Non-Destructive Coating Thickness Measuring Principles

1) Magnetic Induction Priciple:

The Phase II PTG series of Coating Thickness Gages utilize this non-destructive priciple when measuring coatings on ferro-magnetic substrates such as Steel and Iron. The coatings must be non-magnetic such as; paint, enamel, aluminum, chrome, copper and brass.

2) Eddy-Current Priciple:

The Phase II PTG series of Coating Thickness Gages utilize this non-destructive priciple when measuring coatings on non-magnetic substrates such as; Aluminum, Aluminum Alloys, bronze, copper, brass tin and rustproof weak magnetic steels. The coatings must be electrically insulating such as; paint, enamel, plastics, anodized coatings and ceramics.

Calibration Procedures
NOTE: *All PTG series Coating Thickness Gages are inspected and calibrated using the Two-Point Calibratiuon procedure prior to shipment.*

1) One-Point Calibration:

This procedure is accomplished by "Zeroing" the gage on an uncoated version of the sample that you will be checking the coating thickness on. To accomplish this calibration, you will need to follow the simple calibration procedure that is explained in the operation manual. Although this is an accurate method for calibration, it is not as accurate as using the two point calibration.

2) Two-Point Calibration:

This procedure is accomplished by "zeroing" the gage on one of the supplied substrate samples (steel/aluminum) and then placing one of the calibrated "foils" on that substrate and calibrating the gage to match the known thickness of the foils. It is best to use the foil that is closest to the actual known thickness of your own samples to be tested. This is a very simple procedure that is explained in the operation manual. By using the two-point calibration procedure, you are making sure that the gage will be at its most accurate when testing your own coated samples. This is the same method used to calibrate every gage prior to shipment.

3) Frequency of Calibration:

Once the PTG series of Coating Thickness Gages have been calibrated, the parameters are saved in the memory and the calibration procedure does not need to be repeated.
We do recommed that after numerous hours of operation or if the gage has not been used for a few days you should check the accuracy using the same calibrated substrate/foil combination previously used to calibrate the gage.

Typical Coating Measurement Application:

1) Automotive Refinishing Detection:

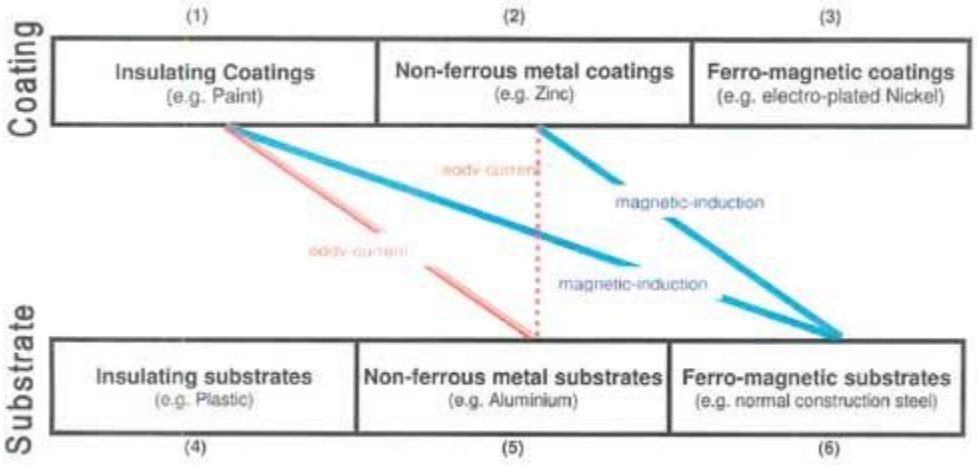
There are many uses for the Phase II brand coating thickness gages in the automotive industry. One such application would be for detection of a refinished surface. Auctions are a popular to sell vehicles that have been refinished for a variety of reasons and most of the time an unsuspecting buyer will not be aware of this or of the quality of the refinishing job which can end up being very costly to the buyer of said vehicle. To alleviate this problem, the buyers must be prepared to take a fast yet accurate thickness reading of paint on the body panels before making a final decision. That's where our **PTG Series** of gages come in. With automatic substrate detection, these gages can perform **accurate and non-destructive** thickness measurements in seconds. Those few seconds can be the difference between making a profit on a vehicle or losing valuable time and resources.

Other applications would include but are not restricted to any refinishing shop for cars, trucks, tractors or any other metallic body panel that is sprayed with a coating.

2) General Industrial Measurement

Phase II brand Coating Thickness Gages can be used in most indoor/outdoor industrial type facilites where measurement of common coatings on metallic substrates need to be measured. Many industries such as tank/pressure vessel manufacturers use coatings to protect said material from corrosion due to environmental conditions. Phase II coating thickness gages can quickly and easily measure coating thickness on these materials which if applied to thin will wear off quickly and if applied to thick, will peel or crack off which in turn shortens the overall lifespan of the manufactured product. Obtaining the exact measurement of the coating will provide the manufacturer with the optimal thickness for longevity and profitability.The PTG series of Coating Thicknes Gages perform this job with state of the art speed and accuracy . Best of all, the Phase II brand PTG series of gages are 100% non-destructive since they utilize both Eddy Current and Magnetic Induction to secure a viable thickness measurement.

Typical applications for measuring coating thickness utilizing Eddy-Current and/or Magnetic Induction.



Typical Coating Materials:

1) Insulating Coatings
a) Paint
b) Plastic
c) Enamel
d) Anodizing(on Alum)
e) Ceramic

2) Non-Ferrous Coatingsa) Brass
b) Bronze
c) Chrome
d) Copper
e) Lead
f) Electroless Nickel
g) Tin
h) Zinc

3) Ferro-Magnetic Coatings
a) Electro Plated Nickel

Typical Substrate Materials:

4) Insulating Substrates
a) Plastic
b) Ceramic
c) Epoxy
d) Glass

5) Non-Ferrous Substrates
a) Aluminum
b) Brass
c) Bronze
d) Copper
e) Lead
f) Tin
g) Zinc

6) Ferro-Magnetic Substrates
a) Steel
b) Stainless Steel (Ferrous)

Non-Measurable w/eddy-current/magnetic induction
a) Nickel on Steel or non-ferrous substrates or on insulating substrates
b) Insulating coatings on insulating substrates
c) Non-ferrous metal coatings on insulating substrates
d) Non-ferrous metal coatings on non-ferrous metal substrates

Sample Evaluation Report:

Report No: 6110511	**Test Date:** 6/11/05
Sample Coating: Anodizing	**Substrate:** Non-Ferrous
Customer Part#: n/a	**Test Method:** Coating Thickness
Company Name: R. Bourgois	**Inspector:** N. Gitter

Results were achieved after multiple test groupings were performed on supplied samples. Leeb method converted to HRC scale

Model No. PTG-3500
Portable Coating Thickness Gauge

Section	*Test #1*	*Test #2*	*Test #3*	*Average-HRC*
1	.80	.81	.75	.78
2	.82	.81	.81	.81
3	.74	.80	.72	.75
4	.77	.80	.74	.77
5	.72	.74	.74	.73
6	.78	.77	.76	.77
7	.78	.82	.80	.80
8	.79	.75	.76	.76
9	.92	.93	1.01	.95
10	1.09	1.01	1.01	1.03
11	.83	.89	.87	.86
12	.81	.83	.91	.85
13	.78	.83	.81	.80
14	.93	.84	.89	.88
15	.83	.81	.85	.83
16	.84	.89	.81	.84

This evaluation process is only intended to inform the prospective user of the capabilities and performance of above mentioned testing equipment on supplied test samples in a controlled environment. Results may vary based upon factual application, environment and product knowledge.