

DIN EN ISO 14555:2026-01 (E)

Welding - Arc stud welding of metallic materials (ISO 14555:2025)

Contents

	Page
Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Symbols and abbreviated terms.....	3
4.1 Symbols.....	3
4.2 Abbreviated terms.....	4
5 Technical review.....	4
6 Welding personnel.....	5
6.1 Stud-welding operators.....	5
6.2 Welding coordination.....	5
7 Equipment.....	6
7.1 Production equipment.....	6
7.2 Description of the equipment.....	6
7.3 Maintenance.....	6
8 Production planning.....	7
9 Welding procedure specification (WPS).....	7
9.1 General.....	7
9.2 Information related to the manufacturer.....	7
9.2.1 Identification of the manufacturer.....	7
9.2.2 Identification of the WPS.....	7
9.2.3 Reference to the welding procedure qualification record (WPQR) or other relevant documents.....	7
9.3 Information related to the parent material.....	7
9.3.1 Parent material type.....	7
9.3.2 Dimensions.....	7
9.4 Welding process.....	8
9.5 Joint.....	8
9.5.1 Joint design.....	8
9.5.2 Welding position.....	8
9.5.3 Preparation of parent material surface.....	8
9.5.4 Jigs and fixtures.....	8
9.5.5 Support.....	8
9.6 Studs.....	8
9.6.1 Designation.....	8
9.6.2 Handling.....	8
9.7 Auxiliary materials.....	8
9.7.1 Ceramic ferrules (if any).....	8
9.7.2 Protective gas (if any).....	8
9.8 Power source.....	9
9.9 Movable fixtures.....	9
9.9.1 Welding gun/lift mechanism.....	9
9.9.2 Shielding gas system (if used).....	9
9.9.3 Stud feeding system (if any).....	9
9.10 Welding variables.....	9

9.11	Thermal conditions	9
9.12	Post-weld heat-treatment	10
9.13	Non-thermal treatment after welding	10
10	Welding procedure qualification	10
10.1	Principles	10
10.2	Qualification by welding procedure tests	10
10.2.1	Application	10
10.2.2	Proof of conformity of parent materials and stud materials	10
10.2.3	Shape and dimensions of test pieces	10
10.2.4	Welding	11
10.2.5	Scope of examination and testing	11
10.2.6	Acceptance criteria	11
10.2.7	Re-testing	13
10.2.8	Range of qualification	13
10.2.9	Qualification by pre-production tests for stud welding on site (for through-deck stud welding)	14
10.3	Qualification based on previous experience	15
10.4	Welding procedure qualification record (WPQR)	15
11	Examination and testing	15
11.1	General	15
11.2	Visual examination	15
11.3	Bend testing	16
11.4	Tensile testing	19
11.5	Macro examination	21
11.6	Radiographic examination	21
11.7	Ring test	21
12	Acceptance criteria	22
12.1	General	22
12.2	Acceptance criteria for visual examination	22
12.3	Acceptance criteria for bend testing	22
12.4	Acceptance criteria for tensile testing	22
12.5	Acceptance criteria for macro examination	23
12.6	Acceptance criteria for radiographic examination	23
12.7	Acceptance criteria for ring tests	23
12.8	Acceptance criteria for additional tests	23
13	Workmanship	23
14	Process control	24
14.1	General	24
14.2	Production test	24
14.2.1	General	24
14.2.2	Production test for arc stud welding and use of weld pool protection	24
14.2.3	Production test for arc stud welding without weld pool protection	24
14.3	Simplified production test	25
14.4	Re-testing for production test or simplified production test	25
14.5	Production surveillance	25
14.5.1	Visual examination	25
14.5.2	Checking the welding parameters	25
14.5.3	Other examinations and tests	25
14.5.4	Production surveillance for arc stud welding with ceramic ferrule with qualification according to 10.2.9	25
14.6	Production surveillance record	26
14.7	Non-conformance and corrective actions	26
14.8	Calibration of the measuring and testing equipment	26
	Annex A (normative) Quality requirements for stud welding	27

Annex B (informative) Working range	28
Annex C (informative) Manufacturer’s welding procedure specification (WPS)	29
Annex D (informative) Test results — Production test	34
Annex E (informative) Example of production surveillance record	37
Bibliography	38