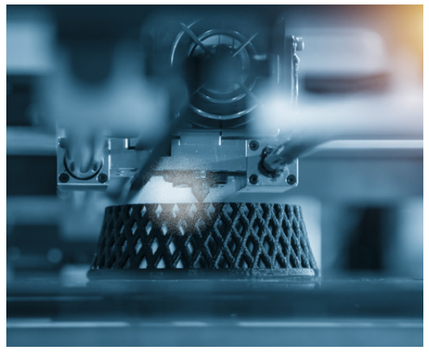
ADDITIVE MANUFACTURING STANDARDS FOR QUALIFICATION



ISO/ASTM WD TS 52930

»Additive manufacturing — Guideline for Installation, Operation and Performance Qualification (IQ/OQ/PQ) of Laser-Beam Powder Bed Fusion Equipment for Production Manufacturing«

This guideline addresses IQ, OQ, and PQ issues directly related to the AM machine and connected equipment. Physical facility, personnel, process and material issues are only included to the extent necessary to support machine qualification.

NP-BALLOT ENDED IN APRIL 2020, PUBLICATION IS EXPECTED FOR AUTUMN 2020

List of important aspects for the validation of laser beam powder bed fusion equipment for production manufacturing. No information about measuring parameters.

ISO/ASTM DIS 52941

»Additive manufacturing — System performance and reliability — Standard test method for acceptance of powder-bed fusion machines for metallic materials for aerospace application«

This document specifies requirements and test methods for the qualification and re-qualification of laser beam machines for metal powder bed fusion additive manufacturing for aerospace applications.

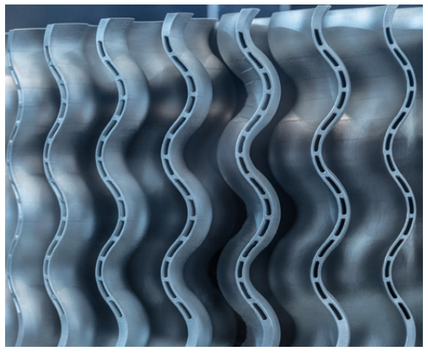
This standard can also be used to verify machine features during periodic inspections or following maintenance and repair measures.

PUBLICATION IS CURRENTLY IN FINALIZATION

Specific listing of important parameters and aspects for laser beam machines for metal powder bed fusion additive manufacturing for aerospace applications.

Furthermore, a specific description of test methods and test parameters in great detail.

The document is only intended to be applied in aerospace application



ISO/ASTM 52904:2019

»Additive Manufacturing – Process Characteristics and Performance: Practice for Metal Powder Bed Fusion Process to Meet Critical Applications«

This practice describes the operation and production control of metal powder bed fusion (PBF) machines and processes to meet critical applications such as commercial aerospace components and medical implants.

The requirements contained herein are applicable for production components and mechanical test specimens using powder bed fusion (PBF) with both laser and electron beams.

PUBLISHED IN 2019

Description of all aspects along the process chain for metal powder bed fusion (PBF) machines to meet critical applications such as commercial aerospace components and medical implants.

Not the same level of detail as ISO / ASTM DIS 52941. Document rather covers all important aspects in general.

ISO/ASTM 52902:2019

»Additive manufacturing — Test artifacts — Geometric capability assessment of additive manufacturing systems«

This document covers the general description of benchmarking test piece geometries along with quantitative and qualitative measurements to be taken on the benchmarking test piece(s) to assess the performance of additive manufacturing (AM) systems.

This performance assessment can serve the following two purposes:

→ AM system capability evaluation;
→ AM system calibration.

STANDARD IS GOING TO BE REVISED

General description of benchmarking test piece geometries along with quantitative and qualitative measurements to be taken on the benchmarking test piece(s) to assess the performance of additive manufacturing (AM) systems.

The document has a high level of detail (specification of geometries, parameters, etc.).

ISO/ASTM NP 52920-2

»Additive manufacturing — Qualification principles — Quality requirements for industrial additive manufacturing sites«

This document defines the requirements for manufacturing sites, in which additive manufacturing techniques are used (referred to below as additive manufacturing sites), which are independent of the material and manufacturing method used.

This document specifies criteria for additive manufacturing processes as well as quality-relevant characteristics and factors along the process chain and defines activities and sequences within an additive manufacturing site.

REGISTERED AS NEW PROJECT IN MARCH 2020

Document defines the requirements for manufacturing sites

MAY 2020

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