

# DIN EN 10217-5:2019-08 (E)

## Welded steel tubes for pressure purposes - Technical delivery conditions - Part 5: Submerged arc welded non-alloy and alloy steel tubes with specified elevated temperature properties

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
1	Scope .....	5
2	Normative references .....	5
3	Terms and definitions .....	6
4	Symbols .....	7
5	Classification and designation .....	7
5.1	Classification .....	7
5.2	Designation .....	7
6	Information to be supplied by the purchaser .....	8
6.1	Mandatory information .....	8
6.2	Options .....	8
6.3	Example of an order .....	9
7	Manufacturing process .....	9
7.1	Steelmaking process .....	9
7.2	Tube manufacture and delivery conditions .....	9
7.3	Non Destructive Testing Personnel Requirements .....	10
8	Requirements .....	10
8.1	General .....	10
8.2	Chemical composition .....	11
8.2.1	Cast analysis .....	11
8.2.2	Product analysis .....	11
8.3	Mechanical properties .....	13
8.4	Appearance and internal soundness .....	15
8.4.1	Weld seam .....	15
8.4.2	Tube surface .....	15
8.4.3	Internal soundness .....	15
8.5	Straightness .....	16
8.6	Preparation of ends .....	16
8.7	Dimensions, masses and tolerances .....	16
8.7.1	Diameter and wall thickness .....	16
8.7.2	Mass .....	16
8.7.3	Lengths .....	19
8.7.4	Tolerances .....	19
9	Inspection .....	21
9.1	Type of inspection .....	21
9.2	Inspection documents .....	21
9.2.1	Types of inspection documents .....	21
9.2.2	Content of inspection documents .....	21
9.3	Summary of inspection and verification testing .....	22

10	Sampling .....	24
10.1	Frequency of tests .....	24
10.1.1	Test unit .....	24
10.1.2	Number of sample tubes per test unit .....	24
10.2	Preparation of samples and test pieces .....	24
10.2.1	Selection and preparation of samples for product analysis .....	24
10.2.2	Location, orientation and preparation of samples and test pieces for mechanical tests ....	25
DIN EN 10217-5:2019-08 EN 10217-5:2019 (E) 11 Verification of test methods .....		26
11.1	Chemical analysis .....	26
11.2	Tensile test on the tube body .....	27
11.2.1	At room temperature .....	27
11.2.2	At elevated temperature .....	27
11.3	Traverse tensile test on the weld .....	27
11.4	Weld bend test .....	27
11.5	Impact test .....	27
11.6	Hydrostatic leak tightness test .....	28
11.7	Dimensional inspection .....	28
11.8	Visual examination .....	29
11.9	Non-Destructive Testing .....	29
11.9.1	Non-Destructive Testing of the weld seam .....	29
11.9.2	Non-Destructive Testing for the detection of laminations for tubes of test category 2 .....	29
11.9.3	Supply of strip end welds in SAWH tubes .....	30
11.10	Material identification .....	30
11.11	Retests, sorting and reprocessing .....	30
12	Marking .....	30
12.1	Marking to be applied .....	30
12.2	Additional marking .....	31
13	Protection .....	31
Annex A (normative) Qualification of welding procedure .....		32
A.1	General .....	32
A.2	Welding procedure specification .....	32
A.3	Preparation of sample tube and sample assessment .....	34
A.4	Inspection and testing of the weld .....	35
A.5	Weld test pieces .....	35
A.6	Test methods .....	35
A.7	Test acceptance levels .....	36
A.8	Range of use of qualified procedures .....	38
A.9	Qualification record .....	39
Annex B (informative) Technical changes from the previous edition .....		40
B.1	Introduction .....	40
B.2	Technical changes .....	40
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU .....		42
Bibliography .....		43