

DIN EN ISO 25239-4:2020-12 (E)

Friction stir welding - Aluminium - Part 4: Specification and qualification of welding procedures (ISO 25239-4:2020)

Contents	Page
European foreword	3
Foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Development and qualification of welding procedures	7
4.1 General	7
4.2 Technical content of a pWPS	7
5 Qualification based on a welding procedure test	9
5.1 General	9
5.2 Test pieces	9
5.2.1 Shape and dimensions of test pieces	9
5.2.2 Welding of test pieces	11
5.3 Examination and testing of test pieces	11
5.3.1 Extent of testing	11
5.3.2 Visual testing and acceptance levels	12
5.3.3 Destructive tests	12
5.3.4 Re-testing	17
5.4 Range of qualification	17
5.4.1 General	17
5.4.2 Related to the fabricator	17
5.4.3 Other variables	17
5.5 Welding procedure qualification record	17
6 Qualification based on pre-production welding test	18
6.1 General	18
6.2 Test pieces	18
6.3 Examination and testing of test pieces	18
6.4 Range of qualification	18
6.5 Welding procedure qualification record	18
Annex A (informative) Example of a form for preliminary welding procedure specification (pWPS) and welding procedure specification (WPS)	19
Annex B (informative) Non-destructive testing	20
Annex C (informative) Hammer S-bend test of lap welds	21
Annex D (informative) Example welding procedure qualification record form (WPQR)	23
Bibliography	27