

At U.S. Dynamics Corporation (USD) our mechanical and electrical engineering staff has been providing innovative solutions for over 40 years. Teamed with craftsmen and precision machining capability we can support contract manufacturing, system integration and system upgrades for the medical, pharmaceutical, semiconductor, industrial, aerospace and defense industries.

Our specialty is low volume and high complexity. We include value-added engineering services on every project. This includes total system integration, precision machining, custom tube bending, UHP orbital welding, custom coil winding, potting and encapsulation. Our single-source support will help your organization reduce your list of qualified suppliers.

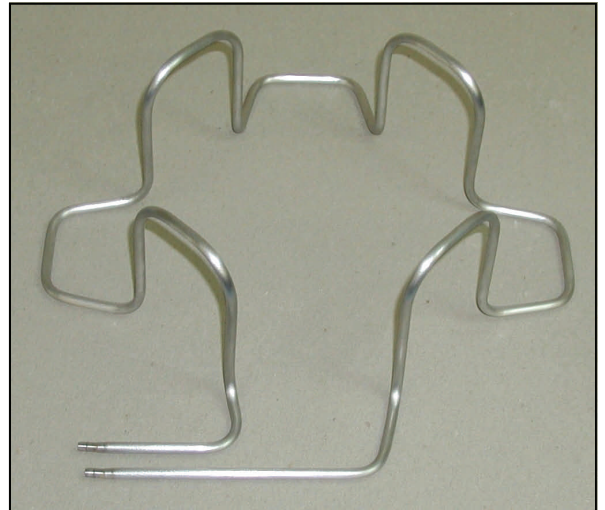
### **Tube Bending and Pipe Bending Services:**

USD specializes in low volume, highly complex assemblies that usually require integrating multiple disciplines.

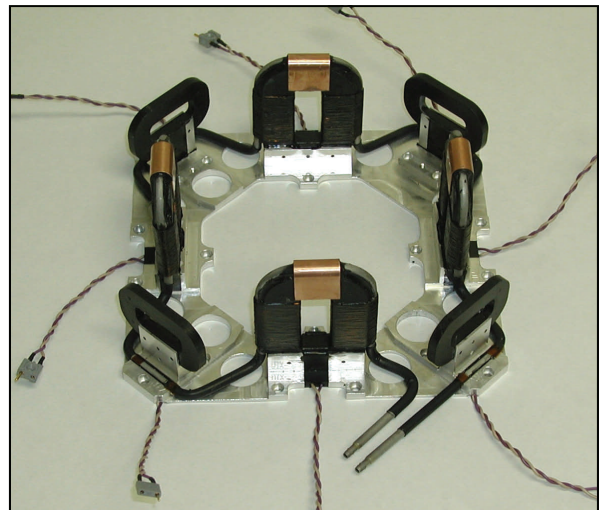
A custom motor coil assembly for a laser lithography machine required a precision shaped stainless steel tube used for the cooling of the motor windings and an intricately machined base plate. USD, looking at how the assembly of each item impacted the next, understood that the tube, when mounted to the base plate, could not affect the flatness or perpendicularity of the base plate. At the same time, the tube needed to fit interference free with the electrical coils.

**Solution:** USD analyzed the requirements and developed the fixtures and manufacturing approach that resulted in a flawless assembly. In order to produce a cooling tube that was consistent enough in shape, which a CNC process could not accomplish, USD designed an elaborate system of mandrels, levers and rollers to produce the form fitting cooling tube. The end fittings were then soldered in the tubes using silver solder.

The focus of our tube bending capabilities are on low volume and highly complex integrated mechanical and electro-mechanical assemblies. Custom tube bending is a value-added service that helps you to reduce your supplier list for multidiscipline projects.



Above: Stainless Steel Tubing Shaped as Required



Above: Shaped Tubing Used in Custom Coil Assembly