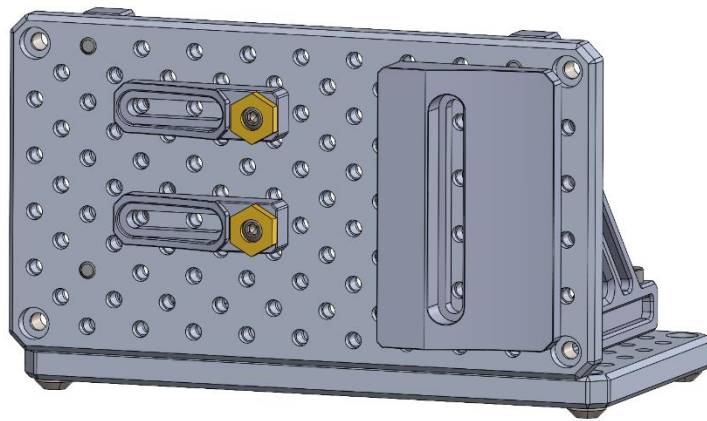


# DEVELOP<sup>®</sup> LLC

## VFS Fixturing

### User Manual



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# VFS FIXTURING Overview

The Fixture-On-Demand ecosystem is a modular and configurable collection of fixturing components. The system is designed to reduce the cost and complexity of creating fixtures for single-piece and short-run machining. Within the VFS FIXTURING system there are three categories of product, Bases, Modifiers, and Clamps. Bases provide intermediate fastening and locating features for Modifiers and Clamps. Modifiers allow us to create additional configurations using the Bases, such as Angle Brackets or vise-like systems. Clamps are any elements that act to hold the workpiece such as Slide Clamps or Slide Rails.

## Standard Packages

**The Good** - Work holding for small and oddly shaped parts

Ships with:

- Qty 2 VFS 2x1 Base Plates
- Qty 4 VFS M6 Slide Clamps
- Qty 4 Brass Hexagonal Fixture Clamps
- Qty 8 M6x16 Socket Cap Head Screws
- Qty 8 M6x25 Socket Button Head Screws

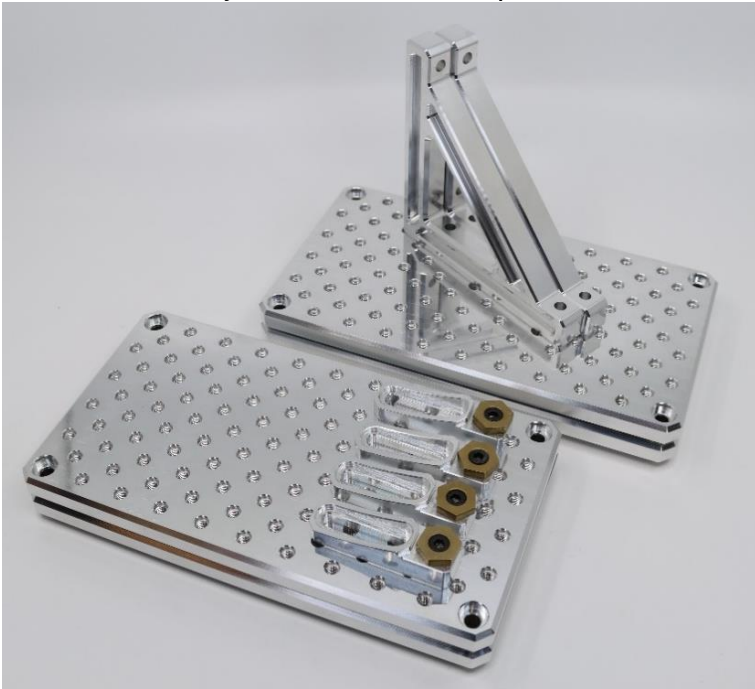


*(Products may differ in appearance from image. Fasteners not shown.)*

**The Better** - Modular angle plates for small edge work

Ships with:

- Qty 4 VFS 2x1 Base Plates
- Qty 2 VFS 90° Angle Brackets
- Qty 4 VFS M6 Slide Clamps
- Qty 4 Brass Hexagonal Fixture Clamps
- Qty 8 M6x30 Shoulder Screws with 20mm Shoulder
- Qty 16 M6x25 Socket Button Head Screws
- Qty 8 M6x16 Socket Cap Head Screws

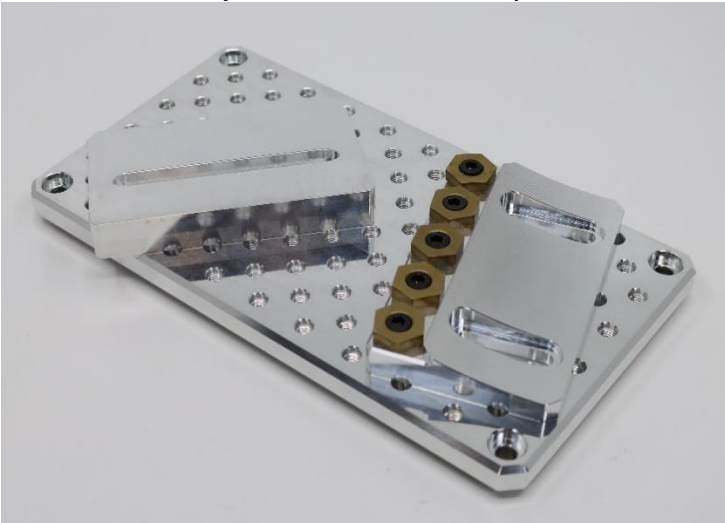


*(Products may differ in appearance from image. Fasteners not shown.)*

**The Best** – Cover all the basics

Ships with:

- Qty 4 VFS 2x1 Base Plates
- Qty 2 VFS 90° Angle Brackets
- Qty 4 VFS M6 Slide Clamps
- Qty 1 VFS Fixed Rail
- Qty 1 VFS Slide Rail
- Qty 4 Brass Hexagonal Fixture Clamps
- Qty 8 M6x30 Shoulder Screws with 20mm Shoulder
- Qty 16 M6x25 Socket Button Head Screws
- Qty 12 M6x16 Socket Cap Head Screws



*(Products may differ in appearance from image. Fasteners not shown.)*

# VFS FIXTURING Components

Currently available:

Item	Description
Base Plate	Threaded grid plates with conical locators.
90° Angle Bracket	Bracket with locating and fastening holes for joining Base Plates to form a 90° angle plate.
Slide Clamps	A sliding base sized to fit the common Mitee-Bite cam action or hold-down type fixture clamps with M6 threads.
Fixed Rail	A fixed jaw that can be positioned on a Base Plate to provide repeatable clamping.
Slide Rail	A sliding rail with positions for five Mitee-Bite cam action fixture clamps.

\*Note: all items come with necessary fasteners required for use.

## Use and Care

### Assembly and Use

Recommendations for assembling and utilizing VFS FIXTURING components.

**Base Plates:** When fastening Base Plates to a VFS vacuum fixture plate ensure that the conical locating bores are clean, free of burrs or nicks, and the protective set screw is removed. Fasten the Base Plates down with a maximum of 6 Nm of torque. When fastening components to a Base Plate the maximum recommended torque is 6Nm.

**Slide Clamps:** Slide Clamps should be fastened into a Base Plate with two M6x16 screws whenever possible. This helps to ensure that the Clamp Slides will not shift when tightening against a workpiece. The Clamp Slides are also sized to be used with 1/2" or 12mm parallels under the workpiece. When using parallels ensure that they are not in contact with the Clamp Slide base, this will prevent the parallel from shifting when tightened.

**90° Angle Brackets:** The Angle Brackets utilize precision dowel bores and precision shoulder bolts to accurately index the base plates to 90 degrees. When using the brackets ensure that the precision dowel bores and shoulder bolts are clean and free of burrs or nicks. Anti-seize is strongly recommended for the fasteners when assembling the plates for extended periods of time. Maximum torque of 6Nm should be used when fastening the Angle Brackets to the Base Plates.

**Fixed Rail:** The Fixed Rail uses two precision locating slots to align the rail to the grid pattern of a Base Plate, providing the user with a repeatable reference for clamping. This component acts as the fixed jaw of a two-piece vice. Simply position the dowel pins into two dowel pin bores in the surface of a Base Plate, set the Rail over the dowel pins, allowing the slots in the Fixed Rail to align the assembly, and then fasten the rail to the base plate with a minimum of two M6 socket head cap screws. The Fixed Rail is sized to work with a ½" or 12mm parallel.

**Slide Rail:** The Slide Rail acts as the dynamic jaw of the two-piece vise configuration. Two slots allow the rail to be positioned against the workpiece and then fastened with a minimum of two M6 socket head cap screws. Then fixture clamps are used to apply clamping pressure against the workpiece. The Slide Rail is sized to work with a ½" or 12mm parallel.



## General Care

Proper care of your VFS FIXTURING components will ensure long and productive service life.

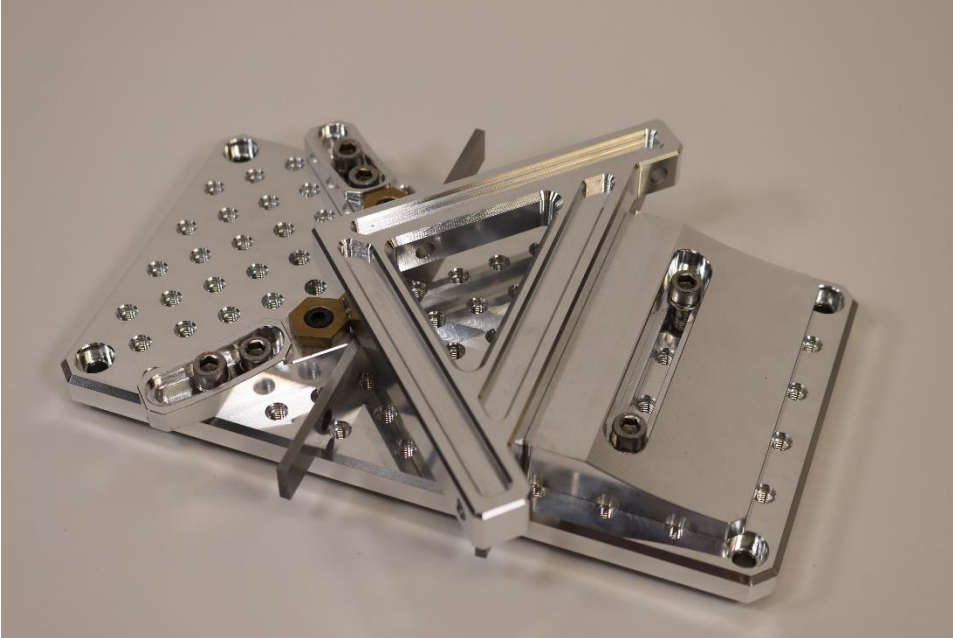
**Anti-Seize:** All products are supplied with appropriate fasteners, but these fasteners do not come pre-applied with thread anti-seize. Use of anti-seize is recommended for all components threading into aluminum. This lubricates the threads which increases the mechanical advantage of the fasteners while also reducing the risk of galling the threads.

**Hex Keys:** We recommend the use of properly fitting hex keys. This reduces the wear imparted on screws and extends their lifespan. Should the hex of any fastener become damaged it should be replaced promptly.

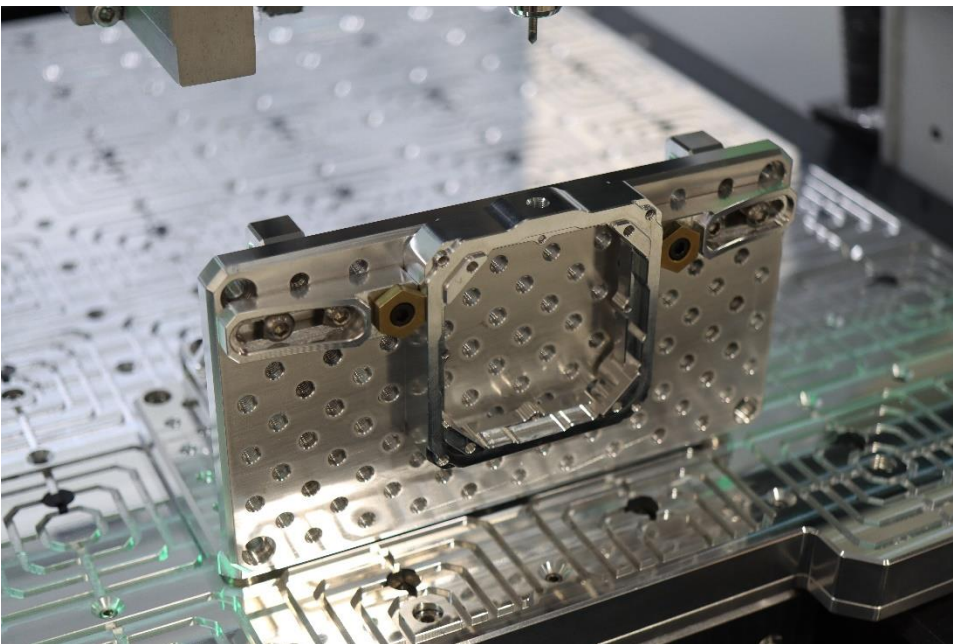
**Alignment Bores:** The alignment bores featured on most VFS products are precision machined surfaces and should be cleaned and inspected regularly. The most convenient opportunity to inspect and clean these features for defects or damage is when assembling components together.

## Examples of Use

Holding a triangular part with Slide Clamps, a Fixed Rail, and ½" parallels.



Edge work on a small part that cannot be reached when mounted on the Vertical Workholding Plate



A piece of aluminum extrusion held between two Base Plates with Slide Clamps, ready for end joints to be machined.

