

DIN EN ISO 16811:2025-06 (E)

Non-destructive testing - Ultrasonic testing - Sensitivity and range setting (ISO 16811:2025)

Contents

	Page
Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Quantities and symbols.....	1
5 Qualification of personnel.....	3
6 Test equipment.....	3
6.1 Instrument.....	3
6.2 Probes.....	3
6.2.1 General.....	3
6.2.2 Probe selection.....	3
6.2.3 Frequency and dimensions of transducer.....	4
6.2.4 Dead zone.....	4
6.2.5 Damping.....	4
6.2.6 Focusing probes.....	4
6.3 Coupling media.....	4
6.4 Standard blocks.....	5
6.5 Reference blocks.....	5
6.6 Specific test blocks.....	6
7 Categories of test objects.....	6
8 Test objects, reference blocks and reference reflectors.....	6
9 Probes.....	9
9.1 General.....	9
9.2 Longitudinally curved probes.....	10
9.2.1 Convex scanning surface.....	10
9.2.2 Concave scanning surface.....	10
9.3 Transversely curved probes.....	10
9.3.1 Convex scanning surface.....	10
9.3.2 Concave scanning surface.....	11
10 Determination of probe index point and beam angle.....	11
10.1 General.....	11
10.2 Flat angle-beam probes.....	11
10.2.1 Calibration block technique.....	11
10.2.2 Reference block technique.....	11
10.3 Angle-beam probes curved longitudinally.....	11
10.3.1 Mechanical determination.....	11
10.3.2 Reference block technique.....	13
10.4 Angle-beam probes curved transversely.....	13
10.4.1 Mechanical determination.....	13
10.4.2 Reference block technique.....	14
10.5 Probes curved in two directions.....	15
10.6 Probes for use on materials other than non-alloy steel.....	15
11 Time base setting.....	15
11.1 General.....	15

11.2	Reference blocks and reference reflectors.....	16
11.3	Straight-beam probes.....	16
11.3.1	Single-reflector technique.....	16
11.3.2	Multiple-reflector technique.....	16
11.4	Angle-beam probes.....	17
11.4.1	Radius technique.....	17
11.4.2	Straight-beam probe technique.....	17
11.4.3	Reference block technique.....	17
11.4.4	Contoured probes.....	17
11.5	Alternative range settings for angle-beam probes.....	17
11.5.1	Flat surfaces.....	17
11.5.2	Curved surfaces.....	18
12	Sensitivity setting and echo height evaluation.....	19
12.1	General.....	19
12.2	Angle of incidence.....	20
12.3	Distance-amplitude curve (DAC) technique.....	20
12.3.1	Reference blocks.....	20
12.3.2	Preparation of a distance-amplitude curve.....	21
12.3.3	Evaluation of signals using a distance-amplitude curve.....	22
12.3.4	Evaluation of signals using a reference height.....	22
12.4	Distance-gain-size (DGS) technique.....	23
12.4.1	General.....	23
12.4.2	Reference blocks.....	25
12.4.3	Use of DGS diagrams.....	26
12.4.4	Restrictions on use of the DGS technique due to geometry.....	28
12.5	Transfer correction.....	28
12.5.1	General.....	28
12.5.2	Fixed path length technique.....	29
12.5.3	Comparative technique.....	29
12.5.4	Compensation for local variations in transfer correction.....	30
Annex A (informative)	Determination of sound path distance and angle of incidence in category	
	2 test objects.....	31
Annex B (informative)	General DGS diagram.....	36
Annex C (informative)	Determination of contact transfer correction factors.....	38
Bibliography.....		41