

Working with Nitinol

Step 1: Design

We take your CAD model or file and design a heat setting fixture to hold the laser cut flat part or shaped wire form. This particular fixture is just two dimensional, but we have also built complicated three dimensional forms, especially for formed nitinol wire parts.



Nitinol part CAD file



CAD file of simple heat set fixture

Step 2: Cut

We take the file to be cut and process it on our custom fiber laser. We have the ability to cut parts with features as small as .002" and complete parts as large as 11.5" x 11.5". Tolerances can be as low as .001" per inch. Thicknesses can range from .001" to .125".



Nitinol parts cut out of a sheet

Step 3: Build

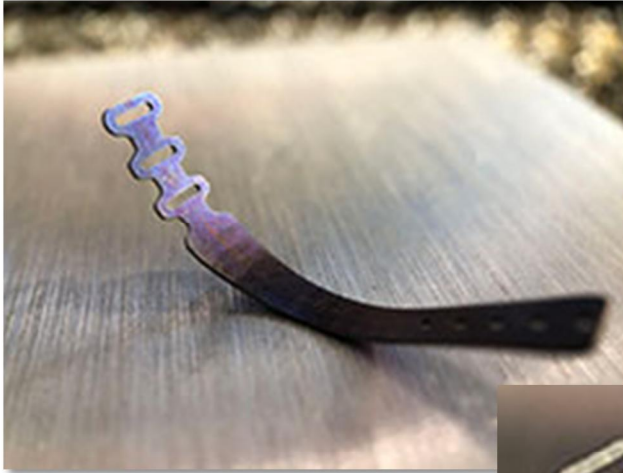


Nitinol part in heat setting fixture

This is a laser cut NiTi part in the heat setting fixture. More complicated finished parts may require a fixture with multiple laser cut plates put into an assembly and welded or pinned together.

Step 4: Finish

The fixture with the laser cut part is then dipped in molten salt and then quenched to cool it down quickly. The bluish hue on the outside of the part is an oxide formed during the heat setting process. The oxide can be removed by dipping the part in a nitinol deoxidizing acid. We can also do electropolishing if required.



Nitinol part after heat setting



Final part after deoxidized heat setting

Complex Nitinol Heat Setting Fixture Samples:



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