

ISO 15614-11:2025-10 (E)

Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 11: Electron and laser beam welding

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Preliminary welding procedure specification (pWPS)	2
5 Welding procedure test	2
6 Test piece	2
6.1 General	2
6.2 Shape and dimensions of test pieces	3
6.2.1 General	3
6.2.2 Linear butt weld	3
6.2.3 Butt weld in pipe	4
6.2.4 Butt weld pipe to plate (set in)	4
6.2.5 Other types	5
6.3 Welding of test pieces	7
7 Examination and testing	7
7.1 Extent of testing	7
7.2 Location and cutting of test specimens	10
7.3 Non-destructive examination	14
7.3.1 Method	14
7.3.2 Acceptance criteria	14
7.4 Destructive tests	14
7.4.1 Transverse tensile testing	14
7.4.2 Bend testing	14
7.4.3 Impact testing	15
7.4.4 Hardness testing	15
7.4.5 Metallographic examination	15
7.5 Retesting	16
8 Range of qualification	16
8.1 General	16
8.2 Related to the manufacturer	16
8.3 Related to the equipment	16
8.4 Related to the jigs, fixtures and tooling	16
8.5 Related to the parent material	17
8.5.1 Material group and subgroups	17
8.5.2 Geometry of the assembly	17
8.6 Related to the filler materials	17
8.7 Related to the joint geometry	17
8.8 Related to the presence of a weld backing	17
8.9 Related to the weld type	18
8.10 Related to the welding position	18
8.11 Related to the welding parameters	18
8.11.1 Electron beam welding	18
8.11.2 Laser beam welding	18

8.12	Related to preheating.....	18
8.13	Related to post-weld heat treatment.....	18
8.14	Related to the number of passes.....	18
8.15	Duration of validity.....	18
9	Welding procedure qualification record (WPQR).....	18
Annex A	(informative) Example welding procedure qualification record (WPQR) form.....	20
Bibliography	25