

ISO 16811:2012-04 (E)

Non-destructive testing - Ultrasonic testing - Sensitivity and range setting

Contents		Page
Foreword		v
1	Scope	1
2	Normative references	1
3	General	1
3.1	Quantities and symbols	1
3.2	Test objects, reference blocks and reference reflectors	1
3.3	Categories of test objects	1
3.4	Contouring of probes	2
3.4.1	Longitudinally curved probes	3
3.4.2	Transversely curved probes	3
3.4.3	Concave scanning surface	4
4	Determination of probe index and beam angle	4
4.1	General	4
4.2	Flat probes	4
4.2.1	Calibration block technique	4
4.2.2	Reference block technique	4
4.3	Probes curved longitudinally	4
4.3.1	Mechanical determination	4
4.3.2	Reference Block Technique	6
4.4	Probes curved transversely	6
4.4.1	Mechanical determination	6
4.4.2	Reference block technique	7
4.5	Probes curved in two directions	8
4.6	Probes for use on materials other than non-alloy steel	9
5	Time base setting	9
5.1	General	9
5.2	Reference blocks and reference reflectors	9
5.3	Straight beam probes	10
5.3.1	Single reflector technique	10
5.3.2	Multiple reflector technique	10
5.4	Angle beam probes	10
5.4.1	Radius technique	10
5.4.2	Straight beam probe technique	10
5.4.3	Reference block technique	10
5.4.4	Contoured probes	10
5.5	Alternative range settings for angle beam probes	11
5.5.1	Flat surfaces	11
5.5.2	Curved surfaces	11
6	Sensitivity setting and echo height evaluation	13
6.1	General	13
6.2	Angle of impingement	13
6.3	Distance Amplitude Curve (DAC) technique	13
6.3.1	Reference blocks	13
6.3.2	Preparation of a Distance Amplitude Curve	14
6.3.3	Evaluation of signals using a Distance Amplitude Curve	15
6.3.4	Evaluation of signals using a reference height	15

6.4	Distance Gain Size (DGS) technique	16
6.4.1	General	16
6.4.2	Reference blocks	18
6.4.3	Use of DGS diagrams	18
6.4.4	Restrictions on use of the DGS technique due to geometry	20
Introduction		vi
6.5	Transfer correction	20
6.5.1	General	20
6.5.2	Fixed path length technique	20
6.5.3	Comparative technique	21
6.5.4	Compensation for local variations in transfer correction	22
Annex A (normative) Quantities and symbols		23
Annex B (normative) Reference blocks and reference reflectors		26
Annex C (normative) Determination of sound path distance and impingement angle in concentrically curved objects		29
C.1	Impingement angle	29
C.2	Sound path when scanning from the outer (convex) surface:	29
C.2.1	Full skip	30
C.2.2	Half skip	30
C.3	Soundpath when scanning from the inner (concave) surface:	31
C.3.1	Full skip	31
C.3.2	Half skip	32
Annex D (informative) General DGS diagram		33
D.1	Distance	33
D.2	Gain	33
D.3	Size	34
Annex E (informative) Determination of contact transfer correction factors		35
E.1	General	35
E.2	Measurement	35
E.3	Evaluation	35
Bibliography		38