

# Fixture Intake Data



## Please Complete Customer Information

Customer Name	
Contact Name	
Telephone Number	
Email Address	
Part Number(s)	
Purchase Order Number	
Date Submitted	

## Camtek OPTISOLUTIONS Use Only

Job Number	
Date Started	
Date Completed	
Completed By	
Total Part Design Hours (if no models supplied)	
Total Fixture Design Hours	

## Outline:

This document provides a mechanism to list all the necessary dimensional and tolerance inputs required to generate a Nucleo™-style grid fixture.

## Contact:

Return this document with any pertinent PDF's and CAD models to: [sales@camtek-software.com](mailto:sales@camtek-software.com)

For any questions, please call us at: (678) 625-0053.



# Instructions:

Intake Data fields follow on page 3. Please complete or replace the green fields as pertinent.

**For more information on the necessary inputs**, please consult the **Reference Document** “*OPTICAM Nucleo Fixture – Critical Dimension and Tolerance Matters.pdf*” – available for download under the Support section:

<https://fixturetechnologies.com/support>

Unless Innovative Design is to model up parts from prints, please provide 3D solid CAD data in one or more of the following formats:

- Parasolid (X\_T Text or X\_B Binary) – Preferred.
- STEP
- 3D IGES
- SolidWorks (include all parts **and** assembly files)
- SolidEdge
- Inventor
- ACIS
- Catia
- NX/UG
- Pro-E

## Intake Data:

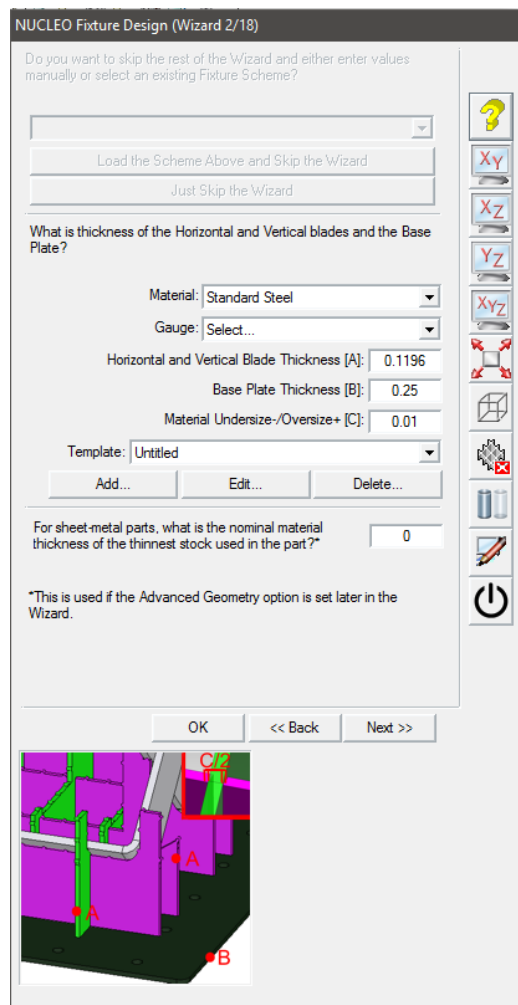
All values assumed inch unless otherwise suffixed by **mm**.

Letters in parentheses (under the “**Ref**” column) point to the parameter on the relevant Nucleo Wizard page as outlined in the **Reference Document**.

The schematics shown in the **Reference Document** for each important Nucleo Wizard Dialog page will also assist in clarifying the parameter, as shown in the example to the right; note the reference letter in each input label (for example **Base Plate Thickness [B]**) and the matching letter in the schematic beneath.

This matched the second input in the table on the next page, **2 (B)**.

We recommend that once the values are established for a variety of fixture needs, that this document is saved as a template for easier and quicker completion in the future for similar part fixtures.



## Pre-requisites

Ref	item	Value	Note
1	Part Solid Models Included?		If included, <b>check the box</b> . If none, please provide prints.
2	Weld Detail Included?		Please provide a weld detail document, if so – please <b>check the box</b> . If none, we will need to consult via an internet meeting regarding the weld requirements.
3	Tacking Fixture design?		If the fixture is designated to be a tacking fixture, <b>check the box</b> . Based on the provided weld-detail document, the fixture will be designed to the necessary constraints.
4	Manual or Robotic welding?		If the fixture is designated to be a used in a robot cell, state <b>check the box</b> .
5	Maximum size of the table/trunnion		Please state the dimensions of the working zone for welding.
6	Maximum Table/Rotary payload		Please enter the maximum payload in pounds or kilograms for the table or trunnion designated for workpiece holding.
7	Maximum XYZ reach of Robotic Cell		Please specify the limits of the robot (if pertinent).

<p><b>8</b> Rotary Inversion/Indexing?</p>		<p>If the part is to mounted on a head/tailstock for inversion/indexing/rotation, please <b>check the box</b>. If so, please provide details of the rotary axis support frame in a separate document – we need this to determine the geometry of the base plate.</p>
<p><b>9</b> Clamps required?</p>		<p>If clamps are requested, <b>check the box</b>. Enter the name of the preferred clamp manufacturer, for instance, Carr Lane or De-Sta-Co., in the field below (<b>10</b>). We will endeavor to use clamps where agreed from these companies. Provide part numbers etc. if available.</p>
<p><b>10</b> Clamps Vendor/Part Numbers</p>		

## Fixture Data

Ref	item	Value	Note
<b>1 (A)</b>	Material thickness - Fixture Blades		The nominal dimension of the sheet metal being used to cut the fixture blades from. If none supplied, 11 gauge (0.1196") assumed.
<b>2 (B)</b>	Material Thickness – Fixture Base Plate		The nominal dimension of the sheet metal being used to cut the fixture base-plate from. If none supplied, 11 gauge (0.1196") assumed.
<b>3 (C)</b>	Material Undersize/Oversize		The value to apply to the interlock slots between the blade – where they inset and lock. This is a value across the dimension, so 0.010" would mean 0.005" per side. If the value of reference <b>A</b> is very accurate, it may not be needed. If none supplied, 0.004" assumed.
<b>4 (A)</b>	Tab Foot Width		The XY dimension of the tab feet that mate to the base plate from the blades. This is generally set by the Fixture Designer, based on the extents of the part. If a set size is needed, enter it.
<b>5 (B)</b>	Tab Foot Depth		The Z dimension of the tab feet depth. This can be a value equal to or close to the base plate thickness (providing a simple rectangular tab), <b>or</b> – if a lock mechanism is desired, a value bigger (to provide additional Z material to create an interlock slot on the tab foot). If none supplied, 0.25" assumed.
<b>6 (E)</b>	Tab Clip Height		The Z dimension of the tab foot clip height (if needed) for the locating mechanism. If the value of reference <b>2</b> is set to the base plate thickness or thereabouts, it is assumed no clip is required and this value will be zero. If a clip is desired, this value is nominally set to the base plate thickness – the value of reference <b>2</b> . If none supplied, base plate thickness assumed.
<b>7 (D)</b>	Tab Clip Width		The XY dimension of the tab foot clip width (if needed) for the locating mechanism. This will be a value less than the overall width of the tab foot (25% - 50%). If value or reference <b>2</b> is set to the base plate thickness or thereabouts, it is assumed no clip is required and this value will be zero. If none supplied. 0.5" assumed

<b>8 (F)</b>	Tab Foot Snap-tooth Height		The Z dimension of an option snap tooth that interlocks into a mating hole in the base plate to provide further rigidity for non-spot-welded fixtures. Typically, a very small number (e.g. 0.002") or zero to inhibit creation. If none supplied, 0 assumed.
<b>9 (G)</b>	Tab Foot Snap-tooth Width		The XY dimension of the snap tooth. This is typically 50% or less of value <b>7</b> . If the value of reference <b>8</b> is zero, this value is ignored. If none supplied, 0.1" assumed.
<b>10 (A)</b>	Corner Relief – Base Plate Tab Foot -Location holes		The dimension of the corner relief features in the base plate holes that marry to the blade tab feet. Enter zero to inhibit corner relief – this assumes there is enough over-all clearance otherwise. If none supplied, 0.02" assumed.
<b>11 (B)</b>	Corner Relief – Base Plate Tab Foot		The dimension of the corner relief features in the blade tab feet. Enter zero to inhibit corner relief – this assumes there is enough over-all clearance otherwise. If none supplied, 0.025" assumed.
<b>12 (X)</b>	Tab Feet Base Plate holes – X direction slot clearance (oversize)		The dimension of the X direction oversize in the tab feet slots. The value is across the dimension, so 0.010" will result in 0.005" per side. If none supplied, 0.005" assumed.
<b>13 (Y)</b>	Tab Feet Base Plate holes – Y direction slot clearance (oversize)		The dimension of the Y direction oversize in the tab feet slots. The value is across the dimension, so 0.010" will result in 0.005" per side. If none supplied, 0.005" assumed.
<b>14 (A)</b>	Blade Profile – Gripper Points Offset		The distance between blade gripper points, if desire. If zero, no grippers are assumed. If none supplied, 0 assumed.
<b>15 (B)</b>	Blade Profile – Gripper Points Distance		The offset distance between each gripper point along the blade edge – assumed only if the value of reference <b>14</b> is completed. If none supplied, 1" assumed.

16	Blade Profile – Grippers plus additional offset?		If required, <b>check the box</b> . Include an additional offset between the gripper profile contact point and the part surface, and enter the offset in the value for reference <b>17</b> below. Assumes only if the value of reference <b>14</b> is completed. Default is <b>unchecked</b> .
17 (C)	Blade Profile – Offset		The additional over or undersize to apply to the blade profile. Typically, this is a value of 0.005-0.020”, depending on the tolerance required. If none supplied, 0.01” assumed.
18 (C)	Base Plate – Bolt Hole Size		The dimension of the bolt holes in the base plate. Enter zero to inhibit creation. If none supplied, 0.51” assumed.
19 (A)	Base Plate – Bolt Hole X Pitch		The dimension of the bolt hole pitch in X. If none supplied, 3” assumed.
20 (B)	Base Plate – Bolt Hole Y Pitch		The dimension of the bolt hole pitch in Y. If none supplied, 3” assumed.
21	Base Plate – Bolt Hole Pattern		If bolt holes are required, enter <b>Across</b> to place them over the entire base plate, <b>Edges</b> to place them on the periphery only, or <b>Corners</b> to place them only on the corners. For user-defined positions, please include a document with the necessary XY locations or paste in the field below ( <b>22</b> ). If none supplied, <b>Edges</b> assumed.
22	Base Plate – Bolt Hole User Positions		

## CAD Exports

Ref	item	Value	Note
1	DXF Scale		Enter a scale value to apply to exported DXF's if desired. Example: if the receiving software for DXF's has inch/metric issues, set the scale to 1:25.4. If none supplied, <b>1:1</b> assumed.
2	IGES 2D data also?		If you would like an IGES version of the exported 2D blade/base plate pattern, <b>check the box</b> .
3	DXF Cutting Layer Name		Enter a layer name for the blade/base plate cutting periphery. If none supplied <b>Geometry</b> assumed.
4	DXF Cut-through/Etch Font Layer Name		Enter a layer name for the annotation created on the blades/base plate. If none supplied, <b>EtchCut</b> assumed.
5	DXF Cutting Layer Color		Enter a layer color for the blade/base plate cutting periphery. If none supplied, <b>Black</b> assumed.
6	DXF Cut-through/Etch Font Layer Color		Enter a layer color for the annotation created on the blades/base plate. If none supplied, <b>Red</b> assumed.