### STN

#### Nedeštruktívne skúšanie Zariadenia na skúšanie vírivými prúdmi Charakteristiky array snímačov a ich overovanie (ISO 20339: 2017)

**STN EN ISO 20339** 

01 5018

Non-destructive testing - Equipment for eddy current examination - Array probe characteristics and verification (ISO 20339:2017)

Táto norma obsahuje anglickú verziu európskej normy. This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/17

Obsahuje: EN ISO 20339:2017, ISO 20339:2017

STN EN ISO 20339: 2017

### EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

**EN ISO 20339** 

April 2017

ICS 19.100

#### **English Version**

## Non-destructive testing - Equipment for eddy current examination - Array probe characteristics and verification (ISO 20339:2017)

Essais non destructifs - Appareillage pour examen par courants de Foucault - Caractéristiques des capteurs multiéléments et vérifications (ISO 20339:2017) Zerstörungsfreie Prüfung - Technische Ausrüstung für die Wirbelstromprüfung - Kenngrößen von Sensorarrays und deren Verifizierung (ISO 20339:2017)

This European Standard was approved by CEN on 5 February 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

#### EN ISO 20339:2017 (E)

Contents	Page
European foreword	2
EUFOPEAN 10FEWOFU	

#### **European foreword**

This document (EN ISO 20339:2017) has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" in collaboration with Technical Committee CEN/TC 138 "Non-destructive testing" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2017, and conflicting national standards shall be withdrawn at the latest by October 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

#### **Endorsement notice**

The text of ISO 20339:2017 has been approved by CEN as EN ISO 20339:2017 without any modification.

INTERNATIONAL STANDARD

ISO 20339

First edition 2017-03

# Non-destructive testing — Equipment for eddy current examination — Array probe characteristics and verification

Essais non destructifs — Appareillage pour examen par courants de Foucault — Caractéristiques des capteurs multiéléments et vérifications



ISO 20339:2017(E)



#### COPYRIGHT PROTECTED DOCUMENT

#### © ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office Ch. de Blandonnet 8 • CP 401 CH-1214 Vernier, Geneva, Switzerland Tel. +41 22 749 01 11 Fax +41 22 749 09 47 copyright@iso.org www.iso.org

Co	ntent	S	Page
Fore	eword		<b>v</b>
1	Scope	e	1
2	Norm	native references	1
3		ns and definitions	
4	4.1	e and interconnecting elements characteristics  General characteristics	
		4.1.1 Application	
		4.1.2 Probe types	
		4.1.3 Interconnecting elements	
		4.1.4 Physical characteristics	
		4.1.5 Safety	
	4.2	Electrical characteristics	
	4.3	Functional characteristics	
_			
5	<b>veri</b> n 5.1	ication Level of verifications	
	5.1	Characteristics to be verified	
_			
6		surement of electrical and functional characteristics of an array probe	
	6.1	6.1.1 General	
		6.1.2 Measurement conditions	
		6.1.3 Impedance of coil elements	
		6.1.4 Impedance of a pattern	
		6.1.5 Channel assignment — Sequencing	
		6.1.6 Cross-talk	6
	6.2	Functional characteristics	
		6.2.1 General	
		6.2.2 Measurement conditions	6
7	Surfa	ace array probes	
	7.1	Reference blocks	
	7.2	Probe motion	
	7.3	Reference signal — Normalization	
	7.4 7.5	Edge effect (measurable in the case of simple geometry, e.g. metal sheets, disks).	
	7.5 7.6	Response to a slot	
	7.7	Length of coverage	
	7.8	Variation in sensitivity between patterns	
	7.9	Minimum slot length for constant probe response	
	7.10	Lift-off effect	
	7.11	Effect of probe clearance on slot response	
	7.12	Effective depth of detection of a sub-surface slot	
	7.13	Resolution	
	7.14	Defective element or pattern	
8		ial array probes	
	8.1	General conditions	
	8.2	Reference blocks	
	8.3 8.4	Reference signal Absence of defective elements	
	8.5	Position mark of the probe (mainly for positioning)	
	8.6	End effect	
	8.7	Length of coverage	
	8.8	Homogeneity of axial response	

#### STN EN ISO 20339: 2017

#### ISO 20339:2017(E)

	8.9	Eccentricity effect	19
		Fill effect	
	8.11	Effective depth of penetration	19
		Effective depth of detection under ligament	
9		nce of interconnecting elements	
		ormative) Simulation of surface probe resolution	

#### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <a href="www.iso.org/directives">www.iso.org/directives</a>).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see <a href="https://www.iso.org/patents">www.iso.org/patents</a>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: <a href="https://www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>.

This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 4, *Eddy current testing*.

### Non-destructive testing — Equipment for eddy current examination — Array probe characteristics and verification

#### 1 Scope

This document identifies the functional characteristics of eddy current array probes and their interconnecting elements and provides methods for their measurement and verification.

The evaluation of these characteristics permits a well-defined description and comparability of eddy current array probes.

Where relevant, this document gives recommendations for acceptance criteria for the characteristics.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12718, Non-destructive testing — Eddy current testing — Vocabulary

ISO 15548-1, Non-destructive testing — Equipment for eddy current examination — Part 1: Instrument characteristics and verification

ISO 15548-2:2013, Non-destructive testing — Equipment for eddy current examination — Part 2: Probe characteristics and verification

koniec náhľadu – text ďalej pokračuje v platenej verzii STN