Product Definition for Additive Manufacturing

Engineering Product Definition and Related Documentation Practices
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Data Set Type

Tolerance

Area (SEA)

Bounded Surface Region to Indicate Internal and External Surfaces

Bounded Volume Region Indicator (VOL1) With a Profile of a Surface Tolerance

Bounded Volume Regions Represented by Several Bounded Volume Region Indicators in a Part

Bounded Surface Region Indicator Coupled With a Feature Control Frame

Examples of Unit Cell Geometries and Lattice Structures

VOL Local Notes That Describe Material Gradient Allocations Shown in Table 4-1

Build Direction Indicated Using the Direction Unit Vector

Multiple Build Directions

Planar Build Surface and a Nonplanar Build Surface

Coordinate Systems Are Used to Locate Parts Within a Build Volume

Four Separate Parts Nested Inside One Another on a Build Surface

Free Zone Description With an Offset Dimension

Free Zone Bounding Box Description

Layer Thickness Specification

Specification of a Track Path With Three Contours

Specification of a Track Path Using a Follow Boundary (FB) Modifier

Specification of Track Paths on Different Layers

Examples of Infill and Unit Volumes

Example Where Support Structure Location Is Not Specified

Example Where Bounded Surface Region 1 (SURF1) Is Annotated to Indicate a Structure Exclusion Area (SEA)

Example Where SURF1 Is Annotated to Indicate a Structure Limiting Area (SLA) of 20%

Example Where SURF1 Is Annotated to Indicate a Structure Required Area (SRA)

Indication of Geometry Created Inside the Part to Specify Support Structure

Example Where Bounded Surface Region 1 (SURF1) Is Annotated to Indicate a Structure Exclusion

Example Where Support Structure Location Is Not Specified

Example Where Bounded Surface Region 1 (SURF1) Is Annotated to Indicate a Structure Exclusion

Material Transition Specification Between Bounded Volume Regions With Lattice Fill

Part With Material Transition Region (Heterogeneous Material Indicator) and Specification of Tolerance

Acceptable Void Fractions for MAT1 and MAT2

Allowable Material Fractions for MAT1 and MAT2

Complex Geometries Generated From Topology Optimization

Wrench Produced as a Single Build With Three Parts

Material Gradient Values Used in Figure 4-9

Required and Optional Data Sets for AM Products

Required and Optional Elements Within the AM Design PDDS

Required and Optional Elements Within the AM Build PDDS

Required and Optional Elements Within the AM Processed PDDS

Required and Optional Elements Within the End Product PDDS

Examples of AM Use Cases Using the Codes in ASME Y14.47 to Show the Level of Content in an AM Data Set Type

Examples of Metadata for Model-Based Definition (MBD) Data

Select Reference Documents