

ISO 13588:2019 (E)

Non-destructive testing of welds — Ultrasonic testing — Use of automated phased array technology

Contents

	Foreword
1	Scope
2	Normative references
3	Terms and definitions
4	Testing levels
5	Information required prior to testing
5.1	Items to be defined prior to procedure development
5.2	Specific information required by the operator before testing
5.3	Written test procedure
6	Requirements for personnel and test equipment
6.1	Personnel qualifications
6.2	Test equipment
6.2.1	General
6.2.2	Ultrasonic instrument
6.2.3	Ultrasonic probes
6.2.4	Scanning mechanisms
7	Preparation for testing
7.1	Volume to be tested
7.2	Verification of the test setup
7.3	Scan increment setting
7.4	Geometry considerations
7.5	Preparation of scanning surfaces
7.6	Temperature
7.7	Couplant
8	Testing of base material
9	Range and sensitivity settings
9.1	Settings
9.1.1	General
9.1.2	Pulse-echo time window
9.1.3	Pulse-echo sensitivity settings
9.1.3.1	General
9.1.3.2	Focusing
9.1.3.3	Gain corrections
9.1.3.4	Sensitivity settings for different modes of phased array testing
9.1.4	TOFD settings
9.2	Checking of the settings
9.3	Reference blocks
9.3.1	General
9.3.2	Material
9.3.3	Dimensions and shape
9.3.4	Reference reflectors
10	Equipment checks

- 11 Procedure qualification
 - 12 Weld testing
 - 13 Data storage
 - 14 Interpretation and analysis of phased array data
 - 14.1 General
 - 14.2 Assessing the quality of the phased array data
 - 14.3 Identification of relevant indications
 - 14.4 Classification of relevant indications
 - 14.5 Determination of location
 - 14.6 Determination of length and height
 - 14.6.1 General
 - 14.6.2 Determination of length
 - 14.6.3 Determination of height
 - 14.6.3.1 General
 - 14.6.3.2 Using diffracted signals
 - 14.6.3.3 Using amplitude-based and other signals
 - 14.7 Evaluation against acceptance criteria
 - 15 Test report
- Annex A (informative) Typical reference blocks and reference reflectors**
- A.1 Reference reflectors
 - A.2 Typical reference blocks
 - A.2.1 Testing level A (Figure A.1)
 - A.2.2 Testing level B (Figure A.2)
 - A.2.3 Testing level C (Figure A.3)
 - A.2.4 Testing level D
- Annex B (informative) Illustrations of possible signals to be used**
- B.1 2 diffracted signals from the same discontinuity (upper and lower tip)
 - B.2 Diffracted signal and reflected signal from the same discontinuity