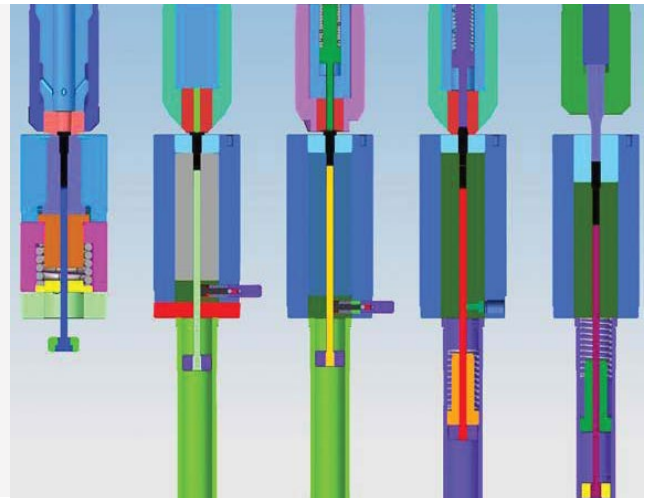




Engineered Cold Formed Solutions For The Most Demanding Applications



Overview

Rely on MW Components' technical expertise and precision for high volume custom, cold-formed parts.

MW Components is a global pioneer in collaborative design, development, manufacture and control of miniature and micro-miniature metal components for customers seeking a better solution for yield, strength, assembly and cost through the application of cold forming technologies.

MW Components focuses on micro metal components in standard materials or exotic alloys. We employ state-of-the-art proprietary part progression and tool design modeling techniques developed over 40+ years to produce optimal component formation.

Mechanical design and assembly firms the world over turn to MW Components for their most advanced near-net-shape part requirements to eliminate material scrap, increase mechanical strength and reduce costly secondary operations.

Why Cold-Forming?

Cold forming, or cold forging, is the application of force with a punch to the end of a precise metal cut-off blank contained within a die. The force exceeds the metal or alloy's elastic limit or yield strength causing plastic flow. Cold forming retains the material's structural properties rather than compromising it as machining processes often do. Cold forming is commonly used for component heading, upsetting, extruding, sizing, piercing, trimming, thread rolling, blank rolling and pointing operations.

Cold-Forming Benefits:

- Eliminates costly scrap (net shape)
- Eliminates inefficient secondary operations
- Six+ times increase to component production velocity
- Retains native material mechanical properties
- Reduces tooling cost over product life cycle
- Reduces component part cost

Markets Served:

- Semiconductor
- Automotive
- Energy
- Appliances
- Electronics
- Aerospace





MW Components

Your Source for Tight
Tolerance Complex
Geometry, Specialty Alloy
Miniature And
Micro Components



Single & Multithreaded
Pins & Leads



Wire Forms



Cold Heading



Roll Forming



Pointing & Tapping



Coining & Stamping



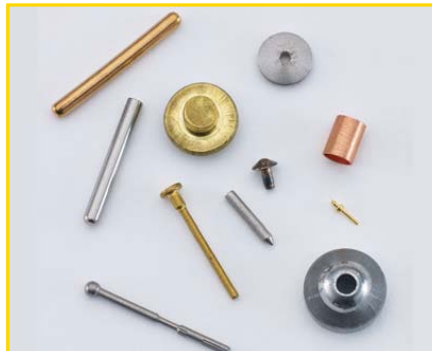
Eyelet & O-rings



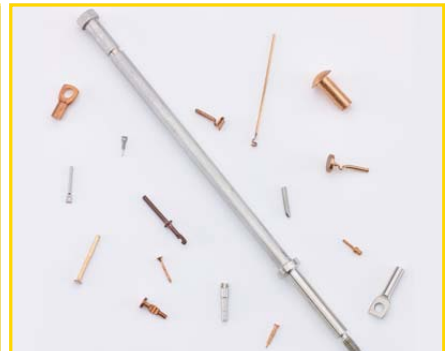
Caps & Buttons



Hubs & Inserts



Valves



Connectors



Vertically Integrated For Improved Design, Quick Turn Prototyping And Reduced Total Cost

MW Components employs vertically integrated LEAN practices in design, manufacturing, order and global inventory management including stock custom miniature and micro components for JIT delivery to international customers in the Medical, Automotive, Aerospace, Energy, Appliance, Consumer Electronics, Defense and Semiconductor markets.

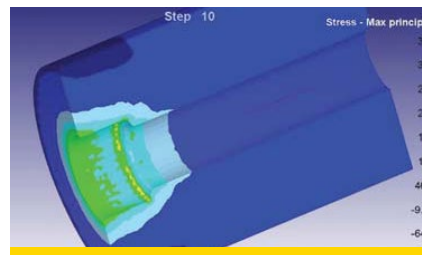
Our engineering team applies advanced progression, materials characterization, tooling and manufacturing knowledge to develop cost-effective production routines for each customer's requirements. Using finite element analysis, quick-turn prototyping, CAD/CAM, soft tooling and in-house tool-making, MW Components has the depth and capabilities to move your project quickly into production.

JIT Kanban Inventory Management Capabilities



Cellular work centers are organized to produce small specialized parts by cold forging and machining, plus a host of secondary operations including roll forming, tapping, turning, pointing, wire EDM, cleaning, tumbling, etching and plating, all with tolerances down to 0.0005".

MW Components customers depend on our ISO9001:2008 quality system inclusive of automated optical inspection to meet their exacting standards. As part of its continuous improvement culture, MW Components employs multi-disciplinary quality training and LEAN programs, led by LEAN Master Certified personnel.



DEFORM finite element analysis

MW Components Advantages

- Collaborative engineering design
- Medical, automotive, defense and micro-electronics market experience
- World-class tool and die making
- Forming to finishing integrated LEAN manufacturing
- ISO 9001:2008 certification
- Production runs up to 500+ million components
- Component tolerances to .0005"
- Material capabilities inclusive of specialty alloys
- Rich 40 year history



In-process Quality Control systems



Extensive NIST traceable raw material inventory for quick turn production



3D CAD/CAM modeling capabilities

Quality Systems, Process Capabilities, Materials

Standards	ISO9001:2008, ITAR, NIST Traceability
Material Control	DFARS, RoHS, AMS
LEAN	JIT, 5S, A3 Root Cause Analysis, Poka Yoke, 8D, SMED, Visual Manufacturing, Standard Work
Control Plans	PPAP Level III / PFMEA, FMEA / Gage R&R Studies / Process Capabilities Studies AQL / Cpk, Cpm Ppk, Ppm
Dimensioning & Tolerancing	AOI, RAM Optical Metrology, Micrometers, Optical Comparators, Drop Gages, Pin Gages, Vernier, 100% Inspection Capabilities
Wire Diameters	.0035" to .400"

Metal & Alloys	Types
Alloys	52 NiFe Alloy, 42 NiFe Alloy, Kovar, NI 200, NI 205, Tophet C, Monel, A286, Invar, Vacon, Permenorm
Aluminum	1100, 2117, 4047
Copper	CDA101, CDA102, CDA107, CDA110, CDA150, CDA151
Copper Alloys	Beryllium Copper, Brass, Phosphor Bronze, Magna-Cupro-Ni
Copper Cored	52 Alloy, 42-6 Alloy, Kovar Alloy, Tinned Copper
Copper Clad	70% CCFE, DUMET
Gold	
Inconel	600, X750
Iridium	

Molybdenum	
Nickel Alloys	52 Alloy, 42-6 Alloy, Kovar Alloy, Tinned Copper
Niobium	
Palladium	
Platinum	PT/IR
Silver/Silver Alloy	
Steel	1008, 1010, 1018
Stainless Steel	302HQ, 303, 304L, 304V, 309, 316L, 426, 446
Tantalum	
Titanium	

About MW Components

MW Components is focused on accelerating the entire process of delivering custom, stock, and standard parts to virtually any volume and against demanding deadlines. We work to highly complex tolerances. We help simplify the management of any number of different components. And we take a no-compromise approach to quality. With MW Components you can be sure you'll get the right part to the right specification when and where you need it.



MW Components

To learn more visit MWComponents.com or contact us at 704.280.8875 | sales@mwcomponents.com