\mu$ m

### Visual analysis

Portable monocular microscope 10x

### Electric pump for vacuum

230V 50Hz - Absorbed power 50 W

### Samples filtration system

Glass collecting flask - 0.5lt

250ml membrane glass holder

Solvent spray with  $\varnothing$  25-0.8  $\mu$ m membrane holder

### Accessories for identification and test report

Container labels

Membrane support cartons

Adhesive film for membrane protection

### Rigid carrying case

Height 400mm, depth 515mm, width 270mm.

Weight 11kg

Dustproof closure with lockable closure

