DIN EN ISO/ASTM 52920:2023-12 (E)

Additive manufacturing - Qualification principles - Requirements for industrial additive manufacturing processes and production sites (ISO/ASTM 52920:2023)

Contents

Page

European foreword 4

Foreword 5

Introduction 6

1 Scope 7

2 Normative references 7

3 Terms and definitions 7

4 Overview of AM related processes 8

5 Infrastructure of the part manufacturer 9
5.1 Environmental, health and safety (EHS) 9
5.2 Waste disposal 9
5.3 AM system installation 9
5.4 Ancillary equipment 10
5.5 Feedstock storage 10
5.6 IT infrastructure 10
5.7 Foreign object debris (FOD) 10
5.8 Provision of the process resources 10
5.9 Manufacturing management system 11
5.10 Maintenance/calibration system 11

6 Manufacturability assessment and review 11
6.1 General 11
6.2 Design assessment and review 11
6.3 Manufacturing assessment and review 12
6.3.1 Additive manufacturing process 12
6.3.2 Process finalization 12
6.3.3 Post processing 12

7 Qualification of the additive system operations 12
7.1 General 12
7.2 Scope of qualification 13
7.3 Validation planning 13
7.3.1 Process mapping 13
7.3.2 Risk assessment 13
7.3.3 Master validation plan 14
7.4 Qualification [installation, operation, and performance (IQ/OQ/PQ)] 14
7.5 Manufacturing plan specification 15
7.6 Documentation and tracing of the process steps 16
7.6.1 General 16
7.6.2 Manufacturing plan 16
7.6.3 IQ documents 16
7.6.4 OQ/PQ documents for the complete process 17
7.7 Relevant process steps within the additive system operations 17
7.7.1 Overview of additive system operations 17
7.7.2 Requirements for pre-process: data preparation 17

7.7.3 Requirements for feedstock management 19
7.7.4 Requirements for pre-process: system set-up 21
7.7.5 Requirements for additive manufacturing: build cycle 22
7.7.6 Requirements for AM-process: process finalization 23

8 Quality assurance 25
8.1 General 25
8.2 Personnel requirements 25
8.3 Non-conformities 26
8.3.1 General 26
8.3.2 Acceptance criteria 26
8.3.3 Handling of non-conformities 26
8.4 Continuous improvement process 27
8.5 Quality controls 27
8.5.1 General 27
8.5.2 Production run approval 28
8.5.3 Part approval 29

Annex A (informative) Requirements for Post-processing and part approval 30

Annex B (informative) Supplementary information 32

Bibliography 40