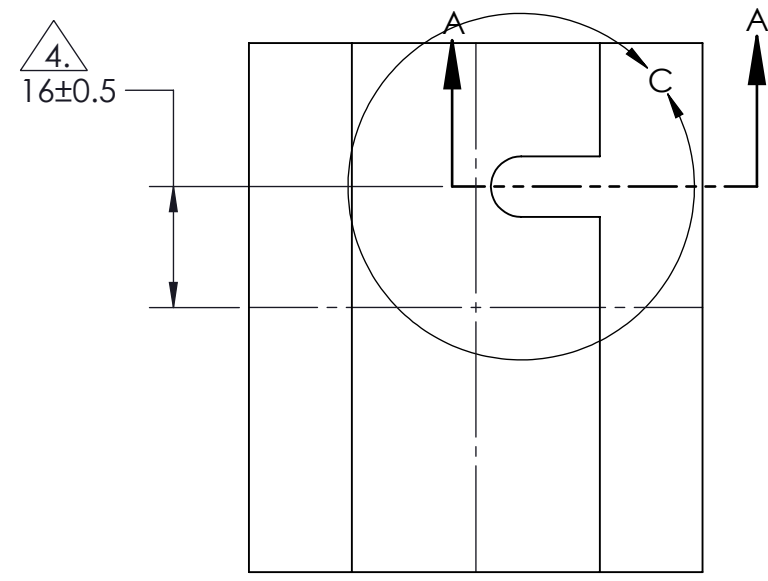
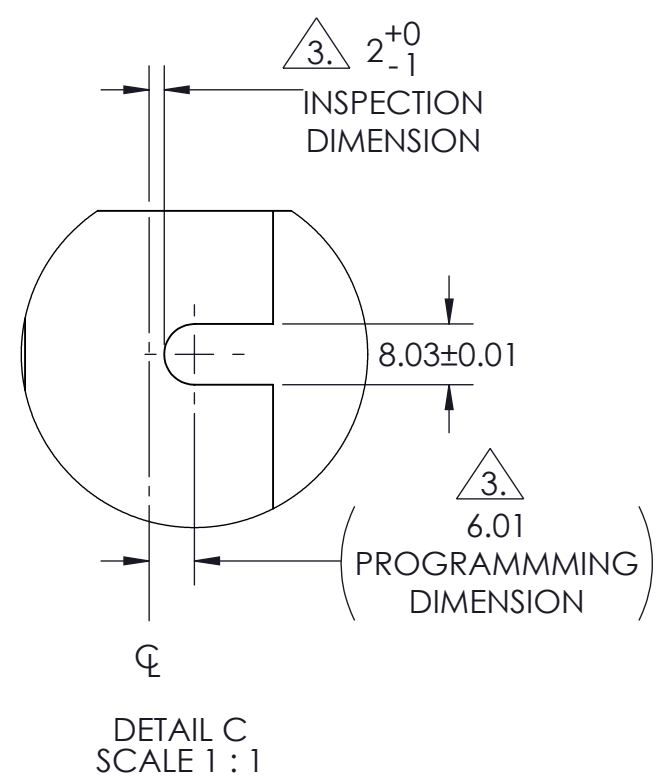
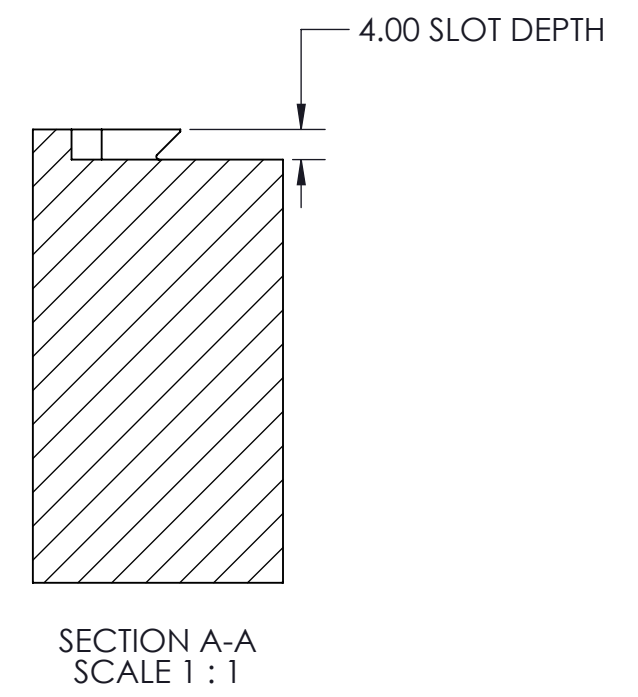
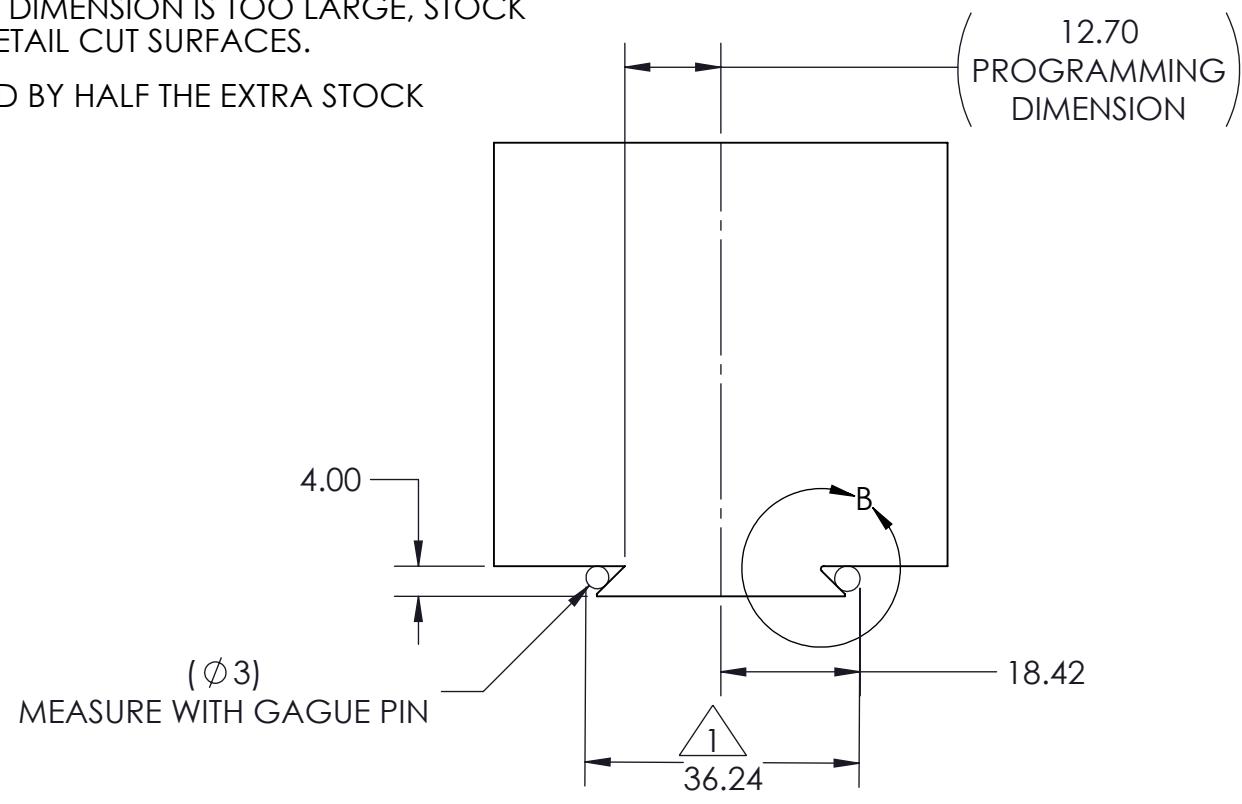
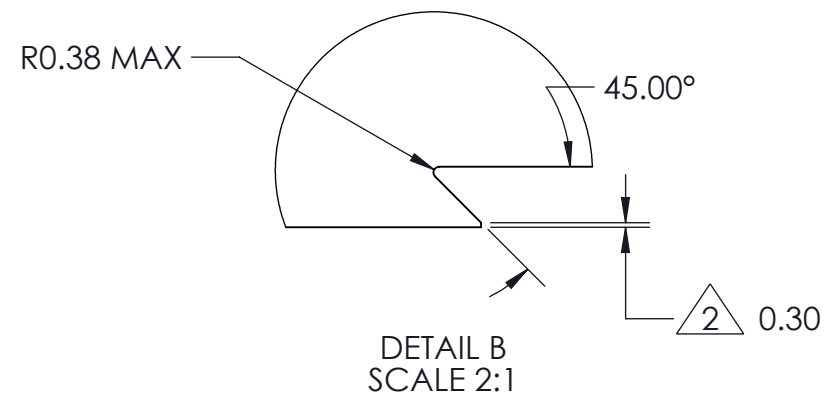


# DM50 DOVETAIL STOCK PREPARATION

## 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 OVERSIZED, THE TOLERANCE IS INCREASED BY HALF THE EXTRA STOCK

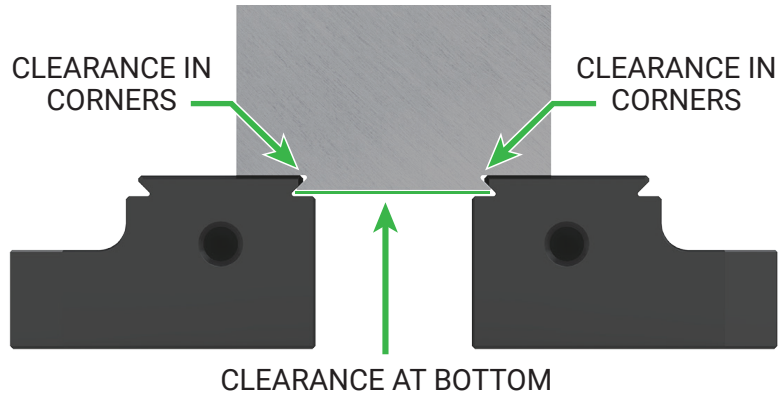


<b>MILLIMETER</b> <small>DRAWN IN ACCORDANCE WITH ASME Y14.5-2009</small> <b>PROPRIETARY AND CONFIDENTIAL</b> <small>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIFTH AXIS, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIFTH AXIS, INC. IS PROHIBITED.</small>	<b>TOLERANCES</b> <small>UNLESS OTHERWISE SPECIFIED</small> X ± 1.0 .X ± 0.3 ANGLULAR ± 0.5° .XX ± 0.13		WWW.FIFTHAXIS.COM 7140 ENGINEER ROAD SAN DIEGO, CA 92111 P (858) 505-0432 F (858) 505-9344
	<small>THIRD ANGLE PROJECTION</small> 		DESCRIPTION <b>DM50 DOVETAIL STOCK PREP</b>
SIZE <b>B</b>	PART NO. DSP-DM50	WEIGHT:	SHEET 1 OF 1



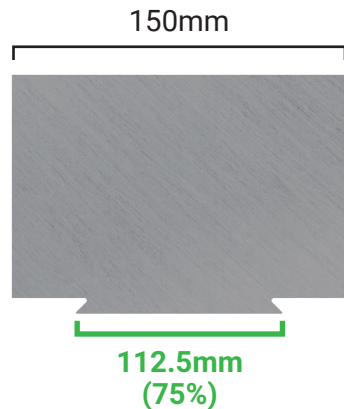
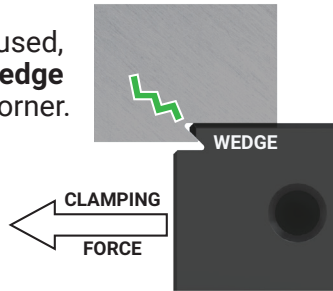
# PROPER DOVETAIL

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



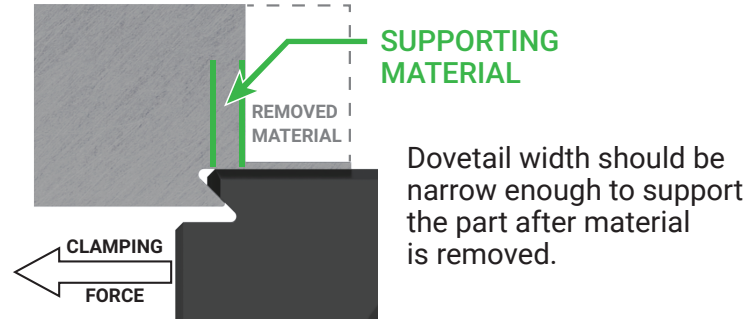
When a **proper** dovetail is used, jaw/dovetail fixture **acts as a wedge** trying to split the material in the corner.

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



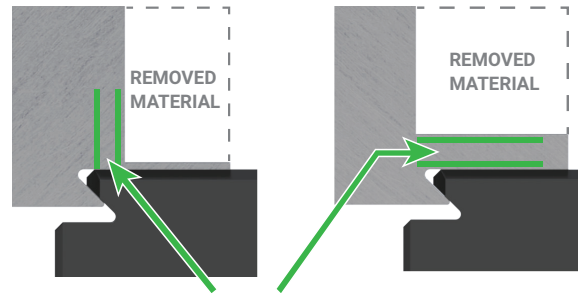
We recommend dovetail width should not be **less than** 75% of the width of the stock.

This is a **general ratio, not a rule.** If in doubt, stick to 75%.



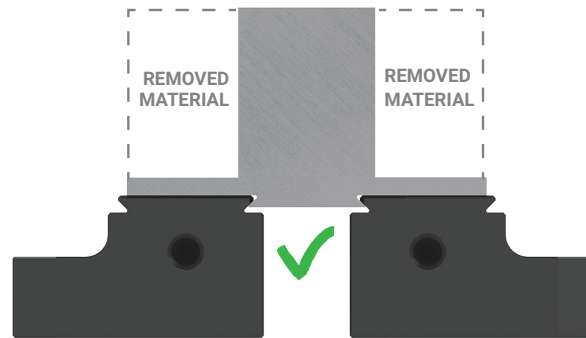
Dovetail width should be narrow enough to support the part after material is removed.

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



**SUPPORTING MATERIAL**

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



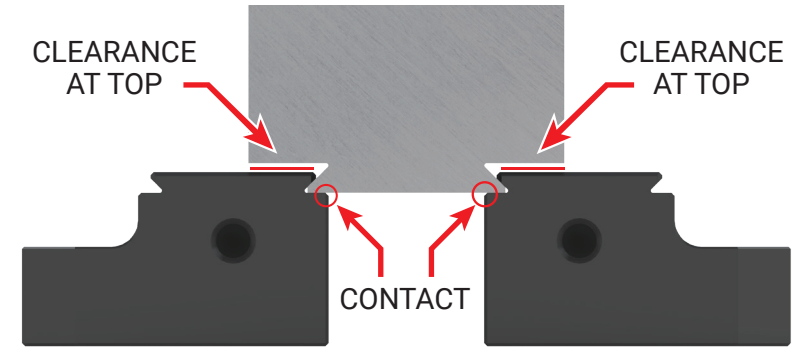
For narrow parts, position the dovetail as close as possible to the **finished part's** center of mass.



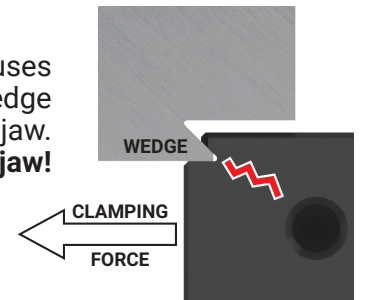
# COMMON MISTAKES

## 1. DOVETAIL TOO DEEP

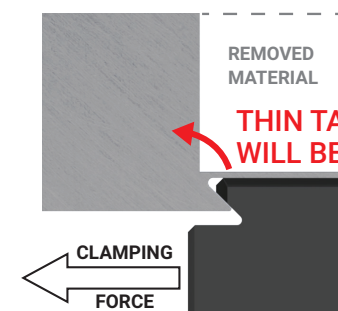
Clamping with a dovetail should **never** cause the material to locate on the bottom step of the jaw.



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

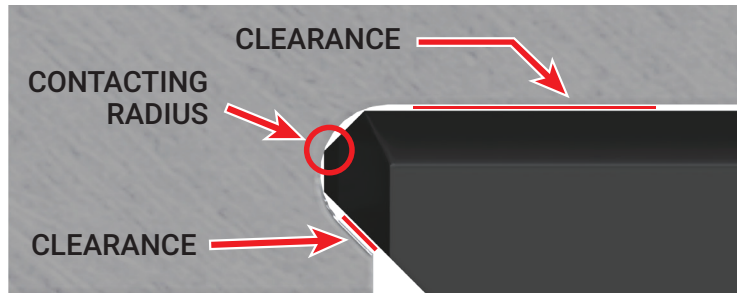


## 2. FINISHED PART UNSUPPORTED



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

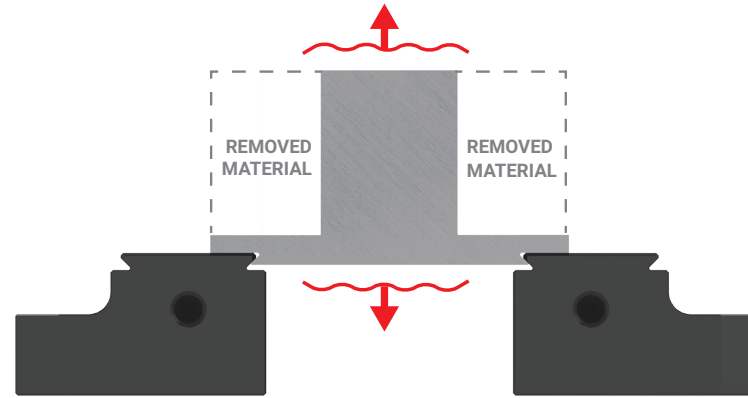
**✘ 3. OVERSIZED CORNER RADIUS**



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

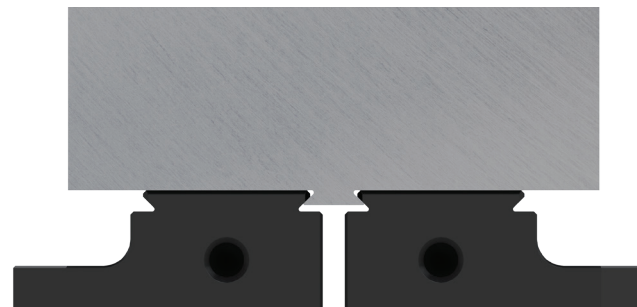
**This will call excessive vibration during machining.**

**✘ 4. EXCESSIVELY WIDE DOVETAIL**



Even though this part has tabs thick enough to prevent breaking, the dovetail is not properly positioned 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.

Both vises AND dovetail fixtures should follow these rules.