

# DIN EN 1011-3:2019-06 (E)

## Welding - Recommendations for welding of metallic materials - Part 3: Arc welding of stainless steels

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
Introduction .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	6
4	Parent metal .....	7
5	Storage and handling .....	7
6	Welding consumables .....	7
7	Fabrication .....	7
7.1	General .....	7
7.2	Weld details .....	8
7.3	Weld backing .....	8
8	Quality requirements of welds .....	9
9	Distortion .....	9
10	Post-weld cleaning .....	9
Annex A (informative) Welding of austenitic stainless steels .....		11
A.1	General .....	11
A.1.1	Chemical composition .....	11
A.1.2	Microstructure .....	11
A.1.3	Types of austenitic stainless steel .....	11
A.2	Welding aspects .....	12
A.2.1	Welding details .....	12
A.2.2	Welding consumables .....	13
A.3	Consequences of welding .....	13
A.3.1	Cracking .....	13
A.3.2	Mechanical properties .....	14
A.3.3	Corrosion resistance .....	14
A.3.4	Distortion .....	15
A.4	Post-weld treatment .....	15
A.4.1	Heat treatment .....	15
A.4.2	Cleaning .....	15
Annex B (informative) Welding of ferritic stainless steels .....		16
B.1	General .....	16
B.1.1	Chemical composition .....	16
B.1.2	Microstructure .....	16
B.2	Welding aspects .....	16

B.2.1	Welding details .....	16
B.2.2	Welding consumables .....	17
B.3	Consequences of welding .....	17
B.3.1	Cracking .....	17
B.3.2	Mechanical properties .....	17
B.3.3	Corrosion resistance .....	17
B.3.4	Distortion .....	18
B.4	Post-weld treatment .....	18
B.4.1	Heat treatment .....	18
B.4.2	Finishing .....	18
<b>Annex C (informative) Welding of austenitic-ferritic stainless steels .....</b>		<b>19</b>
C.1	General .....	19
C.1.1	General .....	19
C.1.2	Chemical composition .....	19
C.1.3	Microstructure .....	19
C.1.4	Types of austenitic - ferritic stainless steel .....	19
C.2	Welding aspects .....	19
C.2.1	Welding details .....	19
C.2.2	Welding consumables .....	20
C.3	Consequences of welding .....	21
C.3.1	General .....	21
C.3.2	Cracking .....	21
C.3.3	Mechanical properties .....	21
C.3.4	Corrosion resistance .....	21
C.3.5	Distortion .....	21
C.3.6	Porosity .....	21
C.4	Post-weld treatment .....	22
C.4.1	Heat treatment .....	22
C.4.2	Cleaning .....	22
<b>Annex D (informative) Welding of martensitic and martensitic-austenitic stainless steels .....</b>		<b>23</b>
D.1	General .....	23
D.1.1	Chemical composition .....	23
D.1.2	Types of martensitic and martensitic-austenitic stainless steel .....	23
D.2	Welding aspects .....	23
D.3	Consequences of welding .....	24
D.3.1	Cracking .....	24
D.3.2	Mechanical properties .....	24
D.3.3	Corrosion resistance .....	24
D.3.4	Distortion .....	24
D.4	Post-weld treatment .....	25
D.4.1	Heat treatment .....	25
D.4.2	Cleaning .....	25
<b>Bibliography .....</b>		<b>26</b>