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%.

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

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.
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.

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.