



Press release
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High-efficiency monocyclone saves energy and powder

Many companies ask themselves how they can use less energy to reduce costs and protect the environment more. For powder coating, WAGNER has an excellent solution: the EEP series with its potential savings of up to 40 %.

One of the biggest global trends is energy-saving. This also affects powder coating systems. Here, energy is needed directly in the form of electrical power, for example to drive motors, and also indirectly in the form of compressed air.

Even in the past, WAGNER has used energy-efficient components and energy-optimised processes in its powder coating systems. They have a function, for example, which switches off the lifting devices in gaps, or only activates guns if a workpiece actually travels in front of it. This function is known as gap and height control. These savings may appear small, however they add up to a significant sum at the end of the year.

Cutting energy costs for powder coating by up to 40 %

The biggest energy consumer in powder coating, however, remained the fan motor in the final filter, which still consumes up to 37 kW of power and more. Now, WAGNER has developed a comprehensive energy-saving concept for this fan motor and successfully implemented it in 2016 in the "EEP" monocyclone and final filter series. EEP stands for "Energy Efficiency Package".

In the EEP concept, two measures come together to reduce airflow resistance and therefore compressed air consumption: first is an optimised pipe conduit between the cabin and the cyclone, and second is a special air guide within the monocyclone. With this setup, a smaller motor is sufficient to generate the same volume of suction. In this way the EEP series is able to reduce energy costs by up to 40 % overall.

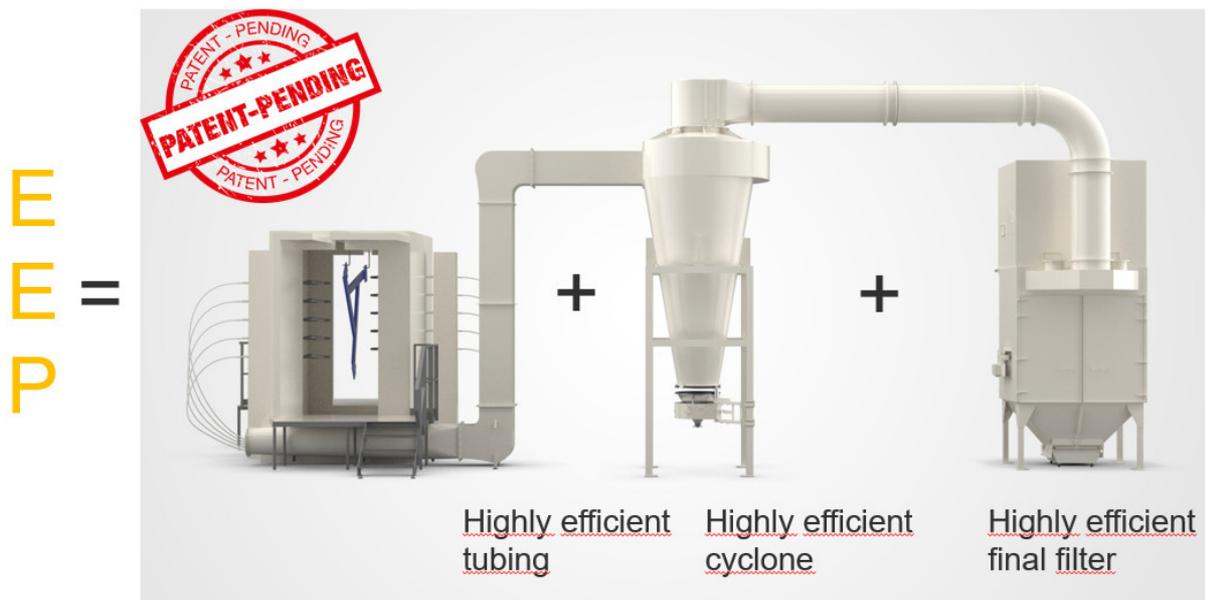


This is also illustrated by the example worked out below:

Volume of suction	Conventional monocyclone solution	Final filter from the EEP series	Savings* in € and % per year		Additional savings
12,000 m³/h	30 kW	18.5 kW	Euro 3,974	38.3 %	Lower installation costs for power supply
16,000 m³/h	37 kW	22 kW	Euro 5,154	40.5 %	
20,000 m³/h	45 kW	30 kW	Euro 5,184	33.3 %	
24,000 m³/h	55 kW	37 kW	Euro 6,220	32.7 %	

* Based on 240 days, 8 hours, 18 ct/kWh

These values can be achieved by combining a high-efficiency monocyclone with a corresponding conduit and matching filter to create the “Energy Efficiency Package” (EEP) (see illustration).





Powder savings by boosting cyclone efficiency

In addition to energy savings, the flow-optimised construction of the cyclone also increases the cyclone efficiency by 1-2%. This is a positive side effect that should not be under-estimated. Depending on the system configuration, powder savings can be quite considerable. In example calculations (see table), cost savings of 20% can be achieved. “Energy and powder savings are important for many industrial clients and their significance is increasing. Partly, of course, due to lower costs – but also because more and more companies have set themselves the goal of reducing their energy consumption to protect the environment. With the EEP series, we are able to help our clients to achieve these goals”, explains Michael Topp, Global Product Manager at WAGNER.

Example calculation 1	Starting position	Cyclone efficiency + 1 %
Transfer efficiency on the workpiece	30%	30%
Cyclone efficiency	95.0%	96.0%
Powder output [g/min]/gun	180	180
Number of guns	16	16
Powder loss [%]	10.4%	8.5%
Powder loss per work shift (7h) [kg]	42	34
Powder loss per year (230 days / € 4/kg) [€]	€38,949	€31,159
Cost saving		20 %

Example calculation 2	Starting position	Cyclone efficiency + 1 %
Transfer efficiency on the workpiece	50%	50%
Cyclone efficiency	95.0%	96.0%
Powder output [g/min]/gun	180	180
Number of guns	16	16
Powder loss [%]	4.8%	3.8%
Powder loss per work shift (7h) [kg]	30	24
Powder loss per year (230 days / € 4/kg) [€]	€27,821	€22,257
Cost saving		20 %