TruPrint 5000 Preform Advanced

Technical Data

TRUMPF

Classic model

PREFORM AND MARKER PLACEMENT	
Position preform	R < 130 mm, preforms must be placed closer than 130 mm to the build plate center.
Position marker	R > 100 mm, markers must be placed outside a radius of 100 mm from the build plate center.
Number of markers	4
Marker placement	Homogeneous distribution in the outer area of the build plate.

PROCESS CONDITIONS	
Materials	Aluminum, steel
Layer thickness	60 µm
Preheating	No preheating
Laser used for contour[1]	Laser 1
AMA+[2]	Active

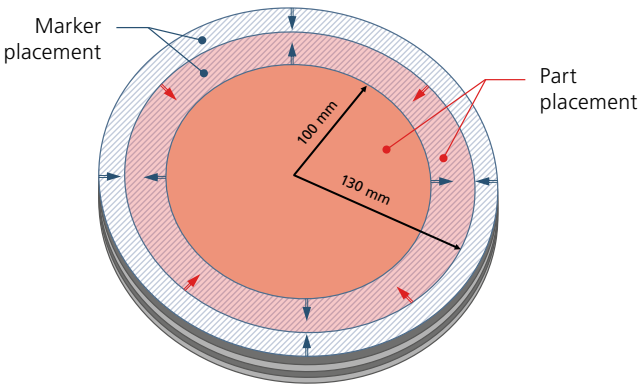
Alignment accuracy

DECENTRATION BETWEEN PREFORM AND AM PART	
Measurement condition	The decentration between additive part and preform is directly measured at their seam, e.g., 5 mm above/below the transition zone.
Center-to-center deviation[3]	< 75 µm
Statistical measure[4]	2 σ

Additional information

ALIGNMENT ACCURACY NOTES	
Multilaser	Highest alignment accuracies are obtained for build jobs, where the contour is built by laser 1. However, the system has full multilaser capability. When building part contours with other lasers, the use of AMA+ becomes necessary. This leads to a small additional error contribution.
Deviating validity conditions	Deviating process conditions lead to additional error contributions. These depend, among other things, on preheating temperature, layer thickness, material texture, etc.
Compensation of remaining errors	Parts of the remaining error can be compensated using a simple affine transformation model. However, further investigations are required before such a feature can be implemented in a product-ready manner.

BUILD PLATE INFORMATION	
Mounting of parts and markers	See figure below. Markers must be placed within the blue hatched region (R > 100 mm). The preforms can be placed on the entire build platform, whereby the specifications given here are only valid within the red colored area (R < 130 mm). In addition, the red and blue arrows indicate the regions for part and marker placement, respectively.



[1]The accuracy specifications refer to components whose contour/outer shell was produced with laser 1. Nevertheless, the part volume can still be built up in multilaser mode. [2]For highest accuracy automatic multilaser alignment is necessary. [3]Distance between centers of additive component and preform. [4]The statistical measure of 2 σ means that 95.5% of the samples have a decentration of better than 75 µm.