

DIN EN 13480-8:2012-11 (E)

Metallic industrial piping - Part 8: Additional requirements for aluminium and aluminium alloy piping

Contents		Page
Foreword		5
1	Scope	7
2	Normative references	7
3	Terms, definitions, symbols and units	9
4	General requirements	9
5	Materials	9
5.1	General	9
5.2	Material grouping system	9
5.3	Elongation after fracture	10
5.4	Chemical composition	11
5.5	Lamellar tearing	11
5.6	Design temperature and properties	11
5.7	Prevention of brittle fracture	11
5.8	Specific requirements for fasteners made of aluminium and aluminium alloys	12
5.9	Lined piping	12
5.10	Clad products	12
5.11	Technical delivery conditions for welding consumables	12
6	Design	12
6.1	General	12
6.2	Time-independent nominal design stress	12
6.3	Straight pipes	13
6.4	Pipe bends and elbows	13
6.5	Mitre bends	13
6.6	Socket welds	14
6.7	Designing with transition joints	15
6.7.1	Design considerations	15
6.7.2	Location of transition joints	15
6.7.3	Requirements for transition joints	15
7	Fabrication and installation	15
7.1	General	15
7.2	Material grouping	15
7.3	Tolerances	15
7.3.1	Welded pipes and connection dimensions of pipe fittings	15
7.3.2	Welded piping construction	16
7.4	Cutting and bevelling	16
7.5	Bending and other forming	16
7.5.1	General	16
7.5.2	Definition of cold- and hot forming	16
7.5.3	Heat treatment after cold forming	17
7.5.4	Heat treatment after hot forming	18
7.6	Welding	19
7.6.1	Welding personnel	19
7.6.2	Welding processes	19
7.6.3	Weld joint preparation	19

7.6.4	Preheating	20
7.6.5	Backing rings and backing strips	21
7.6.6	Post-weld heat treatment (PWHT)	21
Issue 1 (2012-06) 8 Inspection and testing		21
8.1	General	21
8.2	Formed pressure retaining parts	21
8.2.1	General	21
8.2.2	Testing of formed parts	22
8.2.3	Destructive testing of formed and heat treated parts	22
8.3	Welding	23
8.4	Visual and non-destructive testing of welds	23
8.4.1	Application of NDT	23
8.4.2	Circumferential, branch, socket and seal welds	23
8.4.3	Longitudinal welds and spiral welded tubes/pipes	24
8.5	VT and NDT Methods	24
8.6	Production test plates for welded pipes	25
9	Final assessment and documentation	26
9.1	General	26
9.2	Pneumatic pressure test	27
9.3	Documentation for components	27
Annex A (informative) Dimensional tolerances		29
Annex B (normative) Transition joints		31
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 97/23/EC		36
Bibliography		37
Figures Figure 6.5.1 -- Mitre bend		14
Figure 7.6.3.1 -- Socket welds		20
Figure A.1 -- Dimensional details of spools		30
Tables Table 5.2-1 -- Grouping system based on CEN ISO/TR 15608:2000 and allowable materials of construction based on EN 12392:2000 using the EN AW numbers according to EN 573-3:2009		10
Table 6.2-1 -- Design stresses for aluminium and aluminium alloy material		12
Table 6.2-2 -- Allowable design strength values for 6 000 series aluminium alloys in the welded condition (see 5.6)		13
Table 6.5-1 -- Special symbols for subclause 6.5		14
Table 7.3-1 -- Tolerances for welded pipes		16
Table 7.5-1 -- Heat treatment of flat products after cold forming		17
Table 7.5-2 Heat treatment of pipes after cold forming		18
Table 7.5-3 Heat treatment after hot forming		18
Table 8.2-1 -- Destructive testing of formed and heat treated parts		23
Issue 1 (2012-06) Table 8.4-1 -- Extent of testing for circumferential, branch, socket and seal welds		24

Table 8.4-2 -- Extent of VT and NDT for longitudinal welds and spiral welded tubes/pipes	24
Table 8.5-1 -- Techniques, methods, acceptance criteria	25
Table 8.6-1 -- Production test plates for welded pipes according to 8.6 a)	26
Table 8.6-2 -- Required tests and acceptance criteria for production test plates	26
Table 9.2-1 -- Extent of NDT in case of pneumatic pressure test according to 9.2b)	27
Table A.1 -- Tolerances	29
Table B.1-1 -- Testing of transition joints (T.J.)	34
Table ZA.1 -- Correspondence between this European Standard and Directive 97/23/EC	36