



# MICROCARE

Electrostatic Oil Cleaners



**MICROCARE**

## Electrostatic Oil Cleaner (EOC)

### Innovative way of improving Quality & Productivity of your HYDRAULIC SYSTEMS

MICROCARE EOC is designed, developed and manufactured in India using indigenous components.

MICROCARE electrostatic oil cleaner works on the principle of electrostatic separation of suspended contaminants. The oil while passing through the cleaner is subjected to high voltage (6KV/12KV) across positive & negative electrodes. The suspended particles irrespective of their shape, size, material, weight; get charged and get attracted towards either of the electrodes. These charged contaminants while moving, are trapped and get deposited on dielectric media and are separated from the oil. The MICROCARE electrostatic oil cleaner removes contaminants upto 0.8 micron size.

#### Salient Features

- Increase of hydraulic oil life and reduction in oil replacement cost.
- Increase in life of hydraulic system components.
- Reduction in machine downtime and system warm up periods.
- Improves the MTBF of precision machine components.
- Extends the life of online filter elements.

#### Highlights

- Removes contaminants in the oil upto 0.8 micron
- Achieves cleanliness class 5 to 6 as per NAS 1638

#### Types of Fluids Cleaned

- Hydraulic Oil
- Bearing Lubrication Oil
- Any other non-conductive oil except engine Oil
- Turbine Oil
- Straight cutting Oil

#### Specification of Oils cleaned

- With viscosity upto 200 cst
- Moisture content upto 500 ppm

#### Technical Specifications

| Model                          | MEOC-25                                   | MEOC-50                                  | MEOC-100   |
|--------------------------------|---|--|------------|
| Cleaning Tank Capacity         | 25 litres                                 | 50 litres                                | 100 litres |
| Length                         | 550mm                                     | 630mm                                    | 740mm      |
| Width                          | 475mm                                     | 520mm                                    | 640mm      |
| Height                         | 750mm                                     | 860mm                                    | 940mm      |
| Weight <small>Approx</small>   | 75 kgs                                    | 90kgs                                    | 130kgs     |
| Pump Capacity                  | 3-4 LPM                                   | 10-12 LPM                                |            |
| Motor                          | 0.25 HP@1500 RPM, 1Ph, 230V or 3Ph. 415 V | 0.5 HP@1500 RPM, 1Ph, 230V or 3Ph. 415 V |            |
| High Voltage Power Pack Output | Upto 6 KV D.C.                            | Upto 12 KV D.C.                          |            |
| Max Permissible                | 10 Milliamps                              | 20 Milliamps                             |            |

Fine contamination in oil is the major cause of hydraulic system problem which leads to machine downtime. It is an established fact that wear and tear of hydraulic system components is caused mainly by sub-micronic contaminants. Removal of these contaminants regularly results in continuous working of machine, increased life of hydraulic system components and saving in replacement cost of oil.

With the application getting more critical involving servo and proportional valves, high pressure pumps in the HYDRAULIC SYSTEMS. It is imperative that not just care but MICROCARE is required to maintain the health of HYDRAULIC SYSTEMS. Their use in engineering and related applications has become widespread in sectors such as Automobile and Auto components, Steel plants, Rolling mills, Tiles manufacturing, Plastic goods industry, Cement and Defence equipments etc. The performance of hydraulically operated system depends essentially upon the purity and cleanliness of Hydraulic Oil.

## COMPARISON OF FILTRATION SYSTEMS

| Filtration Process                         | Media Filtration                     |   |   | Centrifuge                   | Electrostatic                          |
|--|--------------------------------------|---|---|------------------------------|--|
|  | Glass Fiber                          | Bonded Polymer Cartridge                  | Graded Density RBC                        |                              |  |
| <b>Absolute or Nominal</b>                 | Absolute upto 1 micron               | Absolute upto 1 micron                    | Nominal                                   | Nominal                      | Nominal                                |
| <b>Fluid Handled</b>                       | Mineral Oil 1-600 cst                | Water based coolants & Low viscosity oils | Water based coolants & Low viscosity oils | Oils upto 20 cst viscosity   | Mineral & Synthetic oils upto 200 cst  |
| <b>Water Glycol</b>                        | Possible                             | Possible                                  | Possible                                  | Not Possible                 | Not Possible                           |
| <b>Dirt Holding Capacity</b>               | Low                                  | High                                      | High                                      | Not Applicable               | Very High                              |
| <b>Filtration Cost per gm. Of particle</b> | Moderate                             | High                                      | High                                      | Not Applicable               | Very Low                               |
| <b>Cleanliness Levels Achieved</b>         | Excellent upto NAS 3                 | Excellent upto NAS 4                      | Acceptable upto NAS 7/8                   | Not Applicable               | Good upto NAS 6                        |
| <b>Problems on Clogging</b>                | No                                   | No  | Yes                                       | No                           | No                                     |
| <b>Standard System Recommendations</b>     | Fine & Very Fine Filtration Required | Fine & Very Fine Filtration Required      | Moderate Filtration Required              | Moderate Filtration Required | Moderate Filtration with very low cost |

### Recommended Class of Cleanliness of Hydraulic Oil to be maintained for various Hydraulic Components.

| NO. | HYDRAULIC COMPONENTS                       | CLASS OF CLEANLINESS |          |
|-----|--|----------------------|----------|
|     |  | ISO 4406 : 1999      | NAS 1638 |
| 01  | Gear / Vane Pump<br>Cylinders, Valves      | 20/18/15             | 9        |
| 02  | Fixed Piston Pump                          | 19/17/14             | 8        |
| 03  | Variable Vane Pump<br>Variable Piston Pump | 18/16/13             | 7        |
| 04  | Proportional Valve                         | 17/15/12             | 6        |
| 05  | Hydrostatic Drives                         | 16/15/12             | 6        |

### Checking of Oil

Microcare EOC unit is supplied with this contamination kit. Oil sample drawn from the EOC is subjected to Millipore Test. The results of this test are illustrated below.



Before Cleaning



Intermediate



After Cleaning

Contamination kit

