

DIN EN ISO 2360:2017-12 (E)

Non-conductive coatings on non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method (ISO 2360:2017)

Contents

	Page
European foreword.....	3
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Principle of measurement	6
5 Factors affecting measurement uncertainty	7
5.1 Basic influence of the coating thickness.....	7
5.2 Electrical properties of the base metal.....	7
5.3 Geometry: Base metal thickness.....	8
5.4 Geometry: Edge effects.....	8
5.5 Geometry: Surface curvature.....	8
5.6 Surface roughness.....	8
5.7 Cleanliness: Lift-off effect.....	9
5.8 Probe pressure.....	9
5.9 Probe tilt.....	9
5.10 Temperature effects.....	9
5.11 Intermediate coatings.....	10
5.12 External electromagnetic fields.....	10
6 Calibration and adjustment of the instrument	10
6.1 General.....	10
6.2 Thickness reference standards.....	10
6.3 Methods of adjustment.....	11
7 Measurement procedure and evaluation	12
7.1 General.....	12
7.2 Number of measurements and evaluation.....	12
8 Uncertainty of the results	12
8.1 General remarks.....	12
8.2 Uncertainty of the calibration of the instrument.....	13
8.3 Stochastic errors.....	14
8.4 Uncertainties caused by factors summarized in Clause 5	14
8.5 Combined uncertainty, expanded uncertainty and final result.....	15
9 Precision	15
9.1 General.....	15
9.2 Repeatability (<i>r</i>).....	15
9.3 Reproducibility limit (<i>R</i>).....	16
10 Test report	16

Annex A (informative) Eddy-current generation in a metallic conductor	18
Annex B (informative) Basics of the determination of the uncertainty of a measurement of the used measurement method corresponding to ISO/IEC Guide 98-3	22
Annex C (informative) Basic performance requirements for coating thickness gauges which are based on the amplitude-sensitive eddy-current method described in this document ..	24
Annex D (informative) Examples for the experimental estimation of factors affecting the measurement accuracy	26
Annex E (informative) Table of the student factor	31
Annex F (informative) Example of uncertainty estimation (see Clause 8)	32
Annex G (informative) Details on precision	34
Bibliography	38