NEW GENERATION ELECTROSTATIC ORGANIC POWDER AND POWDER ENAMEL GUNS

Electrostatic is one of the frequently used methods in paint and surface coating sector recently. The system, which provides the negative loaded paint particles adhere to the grounded surface, is being preferred more everyday thanks to the advantages it offers and the extent of its area of usage.

When it comes to electrostatic pigment guns, there are actually two major loading principles; Tribo and Corona. Below the features of these two systems are explained briefly:

Corona: It is based on using the high voltage obtained from a cascade (high voltage generator) mounted to the casing of the gun to load the paint particles. Approximately 100kV voltage enables the ionization of the air and in the mean time negative (-) loading of the paint particles passing by the same area.

Tribo: Contrary to Corona, Tribo system uses the electrification by friction principle without using a cascade and the paint particles are loaded as a result of the friction they are exposed while following a long and a specially designed path in the gun's casing.

After these basic information now we can explain the "new generation" statement in the title of our article.

What is the difference of the new generation devices?

Even though they do not know much about electric, there is a physics rule that almost everyone knows. "Same poles repel each other and opposite poles attract each other". After all, the basic explanation why we send negative loaded paint particles to a grounded surface is the latter part of this rule. However the first part of the rule troubles us during application. It is the Faraday Cage effect that makes the usage of electrostatic method harder and causes big problems to the user. This problem is experienced in recessed surfaces and at the corners. While the negative loaded paint particles are attracted by the grounded piece, they repel each other at the same time. This repelling leads the areas where the particles need to adhere with a narrower angle remain unpainted. Therefore, the new generation devices are designed to overcome this problem.

How could this problem be solved?

If we are to talk about electric and energy scientifically, we can refer to two main factors; Current and Voltage. It is not wrong to say that the multiplication of these two notions which form the base of electric in terms of magnitude constitute the electrical energy. The force applied by the loaded particles that we used above to identify the problem is proportional to this energy. The solution to the problem is obvious and may be summarized with a single sentence: Control the current. Here, the new generation devices operate with this basic principle. Although it may be explained with several sentences, this technology is realized through long and critical r&d process. On behalf of my company, I can say that making this technology usable required 2-3 years of serious laboratory process and a considerable amount of investment. Worldwide the number of companies which may produce this technology is very low. The analogue cards on old style devices are insufficient for this technology. Of course I may not disclose our production secrets but I can say that it is necessary to make production with digital cards and the latest technology. Once they started to use this technology, our many international competitors ceased the tribo system production.

Are the advantages of "new generation" devices limited to prevent the Faraday Cage?

Of course not. However this is the biggest technological advantage, there are many other benefits for the user. As the card they are using is digital based, they incorporate numerous innovations like memory, remote access and control. These differences are:

- Quick access to different product painting modes with PIC controlled digital card technology.
- Protection from voltage fluctuations by using power supply instead of transformer.
- Protection from undesirable noise in the grid by using line trap.
- Voltage and current settings may be separately limited and set as maximum and minimum.
- Seamless painting in profound pieces with Faraday cage by setting the voltage and current separately.
- Longer, more effective and safer than analogue cards.
- Paint saving up to 30% with PIC controlled current and voltage optimization.
- Full integration to PLC systems with mod bus communication protocol.
- Capable of creating memories for comfortable and easy operation.
- Alarm system for grid grounding faults.
- 1st layer painting, 2nd layer painting, recessed and profound material painting with a single device
- Maximum painting quality with minimum air and paint consumption in intricate materials in an easy and fast manner.
- Homogenous painting and maximum painting quality with minimum air and paint consumption in flat surfaces.
- Improving the painting quality of any piece by eliminating the Faraday effect with PIC technology.

Seemingly, the elite devices with this technology will be preferred by a majority of users in our country in a short time as it is in whole world.