

# ISO 3183:2012-11 (E)

## Petroleum and natural gas industries - Steel pipe for pipeline transportation systems

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Conformance .....</b>	<b>1</b>
2.1	Units of measurement .....	1
2.2	Rounding .....	1
2.3	Compliance to this International Standard .....	1
<b>3</b>	<b>Normative references .....</b>	<b>2</b>
<b>4</b>	<b>Terms and definitions .....</b>	<b>5</b>
<b>5</b>	<b>Symbols and abbreviated terms .....</b>	<b>11</b>
5.1	Symbols .....	11
5.2	Abbreviated terms .....	12
<b>6</b>	<b>Pipe grade, steel grade and delivery condition .....</b>	<b>13</b>
6.1	Pipe grade and steel grade .....	13
6.2	Delivery condition .....	14
<b>7</b>	<b>Information to be supplied by the purchaser .....</b>	<b>15</b>
7.1	General information .....	15
7.2	Additional information .....	16
<b>8</b>	<b>Manufacturing .....</b>	<b>19</b>
8.1	Process of manufacture .....	19
8.2	Processes requiring validation .....	21
8.3	Starting material .....	21
8.4	Tack welds .....	22
8.5	Weld seams in COW pipe .....	22
8.6	Weld seams in SAW pipe .....	22
8.7	Weld seams in double-seam pipe .....	23
8.8	Treatment of weld seams in EW and LW pipes .....	23
8.9	Cold sizing and cold expansion .....	23
8.10	Coil/plate end welds .....	23
8.11	Jointers .....	24
8.12	Heat treatment .....	24
8.13	Traceability .....	24
<b>9</b>	<b>Acceptance criteria .....</b>	<b>24</b>
9.1	General .....	24
9.2	Chemical composition .....	24
9.3	Tensile properties .....	29
9.4	Hydrostatic test .....	33
9.5	Bend test .....	33
9.6	Flattening test .....	33
9.7	Guided-bend test .....	33
9.8	CVN impact test for PSL 2 pipe .....	34
9.9	DWT test for PSL 2 welded pipe .....	35

9.10	Surface conditions, imperfections and defects .....	35
9.11	Dimensions, mass and tolerances .....	37
9.12	Finish of pipe ends .....	42
9.13	Tolerances for the weld seam .....	44
9.14	Tolerances for mass .....	47
9.15	Weldability of PSL 2 pipe .....	47
10	Inspection .....	48
10.1	Types of inspection and inspection documents .....	48
10.2	Specific inspection .....	49
11	Marking .....	77
11.1	General .....	77
11.2	Pipe markings .....	77
11.3	Coupling markings .....	79
11.4	Marking of pipe to multiple grades .....	80
11.5	Thread identification and certification .....	80
11.6	Pipe processor markings .....	80
12	Coatings and thread protectors .....	81
12.1	Coatings and linings .....	81
12.2	Thread protectors .....	81
13	Retention of records .....	81
14	Pipe loading .....	82
Annex A (normative) Specification for welded jointers .....		83
Annex B (normative) Manufacturing procedure qualification for PSL 2 pipe .....		84
Annex C (normative) Treatment of surface imperfections and defects .....		88
Annex D (normative) Repair welding procedure .....		90
Annex E (normative) Non-destructive inspection for other than sour service or offshore service .....		95
Annex F (normative) Requirements for couplings (PSL 1 only) .....		106
Annex G (normative) PSL 2 pipe with resistance to ductile fracture propagation .....		109
Annex H (normative) PSL 2 pipe ordered for sour service .....		115
Annex I (normative) Pipe ordered as "Through the Flowline" (TFL) pipe .....		126
Annex J (normative) PSL 2 pipe ordered for offshore service .....		128
Annex K (normative) Non-destructive inspection for pipe ordered for sour service and/or offshore service .....		144
Annex L (informative) Steel designations .....		149
Annex M (normative) PSL 2 pipe ordered for European onshore natural gas transmission pipelines .....		152
Annex N (informative) .....		169
Annex O (informative) .....		170
Annex P (informative) Equations for threaded and coupled pipe and background equations for guided bend and CVN test specimens .....		171
Bibliography .....		181