

DIN EN 13480-4 Berichtigung 1:2016-10 (E)

Metallic industrial piping - Part 4: Fabrication and installation; German version EN 13480-4:2012, Corrigendum to DIN EN 13480-4:2014-12

Contents		Page
Foreword		4
1	Scope	6
2	Normative references	6
3	Terms and definitions	7
4	Symbols	7
5	General	7
5.1	Requirements on the manufacturer	7
5.2	Requirements on fabricators and installers of piping and supports	8
5.3	Requirements for fabrication and installation	8
5.4	Classification of piping	8
5.5	Material grouping	9
5.6	Tolerances	9
6	Cutting and bevelling	9
6.1	General	9
6.2	Identification of pressure parts	9
7	Bending and other forming	9
7.1	General	9
7.2	Heat treatment after cold forming	12
7.2.1	Flat products	12
7.2.2	Pipes	12
7.3	Heat treatment after hot forming	14
7.3.1	Material groups 1, 3, 4, 5 and 6	14
7.3.2	Material groups 8.1 and 8.2	14
7.3.3	Heat treatment after hot forming for material group 10	16
7.3.4	Heat treatment after hot forming for clad materials	16
7.4	Tolerances	16
7.4.1	Out-of-roundness of bends under internal pressure equal to, or greater than, the external pressure	16
7.4.2	Out-of-roundness of bends under external pressure and vacuum	17
7.4.3	Waves at bends	17
7.4.4	Start-up bulge of induction bends	18
7.5	Surface finish	19
8	Installation of piping	19
8.1	Fixing and alignment	19
8.2	Field run piping	20
8.3	Flanged or similar mechanical connections	21
8.3.1	Flange connections	21
8.3.2	Threaded connections	22
8.3.3	Couplings and compression fittings	22
8.4	Protection of ends of piping components	22
9	Welding	22
9.1	Welding personnel	22

9.2	Welding procedure specifications	22
9.3	Welding procedures	23
9.3.1	Verification of suitability	23
9.3.2	Application	23
9.4	Filler metals and auxiliary materials.....	24
9.5	Climatic conditions.....	24
9.6	Cleaning before and after welding.....	24
9.7	Joint preparation	24
9.8	Edge protection	24
9.9	Assembly for welding.....	24
9.10	Earthing	25
9.11	Performance of welding	25
9.11.1	Preheating	25
9.11.2	Striking marks.....	25
9.11.3	External welds.....	25
9.11.4	Dissimilar joints	26
9.12	Backing rings	26
9.13	Attachments	26
9.13.1	General	26
9.13.2	Temporary attachments.....	26
9.13.3	Permanent attachments.....	26
9.14	Post-weld heat treatment.....	27
9.14.1	General	27
9.14.2	Equipment	30
9.14.3	Temperature measurements	30
9.14.4	Controlling thickness.....	30
9.14.5	Rate of heating.....	32
9.14.6	Local heat treatment.....	32
9.14.7	Insulation.....	33
9.15	Weld identification.....	33
10	Adjustment and repair.....	33
10.1	General	33
10.2	Adjustment.....	33
10.2.1	Cold hammering	33
10.2.2	Adjustments by means of heat	33
10.2.3	Adjustment by welding	34
10.2.4	Adjustment by local forging	34
10.3	Weld repair	34
11	Marking and documentation.....	34
11.1	Marking of spools and components for installation.....	34
11.2	Marking and identification of installed piping	34
11.2.1	General	34
11.2.2	CE Marking of installed piping	35
11.2.3	Technical identification of installed piping.....	35
12	Additional requirements	36
12.1	Cleaning.....	36
12.2	Temporary preservation.....	36
12.3	External corrosion protection	36
12.4	Thermal and acoustic insulation.....	36
12.5	Connections for static electricity.....	36
Annex A (informative) Contamination and surface quality of stainless steel.....		38
Annex B (normative) Dimensional tolerances for fabricated spools.....		41
Annex Y (informative) History of EN 13480-4		43
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU aimed to be covered.....		44
Bibliography.....		45