ESPO Oil smoke Electrostatic Precipitator

ESPO–3000

ESPO–5000

Description

ESPO are high performance filters for capturing of oil smoke with particles down to 0.05 microns. It works according to the principle of electrostatic precipitation. A unique solution for cleaning air containing extremely small oil particles. The heavy duty electrostatic cells have an extremely long life and require an absolute minimum of maintenance as they don't need any normal filter replacement. Espo is designed for 1-2 work shifts.

Processes and applications

- Heat treatment
- Cold-drawing
- Forging operations and cold pressing

Features and advantages

- Perfect for oil smoke
- Maximum initial concentration is 30-40 mg/m^3
- Suitable for processes with oil smoke from strong heating oil
- Suitable for thick oil (high kinematic viscosity)
- Does not require replacement of filter elements
- Built-in alarm for filter clogging
- Comes with a special agent for washing the electrostatic cassettes

Restrictions

- Not suitable for processes with metal grinding or any use of oils containing metal particles
- Requires emulsions with minimum 5% oil content
- Not suitable for oils with a flash point below 150 °C
- Operations including water steam

Technical characteristics

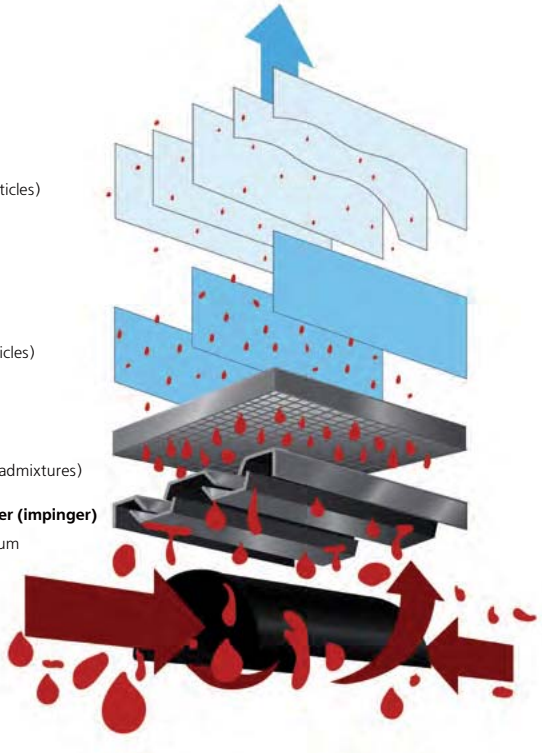
Article №	Model	Recommended fan	Recommended airflow, m^3/h, max	Recommended number of extraction units	Delivered with	Filter surface, м^2	Filter efficiency	Weight, kg
27082	**ESPO–2000**	VMA-3000	1000	1	sIMP-2000 – 1 pc sFFO-2000 – 1 pc sIOO-2000 – 1 pc sEC-2000 – 1 pc	9,6	92%	80
27054	**ESPO–3000**	VMA-4700	1500	1-2	sIMP-3000 – 1 pc sFFO-3000 – 1 pc sIOO-3000 – 1 pc sEC-3000 – 1 pc	16,4	92%	102
27083	**ESPO–5000 (special order)**	VMA-6000	3000	2-3	sIMP-3000 – 2 pc sFFO-3000 – 2 pc sIOO-3000 – 2 pc sEC-3000 – 2 pc	32,8	92%	200

Design and operating principles

3+2 stage cleaning principle

The initial **3 stage mechanical** pre filtration captures 80% of all oil particles, optimizing the efficiency of the following **2 stage electrostatic** filtration.

This also minimizes the need of cleaning the electrostatic cells and eliminates the need for replacement.



5. Precipitating cell
(captures smallest particles)

4. Ionization cell
(charges smallest particles)

3. Net pre-filter
(captures mechanical admixtures)

2. Labyrinth type filter (impinger)
(stops large and medium parts of aerosol)

1. Liquid fraction separator
(stops large drops of oil)

Electrostatic filtration, stage 4–5

In stage 4, the electrostatic filter's ionizing cell, all remaining particles are charged with 12 000 V, hereafter, stage 5, they efficiently are attracted to the negatively charged collector plates of the collection cell

Mechanical filtration, stage 1–3

80% of the oil particles (i.e. all in liquid form), are arrested in the mechanical filters