

1/4" Step Block Hold-Down Set

P/N 3014

Use of the Step Block Hold-Down Set

Not much is required in the way of instructions in order to use these clamps. A few illustrations and photos are included to give you some tips.

A nice feature of this set that you won't find even in more expensive, full-size sets is the radiused nut and washer. They allow the nut to pull the washer down flat on the clamp even when it is slightly tilted.

Using the 1/4" Step Block Hold-Down Set with the Sherline Laser Engraving Tooling Plate

This 1/4" Hold-Down Set was designed to be used with our Laser Engraving Tooling Plate (P/N 3560-LAZ) and our Rotary Table "3D Scanning Plate" (P/N's 37258, 372510, & 372512). Both of these accessories have 1/4-20 threaded holes for clamping and locating parts.

When laser engraving or scanning parts, there is no force being exerted on the part. In the laser engraving application, the clamping system is there to ensure that the fixture being used to engrave the parts does not move. In the laser scanning application, the clamp is being used to hold the part stationary while it is being scanned and/or rotated.

When using the clamps for laser engraving, you can either clamp the fixture directly to the tooling plate as shown in photo#3, or you can use the clamps to wedge the fixture against the locating pins as shown in photo #4.

Photos #1 thru #4 show a typical fixture layout with both clamping options.

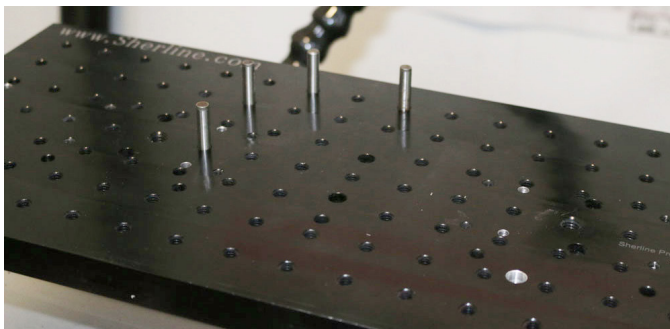


Photo #1: Placing 1/4" locating pins in the tooling plate.

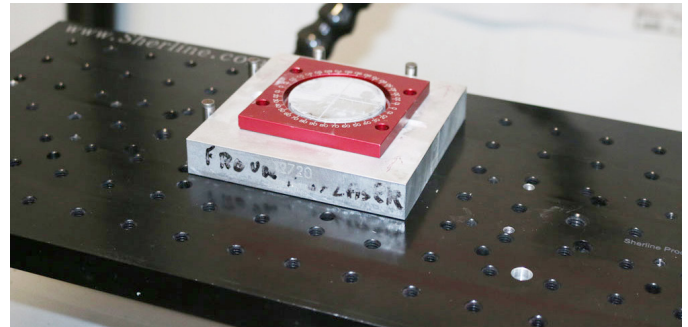


Photo #2: Locating engraving fixture against the locating pins.

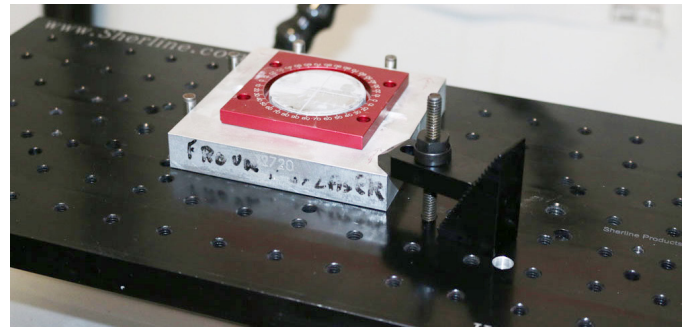


Photo #3: Clamping the fixture to the tooling plate.

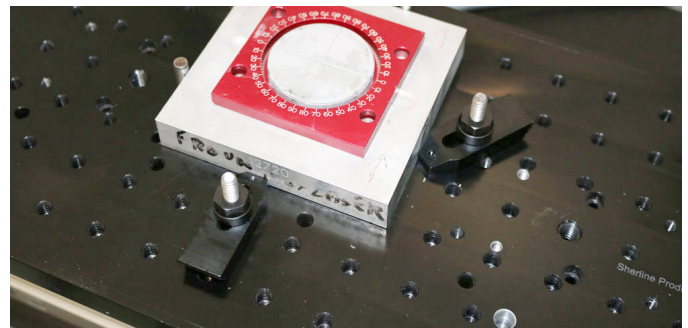


Photo #4: Using the clamps to wedge the fixture against the locating pins.

When you are clamping a part or fixture, you always want the tip of the step block clamp which is on the fixture, to be lower than the back of the clamp which is on the step block. This will ensure that the clamping pressure is being exerted on the fixture and not on the step block (see photo #7).

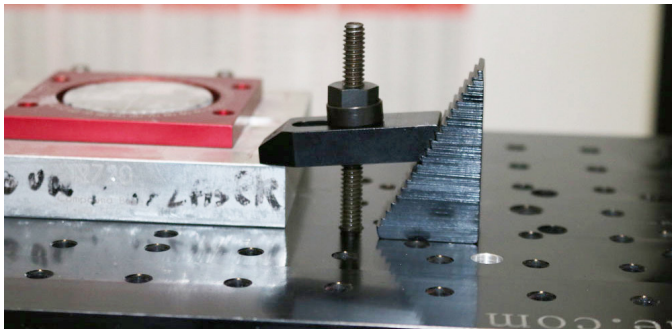


Photo #5: Proper clamping angle.

The nut and washer that comes with the hold-down set (P/N's 301360 and 301370) have matching concave and convex radius. This design is made so the washer can pivot with the step block clamp angle to keep the full surface of the washer in contact with the clamp. The clamp can be tilted up to an angle of 11 degrees (see Figure 1 below).

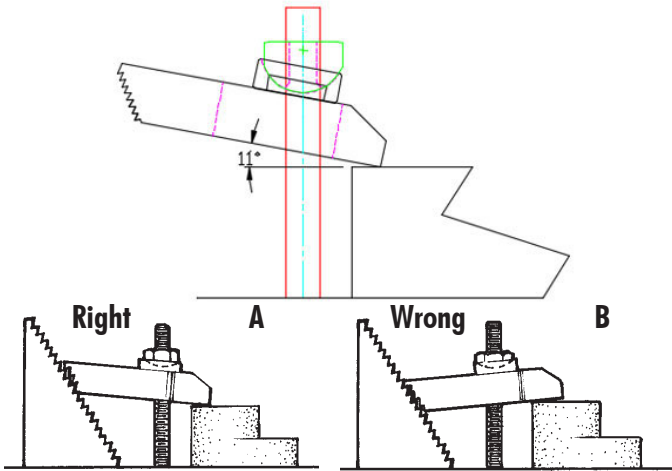


FIGURE 1—(A) Shows the correct way to hold a part. The tip of the clamp should grip the part. (B) Shows the wrong way, with the clamp angling upward and pushing down on the edge of the part. (NOTE: The angles are exaggerated for illustration purposes. Keep the clamps as close to level as possible in actual use.)

Here are some other methods for using a combination of the 1/4" clamps and the locating pins to locate fixtures on the tooling plate.

If your fixture is too short to locate it squarely against the locating pins, you can use parallel bars to establish a square surface for your fixture. See photos #6 thru #9 below.

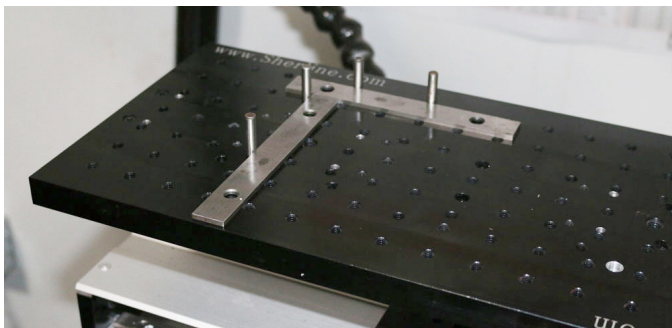


Photo #6: Using parallel bars to establish a square edge against the locating pins. Note: 1/4" wide parallel bars and smaller will fit between the pins on the tooling plate.

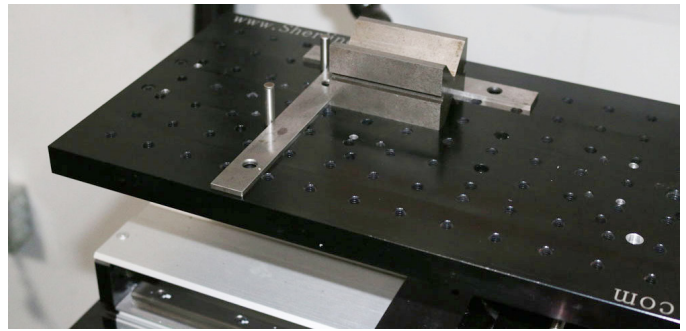


Photo #7: Locating a V block against the parallel bars.

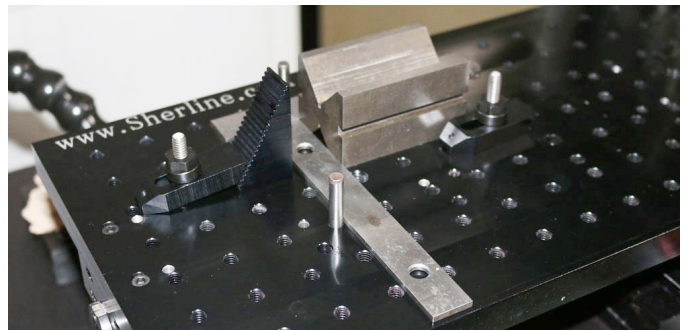


Photo #8: Using one clamp to wedge the V block against the parallel bars, while using the other clamp set as a part stop.

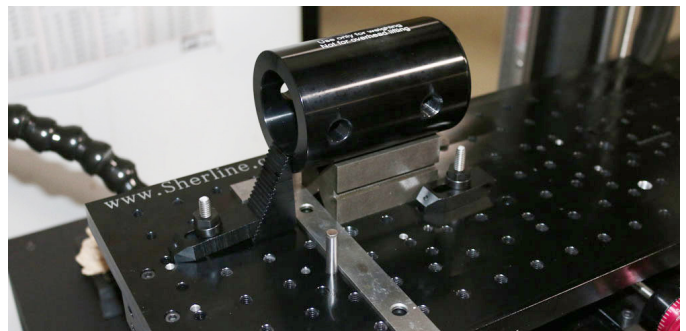


Photo #9: Final set up with part in place.

We hope that you find our laser engraving tooling plate and clamp system as easy and versatile as we have found it to be in our shop.

Exploded View and Part Number List

