

DIN EN ISO 15614-7:2017-03 (E)

Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 7: Overlay welding (ISO 15614-7:2016)

Contents

	Page
European foreword	3
Annex ZA (informative) Relationship between this part of ISO 15614 and the Essential Requirements of EU Directive 2014/68/EU	5
Foreword	6
Introduction	8
1 Scope	9
2 Normative references	9
3 Terms and definitions	10
4 Preliminary welding procedure specification (pWPS)	11
4.1 Corrosion resistant overlay welding	11
4.2 Hardfacing	11
5 Welding procedure qualification test	11
6 Test piece	11
6.1 Shape and dimensions of test pieces	11
6.1.1 General	11
6.1.2 Corrosion resistant overlay welding and hardfacing	11
6.1.3 Intermediate layer	11
6.2 Welding of test pieces	13
7 Examination and testing	13
7.1 Extent of examination and testing	13
7.2 Non-destructive testing (NDT)	14
7.3 Location and taking of test specimens	14
7.4 Destructive testing	16
7.4.1 General	16
7.4.2 Macroscopic examination	17
7.4.3 Hardness testing	17
7.4.4 Side bend testing	17
7.4.5 Chemical analysis	18
7.4.6 Delta ferrite content/ferrite number (FN)	18
7.5 Acceptance criteria	19
7.5.1 Acceptance criteria for non-destructive testing (NDT)	19
7.5.2 Destructive testing	19
7.6 Re-testing	20
8 Range of qualification	20
8.1 General	20
8.2 Qualification related to the manufacturer	20
8.3 Qualification related to the material	21
8.3.1 Parent metal	21
8.3.2 Parent metal thickness	21
8.4 Qualification related to the filler material/overlay	21
8.4.1 Filler material designation	21
8.4.2 Thickness of the overlay	21

8.5	Common to welding procedures.....	22
8.5.1	Welding process	22
8.5.2	Welding position	22
8.5.3	Type of current.....	22
8.5.4	Arc energy.....	22
8.5.5	Preheating temperature	22
8.5.6	Interpass temperature.....	22
8.5.7	Post-heating for hydrogen release.....	23
8.5.8	Post-weld heat-treatment (PWHT).....	23
8.5.9	Number of layers	23
8.6	Specific to welding processes.....	23
8.6.1	Process 111 [manual metal arc welding (metal arc welding with covered electrode)].....	23
8.6.2	Processes 12 (submerged arc welding) and 72 (electroslag overlay welding).....	23
8.6.3	Processes 13 [gas-shielded metal arc welding and 14 (gas-shielded arc welding with non-consumable tungsten electrode)].....	24
8.6.4	Process 15 (plasma arc welding).....	24
8.6.5	Process 153 (plasma transferred arc).....	24
8.6.6	Process 311 (oxy-acetylene welding).....	24
9	Welding procedure qualification record (WPQR).....	25
	Annex A (informative) Welding procedure qualification record form (WPQR)	26
	Bibliography	30