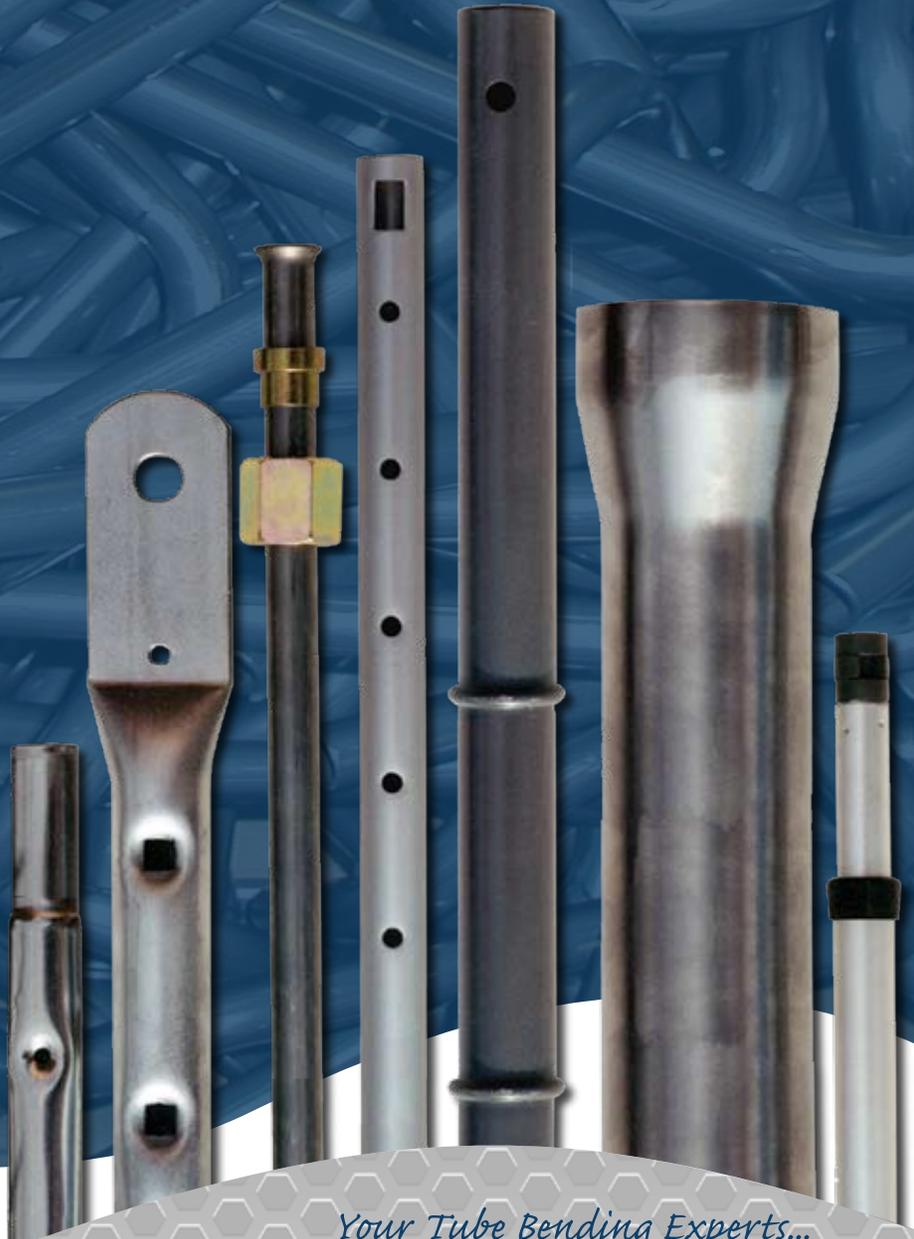


TUBE BENDING, FORMING & FLUID LINES

CNC Machining • Welding, Brazing & Assembly • Product Design
Systems Integration • Laser Fabrication • Specialty Finishes • Contract Services

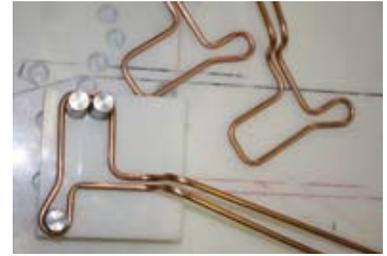


Your Tube Bending Experts...





At Harco Metal Products, Inc.™ a tube bending and forming company, we understand that vision is the fuel of future product innovation. We have the tools to help you take what is in your imagination and make it tangible. A industry leader since 1987, Harco's staff has the depth of experience and shared commitment to make more than our own dreams come true.



Our specialty

-  **TUBE BENDING & FORMING**
-  **TELESCOPING TUBES**
-  **TUBULAR HYDRAULIC LINES**
-  **CNC MACHINING**
-  **SYSTEMS INTEGRATION & ASSEMBLY**
-  **WELDING & BRAZING**

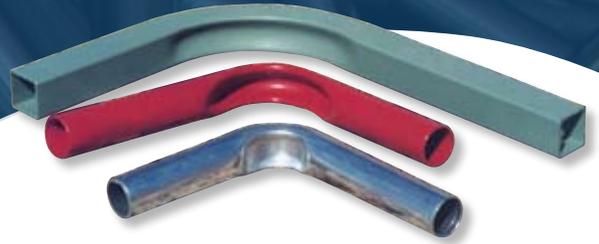
- Product Design • Laser Cutting • Waterjet
- Stamping • Metal Forming • Specialty Finishes
- Contract Services • Assembly
- Vender Managed Inventory



Whatever It Takes...

Whether you are just in the design and proto type phase or need your tubular component fabricated, assembled, and labeled, we are your complete source. Our staff of sales engineers have the experience to help you design or product your product in a way that will reduce cost, improve and improve end product quality.

Our Ultimate Goal... To help our customers create lowest cost possible without the sacrifice of quality, value or safety.



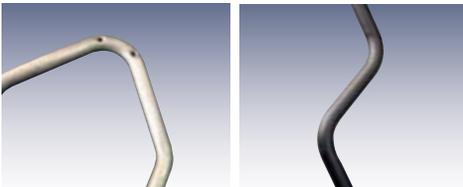
TUBE BENDING TECHNIQUES

At **Harco Metal Products, Inc.**™ we provide tubular fabrication processes to form almost any shape including CNC rotary arm bending (mandrel supported), ram or compression bending, roll bending, and more.

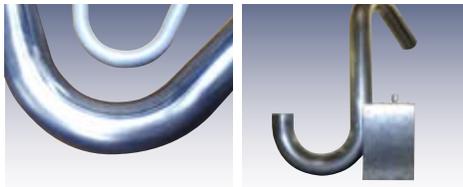
We do everything from flaring and beading to reducing, expanding, flattening, dimple hole punching, mandrel hole punching, slotting, and notching.



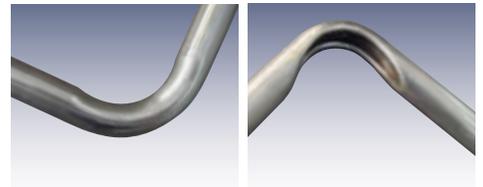
The Right Bend Every Time...



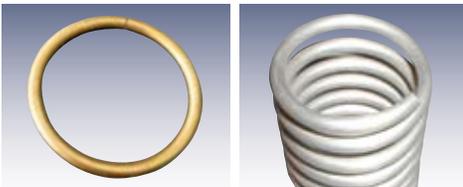
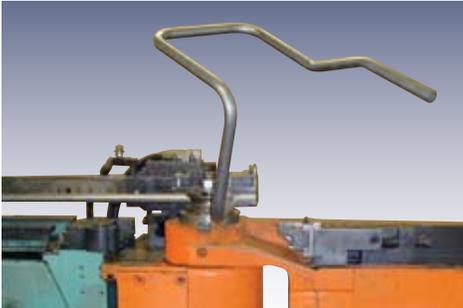
CNC Rotary Arm, Mandrel Tube Bending



Manual Rotary Arm, Mandrel Tube Bending



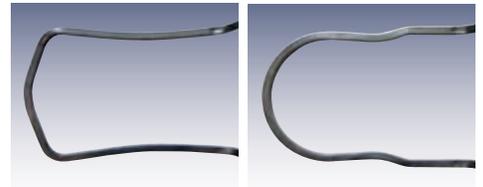
Compression/Ram Bending



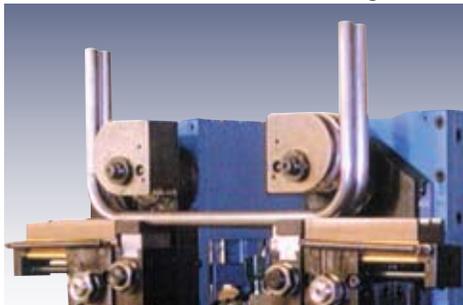
Three-Wheel Roll Bending



Double Headed Draw Bending



Push Bending

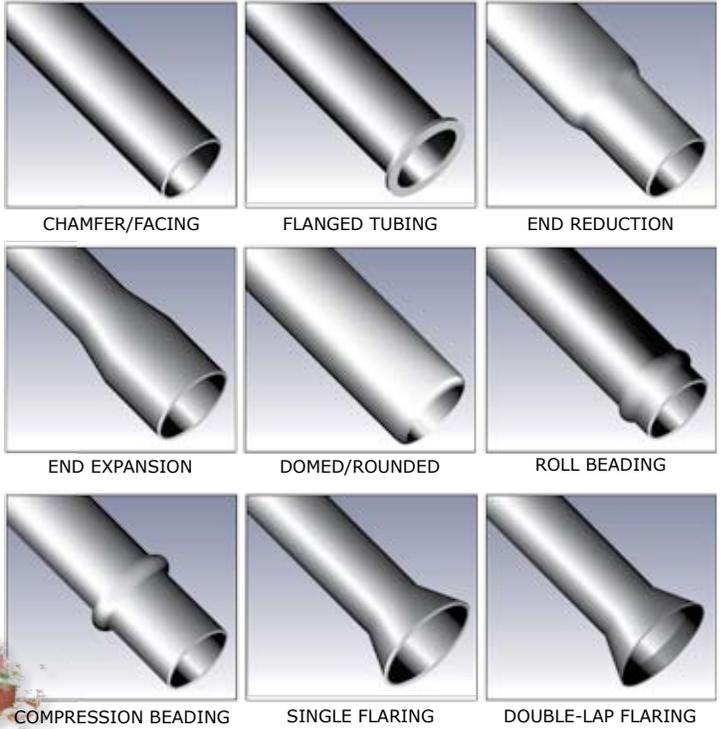


TUBE FORMING

Visit www.tubebending.net for more detail.



Tube Forming selection



Slotting & Notching, Piercing & Punching selection



Flattening selection



Equipt to handle All Requests...



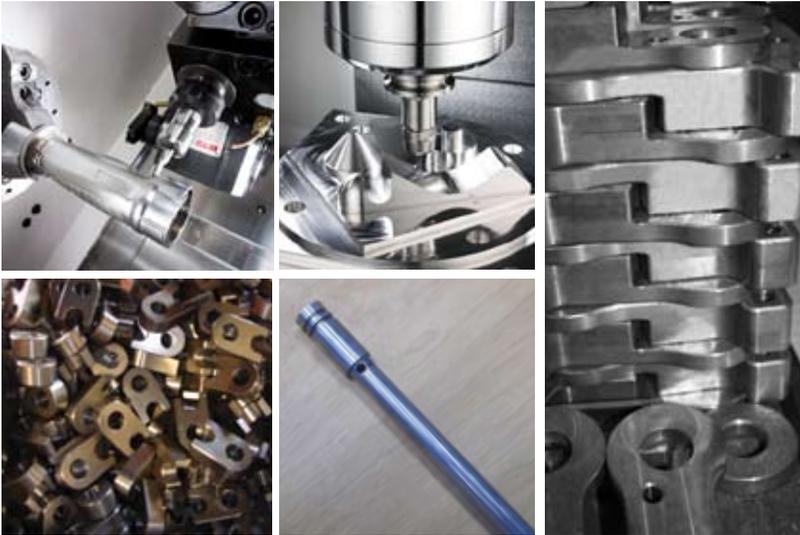
TELESCOPING TUBES

There are a number of Telescoping Tube techniques on the market today. Let Harco's experience help determine which is best for your product design.

- **SPLIT COLLAR**
- **TELESCOPIC & CAPTIVE/CAM LOCK**
- **SPRING BUTTON**
- **SPRING BUTTON WITH AUTO DEPRESSION**
- **COLLET STYLE LOCKING FITTINGS**
- **NON-ROTATIONAL & MORE**



CNC MACHINING

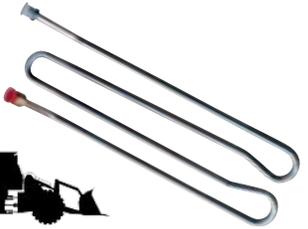


From flanges and mounting plates to sophisticated machined support components **Harco Metal Products, Inc.**™ offers a full service fabrication experience using the latest in technology and quality.

Our **Yama Seiki, Mori Seiki** and **Mazak** machining centers allow us to combine incredible power, strength, speed and quality to create the best products for our customers at competitive pricing.

With our CNC lathes, we offer a variety of functions in a small body, achieving high-accuracy, high-efficiency machining in both bar stock and tubular components.

TUBULAR HYDRAULIC LINES



Harco Delivers... If your looking for a fabricator that can deliver hydraulic hard lines from 1/4" to 2" OD, Harco Metal Products is your company. We stock a full line of J.I.C. nuts, sleeves, and braze-on fittings. We can duplicate (reverse engineer) hard lines from both prints and samples for any commercial application.

We are your one stop shop for your Tubular Hydraulic Lines

- 37° & 45° Single and Double Flaring
- ORFS (O-Ring Face Seal) Cold Forming
- Induction Brazing of ORFS and J.I.C. Fittings
- CNC Bending 1/8" OD to 3" OD
- Romer CimCore Laser Tube Inspection to Ensure Correct Tube Geometry

Many of our fluid line customers prefer to take advantage of our **Vendor Managed Inventory Program (VMI)**. This program is tailor designed to offer stocked parts and deliveries are made Just in Time to meet your production needs.

Our tube end-forming services include flaring, beading and o-ring face seal process to MS, AS, & SAE specs, plus a full line of standard fittings for many applications.



WELDING & BRAZING

Harco Metal Products, Inc.™ Offers a variety of procedures in welding using all types of metals and welding processes using TIG (GTAW), MIG (SMAW) along with gas welding such as silver brazing plus high production applications including induction brazing and robotic welding.

Our design skills and use of SolidWorks engineering software allows us to develop sophisticated weld fixtures that assist in exceeding our customer's quality dimensional requirements.

Our entire welding staff is certified to AWS D17.1 as a result of our continuous training program. Staff qualification certificates are available upon request.

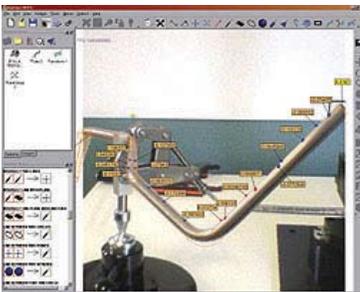


QUALITY ASSURANCE

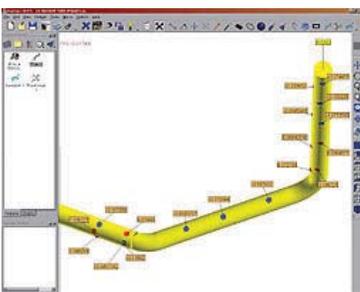
Harco Delivers Confidence... At Harco our core strategy is to build quality into products through continual improvement of processes and services. As part of this commitment, Harco has embarked on a program to implement **ISO 9001** as a basis for our Quality Management System.



For our more complicated tubular components we use the state-of-the-art **Aicon Tube Inspect HD** which is a touch-less 3D dimensional measuring system that works as a fully programmable optical gauge. This system allows operators to design complicated tubular components with confidence, accuracy and can determine bend calculations.



For our less complicated tubular components we use a **Romer CMM** device. With this programmable equipment we measure length, bend angles, rotation and develop corrected bend data rotation that is easily and quickly transferred to our bending equipment so that our tube bending set up time is reduced and tube yield is maximized.



Recently we have added **PC-DMIS** software to our arsenal of quality tools. PC-DMIS is the industry leading software designed to collect, evaluate, manage and present manufacturing data for machined components and assemblies created by Harco Metal Products, Inc..



Support Services



PRODUCT DESIGN

We have the experience to help you design or reverse engineer your product and manufacture your products through the manufacturing cycle from start to finish. Our use of Solidworks software, the industry leader, allows us to assist with existing designs or build from the beginning of your concept and offer turnkey manufacturing solutions.



LASER TUBE FABRICATION



Harco Metal Products continues to lead the way with its latest acquisition: the "TruLaser Tube 5000." This state-of-the-art tube laser specializes in processing Stainless, Aluminum and Carbon tube shapes.

SPECIALTY FINISHES

We offer a full line of custom finishing options including:

- Powder Coating
 - Polyester TGIC (outdoor application)
 - Epoxy Hybrids (chemical resistant)
 - Scratch Resistant
 - ASTM & AAMA Specifications
- Electro-Zinc Plating
 - ASTM-B-633 Specifications - Clear, Yellow, & Black
- Anodizing: most common on aluminum components.
 - Clear, Black, Gold, Bronze, & Colors Available
 - Bright Dip, Etched, or Hard Coat
 - MIL 8625F Type II Class I or II Specifications
 - AAMA Specifications
- Chem Film, Liquid Paint, Hot Dip Galvanizing, and Decorative Chrome Plating finishes are also available.
- CARC Paint Applications



VENDER MANAGED INVENTORY

This program is tailor designed to offer stocked parts and deliveries are made Just In Time to meet your production needs.

Your Tube Bending Experts...



HARCO - Manufacturing Facility
162 Jack Cooper Drive, Valley Head, AL 35989
Tel **256.635.6700** • Fax **256.635.6710**

HARCO - Corporate Office
7895 East Acoma Drive, Suite 101, Scottsdale, AZ 85260
Tel **480.829.0450** • Fax **480.517.6929**

www.TubeBending.net • www.WeBendTube.com



Optical Measuring

Attention tube fabricators! We are proud to announce the **Aicon TubeInspect HD** now offer for **CONTRACT MEASURING SERVICES**.

The **Aicon** system is a touch-less 3D dimensional measuring system that works as a fully programmable gauge. This system allows operators and quality teams to design complicated tubular components with confidence.

- **FAST:** 15-20 Bend Geometry in 10-20 seconds
- **ACCURATE:** $\pm .01\text{mm}$
- Capable of Measuring Complicated Tube Geometrics with Ease including Free Form Shapes
- Metal & Plastic Tubes, Springs, Tubular/Hose Assemblies
- Works off CAD Data to Compare Actual Parts To Model

TubeInspect HD three-dimensionally inspects short, thin tubes and wires with diameters of 1mm up to 10mm. Aicon TubeInspect HC is available for Contract Services.

OPTICAL MEASURING & CONTRACT SERVICES

