

ISO/ASTM 52908:2023-11 (E)

Additive manufacturing of metals - Finished part properties - Post-processing, inspection and testing of parts produced by powder bed fusion

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Abbreviations	2
5	Qualification	2
5.1	General	2
5.2	Part validation	3
5.3	Technical documentation relating to part(s) produced	3
5.4	Facility documentation	3
5.4.1	Additive manufacturer documentation requirements	3
5.4.2	Subcontractor documentation requirements	3
5.5	Quality assurance documentation	4
6	Post processing	4
6.1	General	4
6.2	Post-build activities	4
6.3	Thermal treatment	5
6.3.1	General	5
6.3.2	Reducing residual stresses	5
6.3.3	Reducing anisotropy	5
6.3.4	Prepare material for mechanical post-processing	5
6.3.5	Densification	5
6.3.6	Annealing and aging	5
6.4	Separation from the built platform and support structures	6
6.5	Surface finishing	6
6.5.1	Surface finishing operations	6
6.5.2	Machining allowances	6
7	Inspection and testing	6
7.1	General	6
7.2	Metallurgical testing	7
7.2.1	Objective	7
7.2.2	Test specimen selection, design, and preparation for part characterization	7
7.2.3	Test methods, parameters, and test specimens	8
7.2.4	Chemical analysis	9
7.2.5	Metallurgical properties	9
7.2.6	Determining the non-metallic inclusion content	9
7.2.7	Analysis and test report	9
7.3	Material testing	9
7.3.1	General	9
7.3.2	Orientation in the build space	10
7.3.3	Test specimen geometry and surface quality	10
7.3.4	Density (part)	10

7.3.5	Archimedean method	12
7.3.6	Image analysis of metallographic specimens	13
7.4	Mechanical testing	15
7.4.1	Static testing	15
7.4.2	Dynamic testing	20
7.5	Surface quality inspection	21
7.6	Geometrical inspection (form, dimension, and tolerances)	21
7.7	Non-destructive testing	21
	Bibliography	23