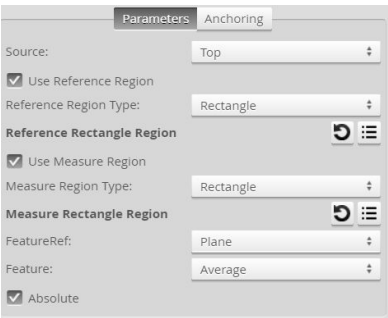


Surface Dimension Advanced Tool User Manual

1. General introduction

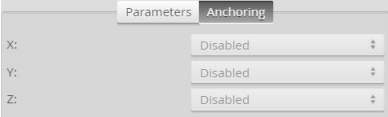
The Surface Dimension Advanced tool provides a variety of measurements related to the surface dimension, including specific dimensions and statistics.

2. Parameters

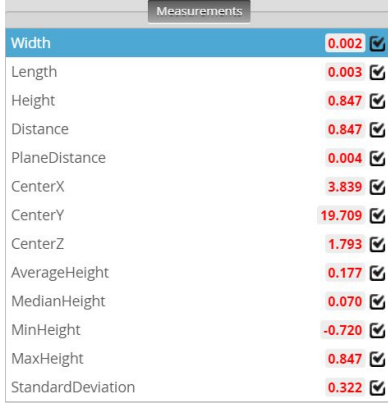
Use Reference Region	If unchecked, all valid points will be used to compute the specific feature for reference. Otherwise, only valid points in the region are involved	
Reference Region Type	Type of the reference region, select from the following, <ul style="list-style-type: none"> Rectangle Polygon Circle Ellipse Surface Surface Intensity 	
Use Measure Region	If unchecked, all valid points will be used to compute the specific feature for measure. Otherwise, only valid points in the region are involved	
Measure Region Type	Type of the measure region, select from the following, <ul style="list-style-type: none"> Rectangle Polygon Circle Ellipse Surface Surface Intensity 	
FeatureRef	Specifies the feature of the reference region used to calculate dimensions, including: <ul style="list-style-type: none"> Average Median Centroid Max X Min X Max Y Min Y Max Z Min Z 	

	<ul style="list-style-type: none"> Plane Percentile 	
Feature	<p>Specifies the feature of the measure region used to calculate dimensions, including:</p> <ul style="list-style-type: none"> Average Median Centroid Max X Min X Max Y Min Y Max Z Min Z Percentile 	
Absolute	If not checked, the measurements are signed.	

3. Anchor

X, Y, Z	Let you choose the X, Y or Z measurement of another tool to use as a positional anchor for this tool.	
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4. Measurements and Features

Width	<p>Difference along the X axis between two feature points.</p> <p>The difference can be calculated as an absolute or signed result. The difference is calculated by:</p> $Width = Feature_{X position} - FeatureRef_{X position}$	
Length	<p>Difference along the Y axis between two feature points.</p> <p>The difference can be calculated as an absolute or signed result. The difference is calculated by:</p> $Length = Feature_{Y position} - FeatureRef_{Y position}$	
Height	<p>Difference along the Z axis between two feature points.</p> <p>The difference can be expressed as an absolute or signed result. The difference is calculated by:</p>	

	$Height = Feature_{Z\ position} - FeatureRef_{Z\ position}$	
Distance	Euclidean distance between two feature points.	
PlaneDistance	Euclidean distance between two feature points on the x-y plane.	
CenterX	X coordinate of the average location of two features.	
CenterY	Y coordinate of the average location of two features.	
CenterZ	Z coordinate of the average location of two features.	
AverageHeight	Average distance of the points in measure region to the reference plane.	These measurements are valid only when FeatureRef is set to Plane and are usually used to calculate step height.
MedianHeight	Median distance of the points in measure region to the reference plane.	
MinHeight	Min distance of the points in measure region to the reference plane.	
MaxHeight	Max distance of the points in measure region to the reference plane.	
StandardDeviation	The standard deviation of distances from all points of measure region to the reference plane.	

5. Application Example