

ISO 23300-1:2021 (E)

Railway infrastructure — Rail welding — Part 1: General requirements and test methods for rail welding

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Rail welding processes
5	General process of rail welding
6	Approval/homologation of welding processes
6.1	General
6.2	Non-destructive testing (NDT)
6.3	Slow-bending test
6.4	Past-the-post fatigue test
6.5	Macro examination
6.6	Micro examination
6.7	Hardness test
6.8	Drop-hammer test (optional)
6.9	Recording of defects
6.10	Test result reports
7	Acceptance in factory/track
7.1	General
7.2	Weld inspection
7.3	Straightness inspection
7.4	Documentation
8	Requirement on contractor/welder/inspector
8.1	Contractor
8.2	Welder, operator and inspector
8.3	Audit
Annex A	(normative) Slow-bending test method for rail foot in tension
A.1	General
A.2	Bending test arrangement
A.3	Bending testing machine and load
A.4	Test results, interpretation and test report
Annex B	(normative) Slow-bending test method for rail head in tension
B.1	General
B.2	Bending test arrangement
B.3	Bending testing machine and load
B.4	Test results, interpretation and test report
Annex C	(normative) Three-point bending fatigue test
C.1	General
C.2	Fatigue test arrangement
C.3	Fatigue testing machine and load cycles

C.4	Test results, interpretation and test report
Annex D	(normative) Four-point bending fatigue test
D.1	General
D.2	Fatigue test arrangement
D.3	Fatigue testing machine and load cycles
D.4	Test results, interpretation and test report
Annex E	(normative) Macro examination
Annex F	(normative) Micro examination
Annex G	(normative) Hardness test
G.1	Measurement of hardness
G.2	Evaluation of hardness data
Annex H	(normative) Drop-hammer test
H.1	General
H.2	Drop-hammer test arrangement
H.3	Drop-hammer test machine
H.4	Test results, interpretation and test report
Annex I	(normative) Recording of defects on fracture faces
Annex J	(normative) Ultrasonic testing
J.1	General
J.2	Test personnel
J.3	Test equipment
J.4	Scanning techniques
J.5	Reference blocks
J.6	Test report
Annex K	(normative) Magnetic particle testing
K.1	General
K.2	Test personnel
K.3	Test equipment and accessories
K.4	Test method and procedure
K.4.1	Preparation
K.4.2	Test procedure
K.5	Test report
Annex L	(normative) Dye penetrant testing
L.1	General
L.2	Test personnel
L.3	Penetrant materials and accessories
L.3.1	Penetrant
L.3.2	Auxiliary equipment
L.4	Test method and procedure
L.4.1	Preparation
L.4.2	Test procedure
L.5	Test report
Annex M	(informative) Examples of acceptance criteria for straightness