

DIN EN ISO 15463:2005-07 (E)

Petroleum and natural gas industries - Field inspection of new casing, tubing and plain-end drill pipe (ISO 15463:2003); English version EN ISO 15463:2003

Contents

	page
Foreword	5
Introduction	6
1 Scope.....	7
2 Conformance	7
2.1 Normative references	7
2.2 Units of measurement	7
2.3 Tables and figures.....	7
3 Normative references	8
4 Terms, definitions, symbols and abbreviated terms	8
4.1 Terms and definitions.....	8
4.2 Symbols and abbreviated terms.....	19
5 Application.....	21
5.1 Basis for inspection	21
5.2 Applicability of inspections	21
5.3 Repeatability of results.....	21
5.4 Consequences of variability	21
6 Ordering information	22
7 Quality assurance	22
8 Qualification of inspection personnel.....	23
8.1 General	23
8.2 Written procedure	23
8.3 Qualification of inspection personnel.....	23
8.4 Training programs.....	24
8.5 Examinations	24
8.6 Experience	24
8.7 Requalification.....	24
8.8 Documentation	24
8.9 NDT personnel certification	25
9 General inspection procedures	25
9.1 General	25
9.2 Documents at job site.....	25
9.3 Pre-inspection procedures.....	25
9.4 Records and notification	25
9.5 Post-inspection procedures.....	26
9.6 Job site checklist	27
9.7 Documentation	27
10 Acceptance criteria, disposition and responsibility.....	27
10.1 General	27
10.2 Basis for acceptance	27
10.3 Responsibility for Rejections.....	27
11 Visual and dimensional inspection	28
11.1 General	28
11.2 Application.....	28
11.3 Drift mandrels.....	28
11.4 Precision callipers (micrometer, vernier calliper or dial calliper).....	28
11.5 Length and diameter-measuring devices (steel rules, steel length or diameter-measuring tapes, and other non-adjustable measuring devices).....	28
11.6 Depth gauges.....	28

11.7	External surface illumination.....	29
11.8	Internal surface illumination.....	29
11.9	Full-length visual inspection (FLVI) of new OCTG.....	30
11.10	Outside diameter verification	30
11.11	Straightness	31
11.12	Drift testing.....	31
11.13	Visual thread inspection (VTI)	32
12	Hardness testing.....	35
12.1	General.....	35
12.2	Application	35
12.3	Equipment	36
12.4	Calibration	36
12.5	Standardization	36
12.6	Procedures	37
13	Magnetic particle inspection (MPI).....	37
13.1	General.....	37
13.2	Application	38
13.3	Equipment and materials	38
13.3.1	Internal conductors	38
13.4	Magnetic particles.....	39
13.5	Illumination equipment and optical aids	39
13.6	General procedures	40
13.7	Calibration	41
13.8	Standardization	41
13.9	Periodic checks.....	41
13.10	End area inspection (SEA).....	42
13.11	Inspection of unattached couplings (UCMPI).....	43
13.12	Full-length magnetic particle inspection (FLMPI)	44
14	Electromagnetic inspection (EMI).....	45
14.1	General.....	45
14.2	Equipment	45
14.3	Application	45
14.4	Calibration	46
14.5	Standardization	46
14.6	Equipment requirements and periodic checks.....	48
14.7	Inspection procedure	48
15	Residual magnetism and demagnetization.....	49
15.1	General.....	49
15.2	Application	49
15.3	Services	49
16	Gamma-ray wall thickness inspection.....	50
16.1	General.....	50
16.2	Application	50
16.3	Equipment	50
16.4	Calibration and standardization	50
16.5	Inspection procedure	51
17	Electromagnetic grade comparison.....	51
17.1	General.....	51
17.2	Application	51
17.3	Equipment	51
17.4	Calibration and Standardization.....	52
17.5	Inspection procedure	52

18 Ultrasonic inspection..... 53

18.1 General 53

18.2 Application..... 53

18.3 General procedures for calibration, standardization, and inspection..... 53

18.4 Inspection for longitudinal, transverse, and oblique imperfections..... 54

18.5 Standardization 55

18.6 Procedure for the detection of longitudinal, transverse, and oblique imperfections..... 56

18.7 Inspection of the body wall for wall thinning 56

18.8 Ultrasonic inspection of longitudinal welds..... 57

18.9 Manual ultrasonic thickness gauging 58

18.10 Manual ultrasonic shear-wave inspection..... 60

19 Evaluation of imperfections and deviations..... 62

19.1 General 62

19.2 Application..... 62

19.3 Equipment..... 62

19.4 Calibration and standardization procedures..... 63

19.5 Procedure for evaluating outside-surface-breaking pipe body imperfections..... 63

19.6 Procedure for evaluating inside-surface-breaking pipe body imperfections 65

19.7 Procedure for evaluating welds..... 65

19.8 Procedure for evaluating grinds..... 66

19.9 Procedure for evaluating large-area wall reduction 66

19.10 Procedure for evaluating imperfections in upsets 67

19.11 Procedure for evaluation of outside surface imperfections on couplings 68

19.12 Procedure for evaluation of visually-located thread imperfections 69

19.13 Procedure for triangle location and coupling makeup position 71

19.14 Procedure for evaluating straightness 72

19.15 Procedure for evaluating pipe diameter 73

20 Hydrostatic pressure testing 73

20.1 General 73

20.2 Application..... 74

20.3 Equipment, safety, and general procedures 74

20.4 Equipment calibration 75

20.5 Operating procedure..... 76

21 Marking..... 77

21.1 General 77

21.2 Authority 77

21.3 Guidelines 77

21.4 Marking of prime OCTG..... 78

21.5 Marking of no-drift OCTG..... 78

21.6 Marking of conditioned OCTG 79

21.7 Marking of conditionable OCTG (still to be conditioned) 79

21.8 Marking of non-conditionable OCTG (rejects) 79

21.9 Marking of OCTG not meeting ISO/API standards for hardness..... 80

21.10 Marking of prime couplings and connectors 80

21.11 Marking of conditioned couplings and connectors..... 80

21.12 Marking of conditionable couplings and connectors (still to be conditioned)..... 80

21.13 Marking of non-conditionable couplings and connectors (rejects)..... 81

Annex A (normative) Tables in SI units..... 82

Annex B (normative) Figures 99

Annex C (normative) Tables in USC units..... 104

Bibliography 120