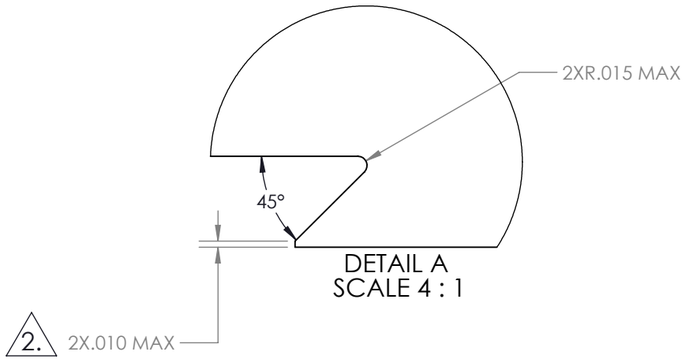
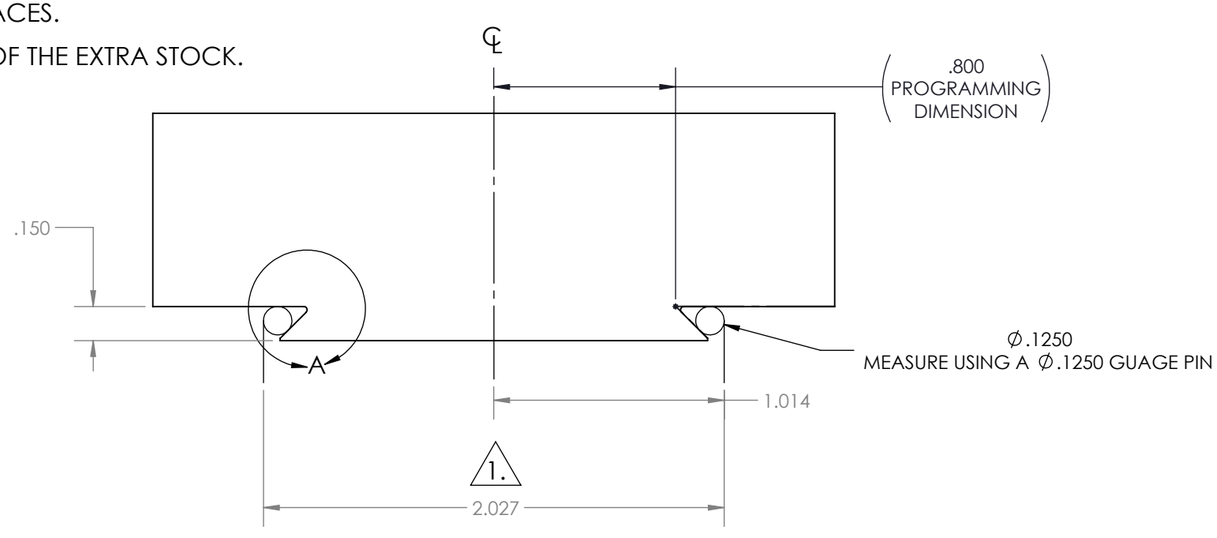
# NOTES:

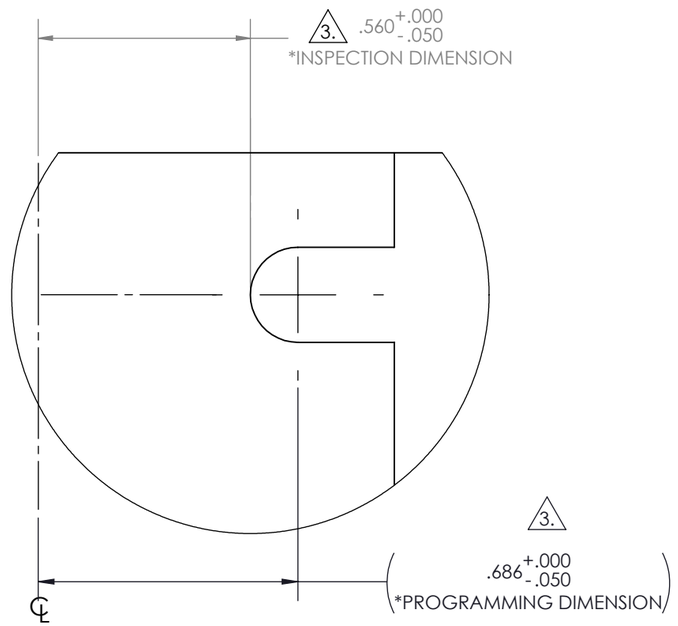
1. DOVETAIL WIDTH  WILL NOT WILL NOT CHANGE WITH VARYING DOVETAIL DEPTH.
2. USE .010" EDGE BREAK ON DOVETAIL POINT.
3. SLOT DIMENSION TO THE CENTERLINE IS **CRITICAL**, IF DIMENSION IS TOO LARGE, STOCK MAY REST AGAINST LOCATING PIN INSTEAD OF DOVETAIL CUT SURFACES.
4. IF STOCK IS OVERSIZE, THIS TOLERANCE INCREASES BY HALF OF THE EXTRA STOCK.

# D362 DOVETAIL STOCK PREPARATION

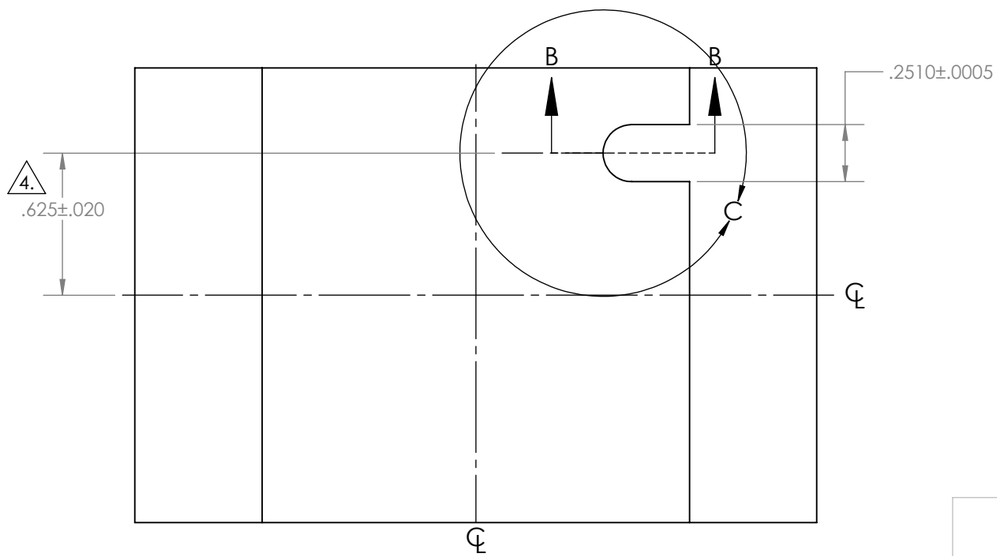


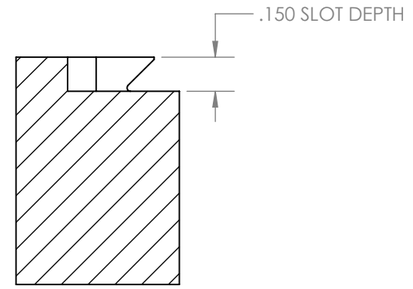

DETAIL A
SCALE 4 : 1




DETAIL C




SECTION B-B
SCALE 1.5 : 1

| TOLERANCES | | INCH | APPROVALS | |
|---|---|---|---|---|
| METRIC | INCH | | DRAWN BY | C BANKS 2/1/2018 |
| X ± 1.0 | X ± 0.1 | **PROPRIETARY AND CONFIDENTIAL** | MFG. ENG. | |
| .X ± 0.3 | .X ± 0.05 | 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. | QA ENG. | |
| .XX ± 0.13 | .XX ± 0.01 | | ENG. MGR. | |
| | .XXX ± 0.005 | | MATERIAL: (2) | THIRD ANGLE PROJECTION |
| UNLESS OTHERWISE NOTED | | | FINISH: (3) | |
| ANGULAR DIMENSIONS ± 0.5° | | | WEIGHT: | |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CUSTOMER

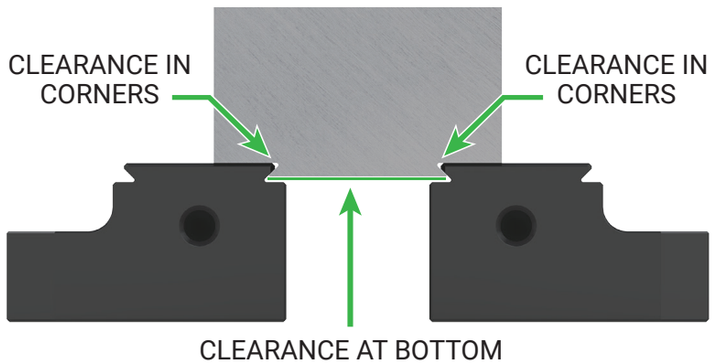
DESCRIPTION: D362 DOVETAIL STOCK PREP

| SIZE | PART NO. | REV |
|---|---|---|
| B | DSP-D362 | A |

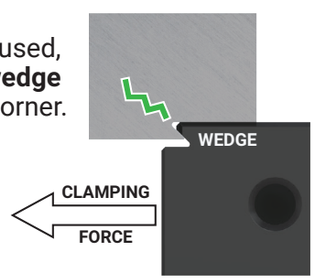
DO NOT SCALE DRAWING | SCALE 1:1 | SHEET 1 OF 1

# PROPER DOVETAIL

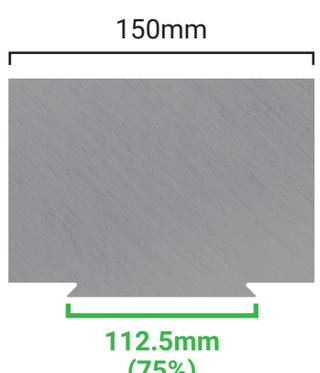
**MATERIAL SHOULD REST ON TOP OF THE JAW / FIXTURE AND ON THE 45° FACE.**




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



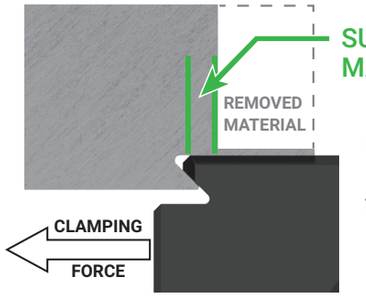

Material is clamped only once or twice and is therefore resistant to fracturing.




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

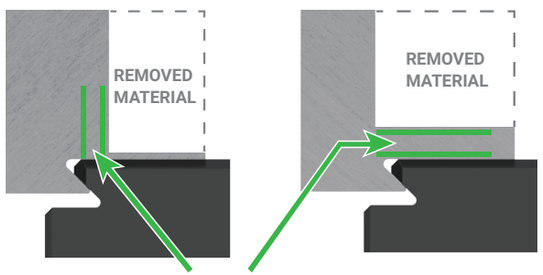
This is a **general ratio, not a rule**. If in doubt, stick to 75%.



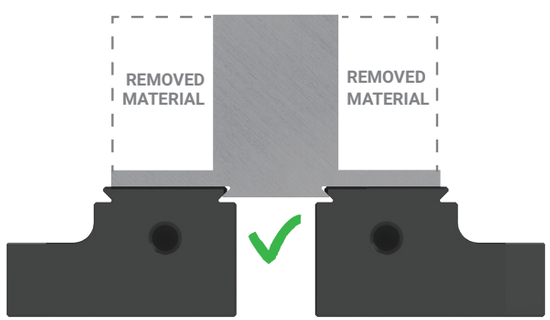



Dovetail width should be narrow enough to support the part after material is removed.

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




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



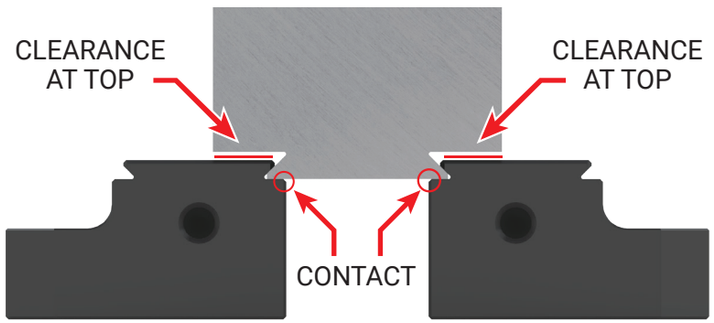

For narrow parts, position the dovetail as close as possible to the **finished part's** center of mass.



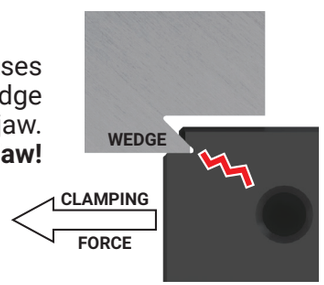
# COMMON MISTAKES

## 1. DOVETAIL TOO DEEP

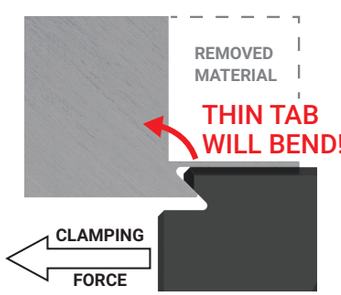
Clamping with a dovetail should **never** cause the material to locate on the bottom step of the jaw.




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

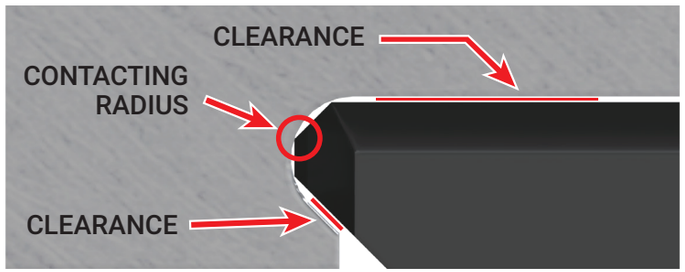



## 2. FINISHED PART UNSUPPORTED




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

## ✘ 3. OVERSIZED CORNER RADIUS



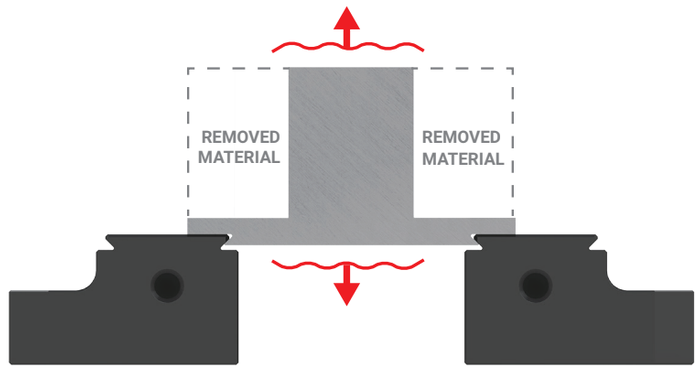

An overly wide inside corner radius allows material to contact the corner of the jaw, preventing it from locating correctly.

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


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

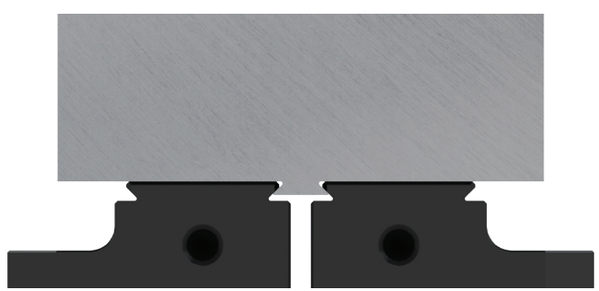


## ✘ 4. EXCESSIVELY WIDE DOVETAIL




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



5th AXIS®

# DOVETAIL TROUBLESHOOTING GUIDE

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.