ECOJET
MODULE

automatic modular machine for cleaning and organic phosphate in one step of metal surfaces before painting

- **introduction**

ECOJET is a compact standard module especially developed to operate with Organic Phosphating process ***ECOPHOR B/700*** or ***B/609 VOC FREE.***

This machine allows to perform cleaning, degreasing and organic phosphating of metal surfaces in a single unit, working at room temperature, with an environmental friendly VOC-FREE, operator safety process.

In fact, due to the specific properties of the ***ECOPHOR*** technology, no heat is required in the treatment step, no waste water treatment is requested as well as no solid muds to dispose are created. Furthermore the use of ***ECOPHOR*** VOC-FREE technology allows to meet the different legal requirements for air purity as well as Health and Safety considerations.

The ECOJET module has been developed in order to replace all the traditional cleaning operation like manual whipping, trichloroethylene vapour degreaser, etc and it is a real good alternative to a three stages degrease and phosphate process, for not continuous production.
Environmental issue can be avoided and production time can be reduce exploiting the ECOJET features.

The ***ECOPHOR*** VOC-FREE technology allows, due to its special coating organic/inorganic polyphosphate, to increase the adhesion and flexibility of the top coat, and it provides better corrosion resistance results than a iron phosphate multi stages process.

PAI-KOR S.r.l. - Via Tecchione 7, 20098, San Giuliano Milanese (MI) – ITALY
Tel. +39029880411; Fax. +39029880765; paikor@paikor.it; www.paikor.it

• general data

ECOJET module is made in stainless steel AISI 304. The machine is equipped with a mobile spraying system made on a limited numbers (3 - 5, according to the shape of the pieces to be treated) of spraying ramps mounted on a ceiling track and connected to the spraying pump via ss pipes. ***ECOPHOR*** is applied by spraying at flow coat system

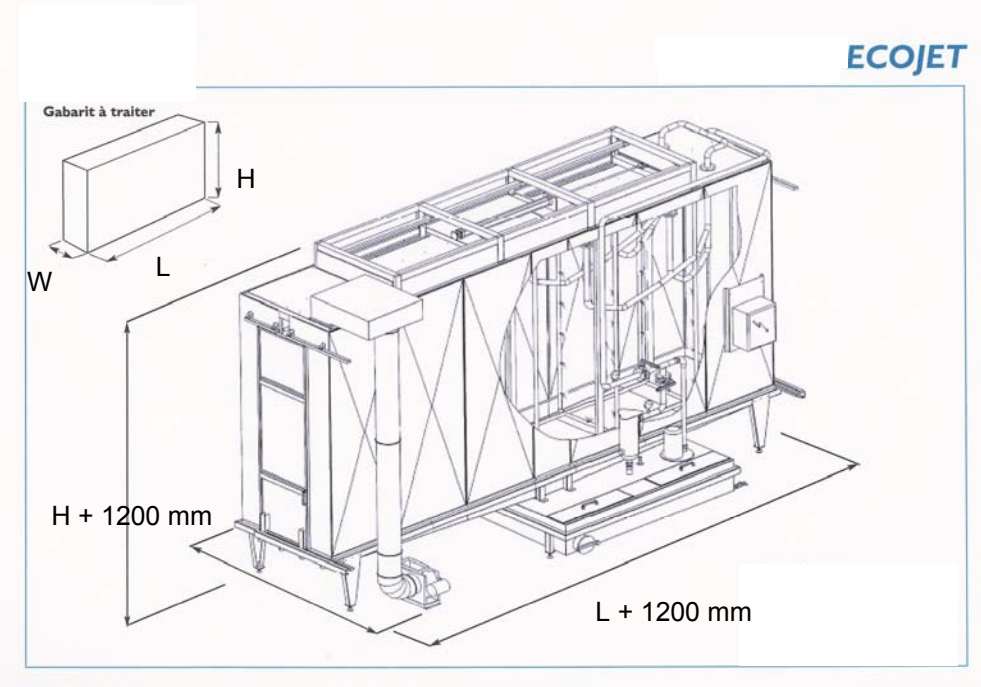
The standard machine includes the following equipment:

- feed tank
- mobile spraying system
- filtering equipment
- aspiration fan
- electrical and pneumatics protection at opening door
- electrical cupboard and timer

• treatment time

Standard treatment cycle is 6 minutes. It is possible to treat up to 10 cycles per hour.
Treatment time: 60 – 120”
Draining time: 4 – 5 minutes
It is recommended to provide the highest flexibility possible, so that each user can increase both treatment and draining time according to its own specific requests.

• plant data



PAI-KOR S.r.l. - Via Tecchione 7, 20098, San Giuliano Milanese (MI) – ITALY
Tel. +39029880411; Fax. +39029880765; paikor@paikor.it; www.paikor.it

1. DIMENSION OF THE MACHINE

The dimension of the machine are calculated according to the dimension of the largest part to be treated in the tank.
The height of the machine is the height of the highest part + 1200 mm, the length of the machine is the length of the longest part + 12000 mm.

2. TANK CAPACITY

The standard capacity is 1.500 lt

3. FILTERING SYSTEM

It is necessary to use a filtering equipment in order to remove all the solid impurities and contaminants not soluble in the product. The filter group must be provided with a filtering bag, 50 – 100 microns that should be removed when necessary.
PAI-KOR developed years ago the FILTERING GROUP 7309/B especially for the PLAFORIZATION process, which is supplied with suitable pump, manometer and electrical board. The pump should not heat the chemical and should provide the suitable agitation and at least three complete chemical filtration every eight hours.

4. SPRAY SYSTEM

The basic idea is that ***ECOPHOR*** must be sprayed the minimum amount of chemical in order to cover all the surface and to recovered the highest amount of chemicals possible.
As ***ECOPHOR*** performs its cleaning action chemically and not mechanically, it is not necessary to supply any energy (by heating or strong pressure) but it is necessary just to allow the chemical to wet the surface that must be treated and than to dripp off.

Number of spraying ramps	3-5 apx
Number of spraying nozzles	Variable
Spraying pressure	0.25 – 0.50 bar
Spraying throughput	5-10 lt/min
Highest electrical installation	5 kW
Drying time	5-10 min @ 150°C
Nozzle flow	4-5 lt/min
Number of treating cycle per hour	10

This data are general and may change according to the specific application.
It is important not to use nozzle that create mist or atomization. No mist or fog must be created on the spray zone.
In order to avoid any lost of product, it is recommended to use the less number of ramps and nozzles. It is possible to use mobile ramps.

5. AIR SUCTION SYSTEM

It is necessary to provide a suitable air suction system that automatically starts the air aspiration when the nozzles stop spraying the chemicals.

6. OVEN

Traditional oven with direct heating (according to vapour's concentration in order to be much below LEL) or un-direct heating (suggested).
The oven should be provided with an air circulation system with an exhaust of roughly 20% of the air flow, so ECOPHOR vapour does not saturate. It also recommended to provide a suitable air ventilation in order to increase the evaporation rate of the fluid.

7. OTHER INFORMATION

It is recommended to hang the parts to be treated in order to avoid any drag out of chemicals, or chemical retention in any pocket, corner or accumulation area.

- **practical example**

PAI-KOR S.r.l. - Via Tecchione 7, 20098, San Giuliano Milanese (MI) – ITALY
Tel. +39029880411; Fax. +39029880765; paikor@paikor.it; www.paikor.it