Monocyclone Reduces Energy and Powder Consumption

The biggest energy consumer in the powder coating process is the fan motor in the final filter. However, the use of a cyclone with an improved flow allows energy and powder consumption to be reduced, leading to significant cost savings.

Powder coating systems consume energy directly in the form of electrical power, for example to drive motors, and also indirectly in the form of compressed air. In the past, Wagner has used energy-efficient components and processes in its powder coating systems, for example a gap and height control function. This switches off the reciprocators during gaps in the production process and only activates the spray guns when a component passes in front of them. The resulting savings may appear small at first sight, but they add up to a significant amount at the end of the year.

Reducing energy costs by 40 percent

However, the fan motor in the final filter uses the majority of the energy in the powder coating process and this can amount to 37 kW or more. For this reason, in 2016 Wagner developed an energy-saving concept in the form of the new monocyclone and final filter product family known as EEP Energy Efficiency Package. It consists of an efficient monocyclone with a

An efficient monocyclone has been combined with a corresponding piping system and a suitable filter to create the energy saving concept.

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In the new concept, both the airflow resistance and the compressed air consumption are reduced. Because of the improved piping system between the booth and the cyclone and the special air ducting system

inside the cyclone, a smaller motor can be used to extract the same volume of air. This leads to an overall reduction of up to 40 percent in energy costs.

In addition to saving energy, the improved flow in the cyclone also increases its efficiency by one to two percent. This positive side effect results in savings in powder and reductions in costs of up to 20 percent. //

Extraction volume	Conventional monocyclone solution	Final filter from the EEP range	Savings* per year		Additional savings
			in €	in %	
12,000 m³/h	30 kW	18.5 kW	3974 Euro	38.3 %	Lower installation costs for the electricity supply
16,000 m³/h	37 kW	22 kW	5154 Euro	40.5 %	
20,000 m³/h	45 kW	30 kW	5184 Euro	33.3 %	
24,000 m³/h	45 kW	37 kW	2765 Euro	17.7 %	

*based on 240 days, 8 hours, 18 cents/kWh

The new cyclone allows energy costs to be reduced by up to 40 percent.

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