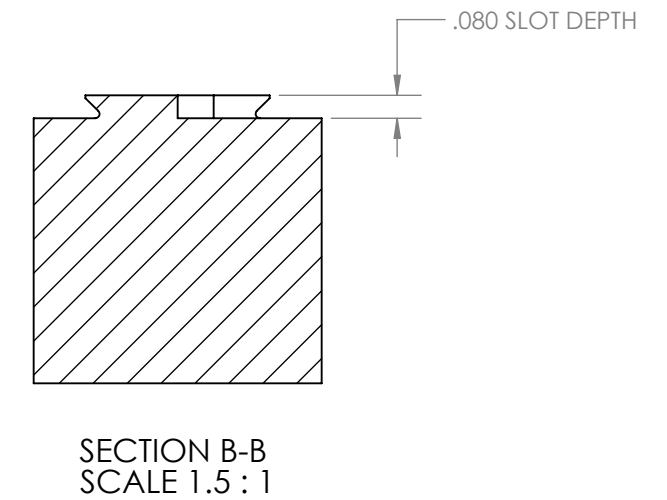
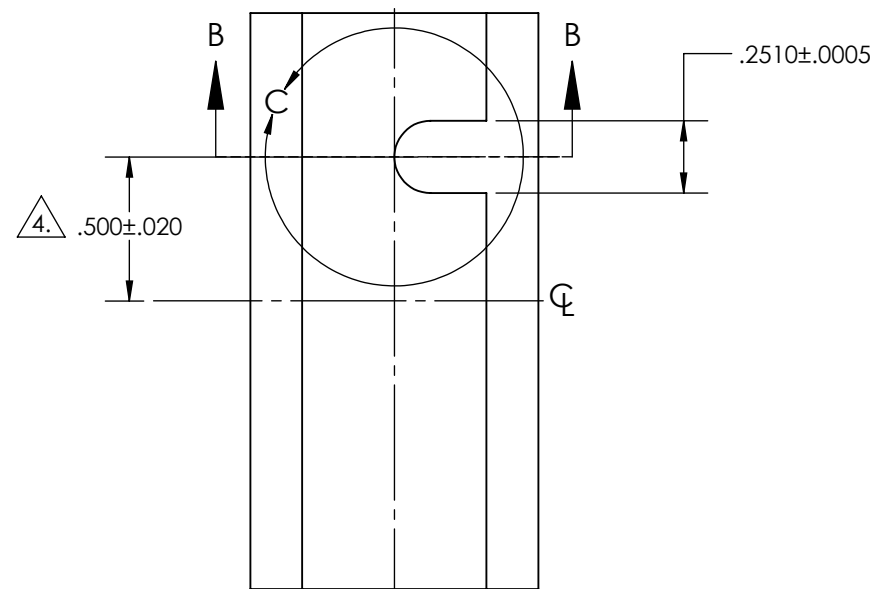
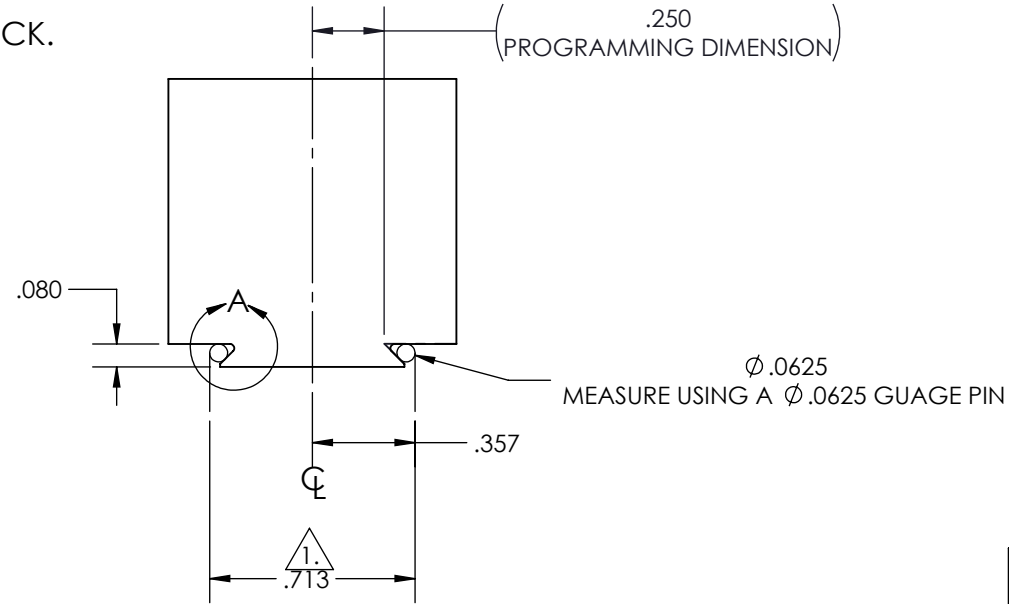
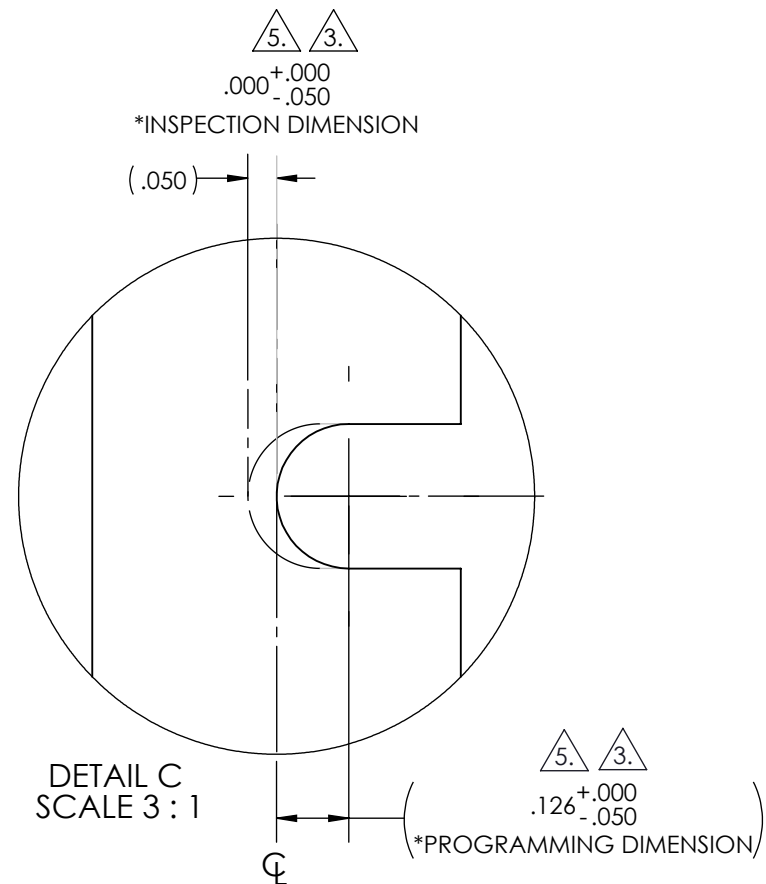
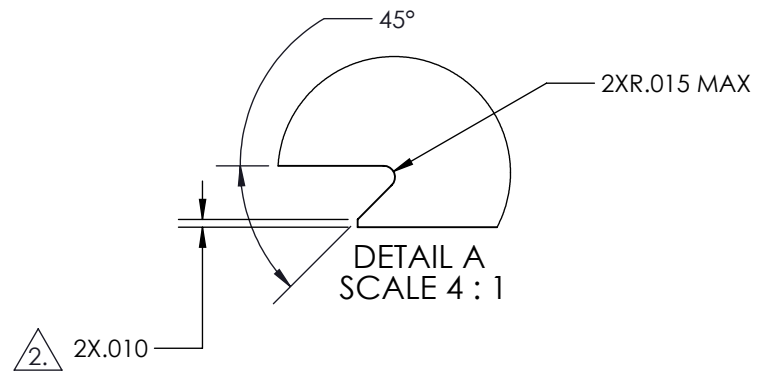


# NOTES:

1. DOVETAIL WIDTH WILL NOT CHANGE WITH VARYING DOVETAIL DEPTH.
2. MACHINE EDGE BREAK ON DOVETAIL POINT.
3. SLOT DIMENSION TO THE CENTERLINE IS **CRITICAL**, IF DIMENSION IS TOO LARGE, STOCK MAY REST AGAINST LOCATING PIN INSTEAD OF DOVETAIL CUT SURFACES.
4. IF STOCK IS OVERSIZE, THIS TOLERANCE INCREASES BY HALF OF THE EXTRA STOCK.
5. PIN SLOT RADIUS SHOULD BE TANGENT TO CENTERLINE OR PAST CENTERLINE.

# D115 DOVETAIL STOCK PREPARATION



TOLERANCES	
METRIC	INCH
X ± 1.0	X ± 0.1
.X ± 0.3	.X ± 0.05
.XX ± 0.13	.XX ± 0.01
	.XXX ± 0.005
UNLESS OTHERWISE NOTED	
ANGULAR DIMENSIONS ± 0.5°	

**INCH**  
**PROPRIETARY AND CONFIDENTIAL**  
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APPROVALS  
DRAWN BY: C BANKS 5/3/2018  
MFG. ENG.  
QA ENG.  
ENG. MGR.  
MATERIAL:  
FINISH:  
WEIGHT:  
THIRD ANGLE PROJECTION

**5<sup>th</sup>AXIS<sup>®</sup>**  
7140 ENGINEER ROAD, SAN DIEGO, CA 92111  
PH (858) 505-0432 FX (858) 505-0432

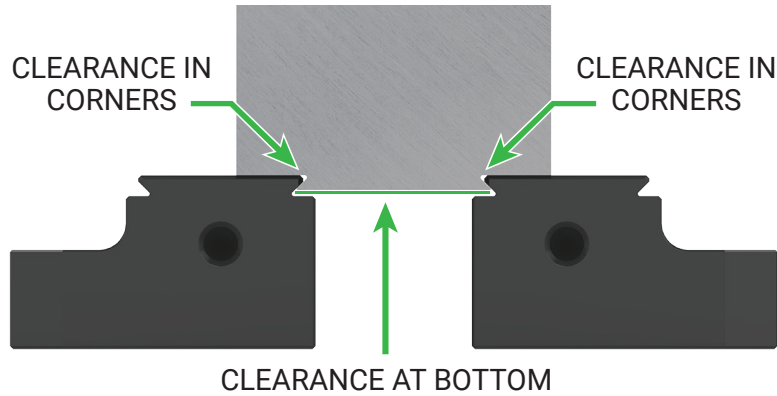
CUSTOMER: \_\_\_\_\_  
DESCRIPTION: **D115 DOVETAIL STOCK PREP**

SIZE: **B** PART NO.: **DSP-D115** REV: **A**  
DO NOT SCALE DRAWING SCALE 1:1 SHEET 1 OF 1



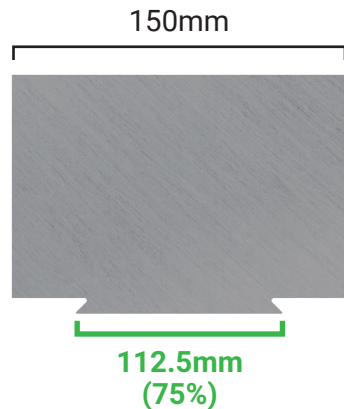
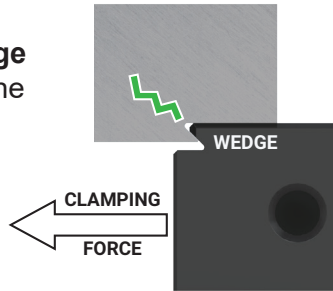
# PROPER DOVETAIL

**MATERIAL SHOULD REST ON TOP OF THE JAW / FIXTURE AND ON THE 45° FACE.**

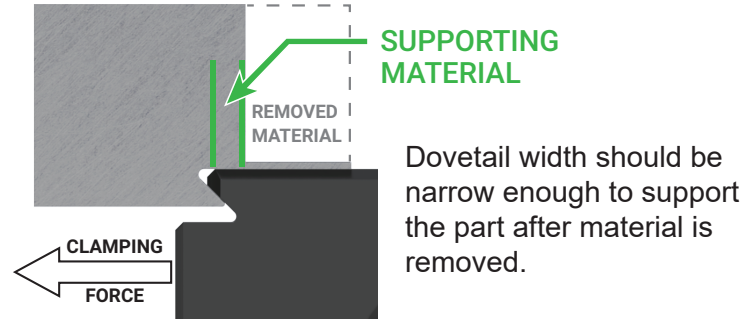


When a **proper** dovetail is used, jaw/dovetail fixture **acts as a wedge** attempting to split the material in the corner.

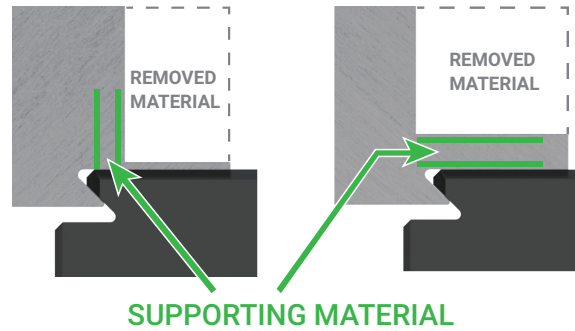
Material is clamped only once or twice and is therefore resistant to fracturing.



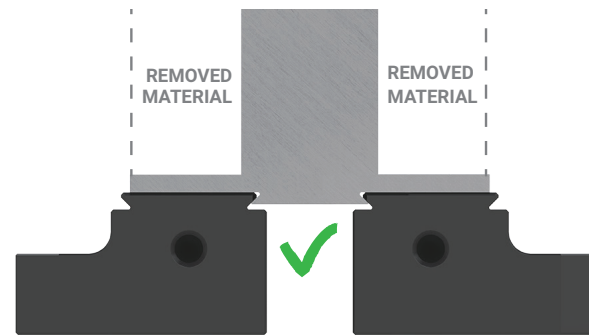
Dovetail width should not be **less than 75%** of the width of the stock.



THERE IS NO SIMPLE ANSWER TO HOW MUCH SUPPORT IS NEEDED.



If more support is needed, **decrease dovetail width** or **increase tab thickness**.



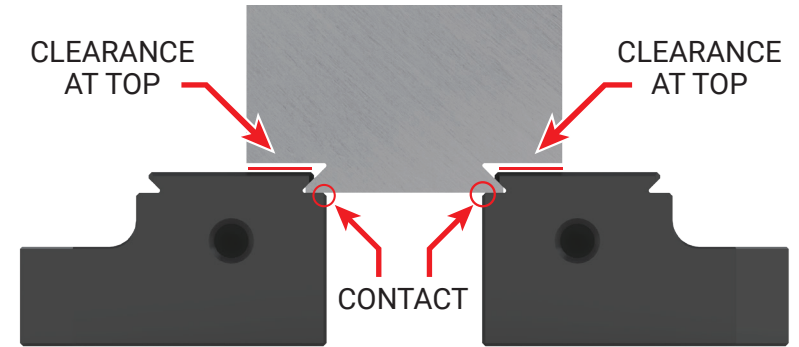
For narrow parts, position the dovetail as close as possible to the **finished part's** center of mass.



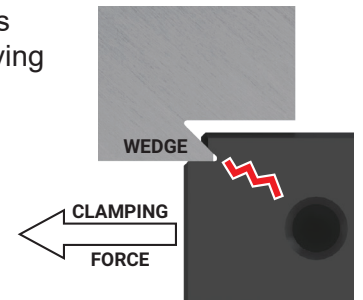
# COMMON MISTAKES

## 1. DOVETAIL TOO DEEP

Clamping with a dovetail should **never** cause the material to locate on the bottom step of the jaw.



Locating on bottom step causes material to become a wedge trying to split the jaw. **This can break the jaw!**

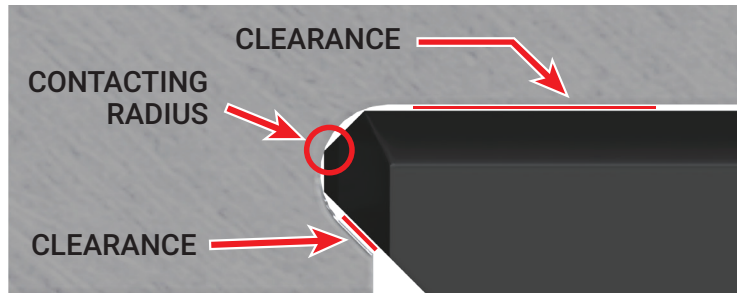


## 2. FINISHED PART UNSUPPORTED



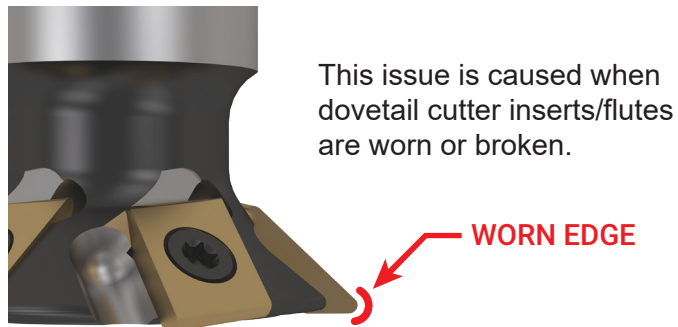
A thin tab and/or insufficient material on the top locating surface will allow the part to move during machining.

**✘ 3. OVERSIZED CORNER RADIUS**



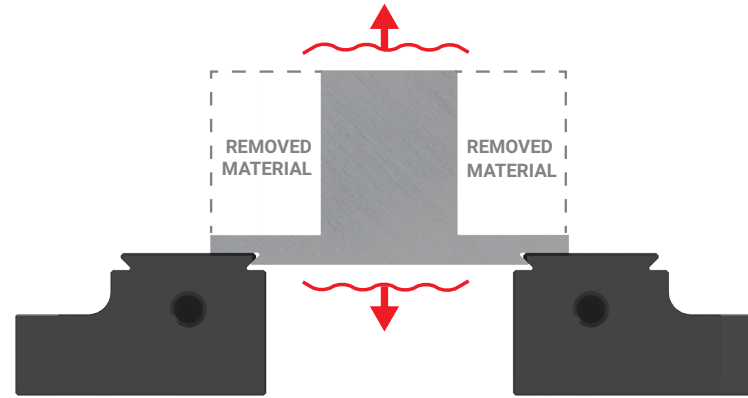
An overly wide inside corner radius allows material to contact the corner of the jaw, preventing it from locating correctly.

**This will create excessive vibration during machining.**



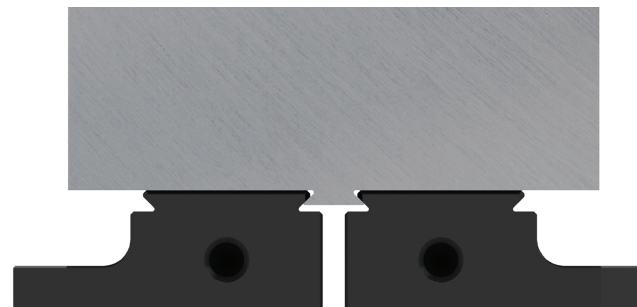
This issue is caused when dovetail cutter inserts/flutes are worn or broken.

**✘ 4. EXCESSIVELY WIDE DOVETAIL**



Even though this part has tabs thick enough to prevent breaking, the dovetail is not positioned correctly under the part. This may result in excessive vertical vibration.

**✘ 5. EXCESSIVELY NARROW DOVETAIL**



Excessively narrow dovetail will concentrate support at the center of the stock and potentially cause chatter.

Keep in mind how and where force is applied to stock during machining.



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# DOVETAIL TROUBLESHOOTING GUIDE

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The information in this document is applicable to **ALL** 5th Axis™ products with a dovetail feature.