Measuring Post Cure Powder Coating Thickness

Powder coating is a popular finish used for functional and decorative purposes on products ranging from outdoor machinery to household items. Measuring the thickness of applied powder coating is a critical requirement for custom coaters and those performing incoming inspection of finished goods. FISCHER instruments utilising the magnetic induction and eddy current methods are the instruments of choice for powder coating thickness measurement.

Powder Coating is applied globally to everything from lawn and garden equipment to furniture, appliance, and automotive components. The thickness of the powder coating applied determines how long the part will last, the part's appearance and even in some cases the part's colour. Proper measurement of the thickness therefore is critical.

In today's competitive climate it is extremely important for anyone applying a coating to adhere to the thickness specification. Monitoring powder coating thickness with a FISCHER hand held coating thickness gauge will ensure this and also potentially save tens of thousands of Euro in costs. Table 1 shows how using a FISCHER instrument can provide cost savings based on annual powder purchases.

Film Thickness Reduction	Cost Savings based on annual Powder Purchases (€/year)			
	10,000 €	50,000 €	250,000 €	1,000,000 €
1.00 µm	133	667	3,333	13,333
2.00 µm	267	1,333	6,667	26,667
3.00 µm	400	2,000	10,000	40,000
4.00 µm	533	2,667	13,333	53,333
5.00 µm	667	3,333	16,667	66,667
6.00 µm	800	4,000	20,000	80,000
7.00 µm	933	4,667	23,333	93,333
8.00 µm	1,067	5,333	26,667	106,667
9.00 µm	1,200	6,000	30,000	120,000
10.00 µm	1,333	6,667	33,333	133,333

Table 1: This table reflects the cost savings based on a customer baseline of approx.75 µm. Increments of 1 µm used to demonstrate savings at the smallest measurable level.

Note in Table 1 that increments such as 1µm if measured and controlled properly can provide a significant reduction in costs thus making the custom coater more competitive.

However, only instruments with superior repeatability precision allow for the reliable measurement to this level. Likewise, utilising certified foils to adjust and verify gauge accuracy, something that comes included with the scope of supply of FISCHER instruments vs. non-precise shims will provide the trueness necessary to monitor and adjust a powder coating line properly.

Fig. 1: The DUALSCOPE® MP0R is quick and easy to use yet extremely repeatable. Patented conductivity compensation allow for measurements on various non-ferrous alloys without time-consuming onsite calibration on the actual substrate material

Because powder coating is applied to such diverse parts, selecting the most appropriate instrument and probe is highly important. FISCHER offers a wide selection of instruments and probes starting with small, handy and robust DUALSCOPE® MP0 and MP0R pocket instruments up to the flexible FMP family with numerous interchangeable high-precision probes for the most demanding measurement tasks.

Your local contact person for FISCHER products is happy to assist you in selecting the instrument and probe best suited for your measurement application.