



**GRANDEUR FASTENERS**

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**MANUFACTURING EXCELLENCE SINCE 1975**

# SUPERIOR QUALITY COLD HEADED PROCESS DESIGN

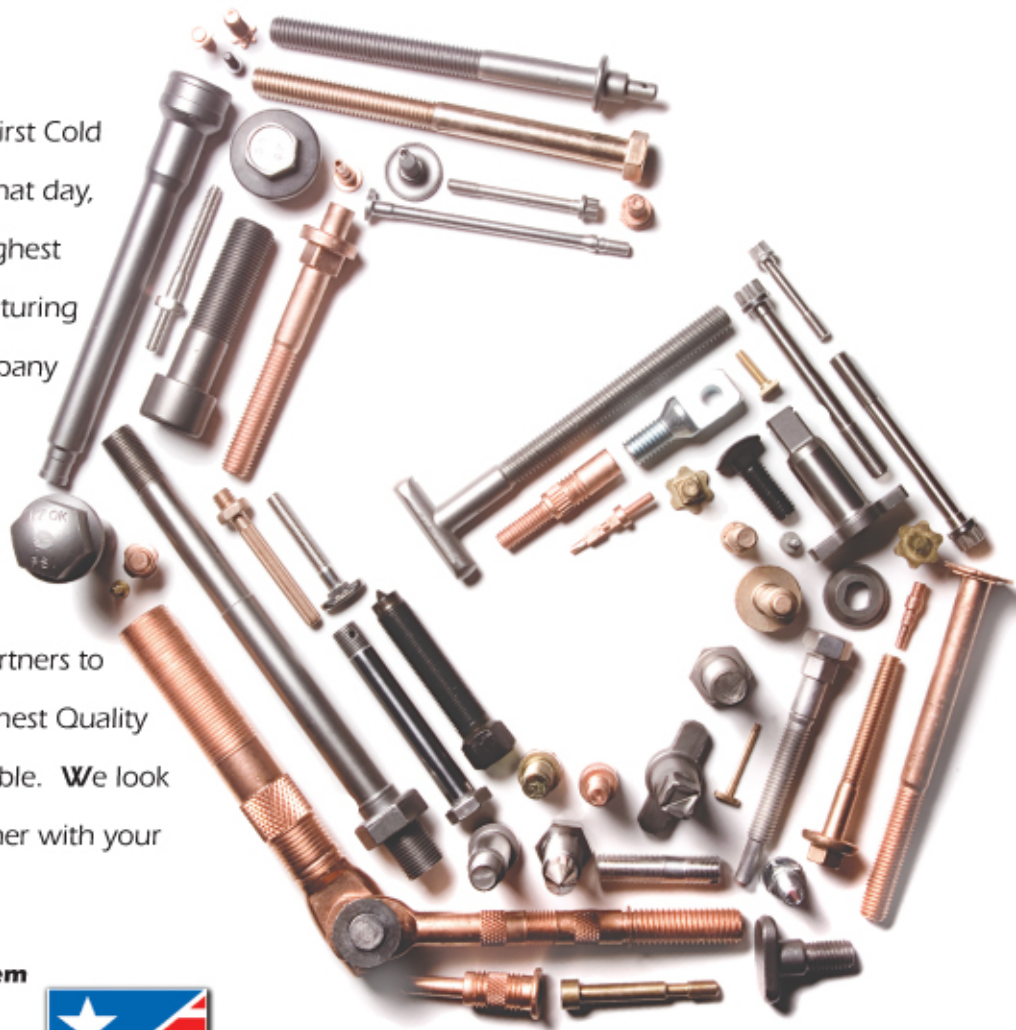
## & MANUFACTURING

**Grandeur Fasteners** bought its first Cold Heading Machine in 1975. Since that day, we have strived to maintain the Highest Standards of Excellence in manufacturing and production. Our goal as a company has always been to build mutual confidence and respect in our relationships with our customers. This requires that we join with our customers and work together as partners to engineer, build and deliver the Highest Quality and Least Expensive products possible. We look forward to the opportunity to partner with your company to accomplish your goals.

Our **Quality Management System** is registered and certified to **ISO 9001:2008** and is compliant to **AS 9100:2009 (AS 9100C)**.  
**OSLM and QSLD for LEVEL 2 & 3 Fasteners.**



**Grandeur Fasteners** is an approved source to many government agencies, military and power industry suppliers, as well as major original equipment manufacturers. Contact **Grandeur Fasteners** today and let our Engineering Team evaluate your current products for Cold Heading suitability, or assist in the design of new products from the earliest stages of development.



At **Grandeur**, we are experts in producing a wide range of Superior Quality fasteners quickly and cost-effectively, using virtually any Cold Headable material, including:

Alloy Steel  
Aluminum  
Brass  
Copper  
Medium & Low Carbon Steel  
Nickel Alloys & Monel  
Silicone Bronze  
Stainless Steel

We can produce fasteners in **metric** and **inch** diameters, as small as **3/32"** up to **3/4"** in diameter, and as long as **9"** in any quantity you need!

## EXACTLY WHAT IS COLD HEADING?

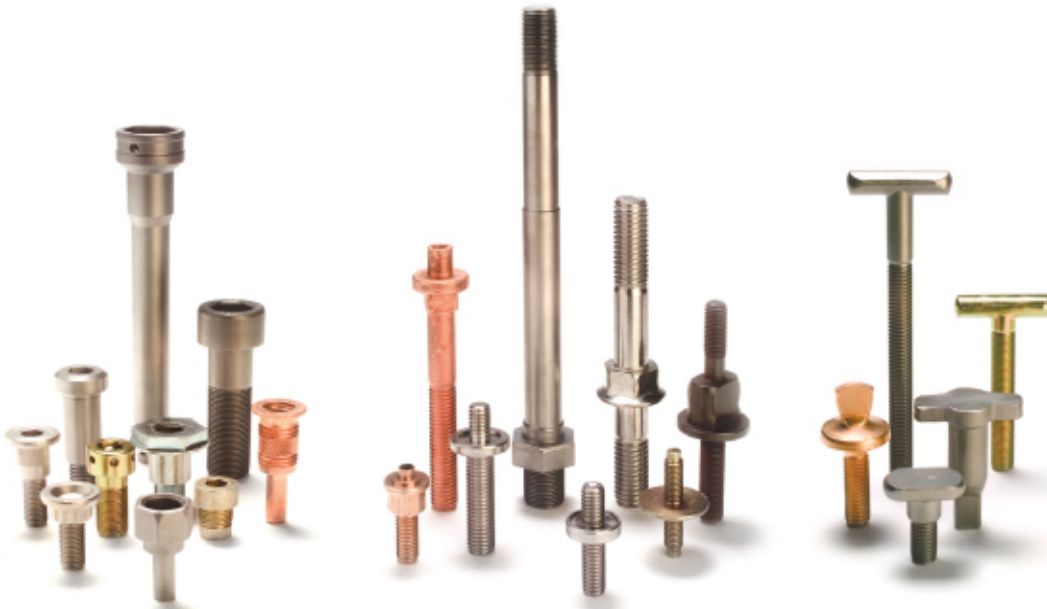
Cold Heading is a method of forming metal in progressive steps into net shape or near net shaped parts. Starting with a blank, cut from a continuous coil of wire material, the Cold Heading Machine uses a series of powerful hammers and dies to form the part. This process creates very little waste, offers a significant material cost savings and because the metal is formed into the die rather than removed from the blank, the volume of the original blank is about the same as the finished part. This creates stronger parts with smooth continuous surfaces because the grain of the metal is not cut and weakened. By contrast, metal cutting operations are typically slow and can generate as much as 60% waste.

Cold Heading is more efficient, able to maintain tolerances as close as  $\pm .002$ " without the need for secondary operations and allows us to rapidly produce large quantities of components to meet our customers needs.



Progressive steps of Cold Heading process

## ENGINEERED COMPONENTS USING COLD HEADING



Our Engineers have extensive experience and expertise for developing your most difficult component problems into Cold Headed Solutions. State of the Art methods such as **2D, CAD, 3D Solid Modeling** and **Finite Element Analysis** are used to produce a vast array of parts. Technical "know how", coupled with **advanced cold heading, shaving, drilling, roll forming, threading, and grooving processes** uniquely qualify **Grandeur Fasteners** as a Leader in **Engineered Metal Components**.



## AVAILABLE PRODUCT TESTS

### DESTRUCTIVE

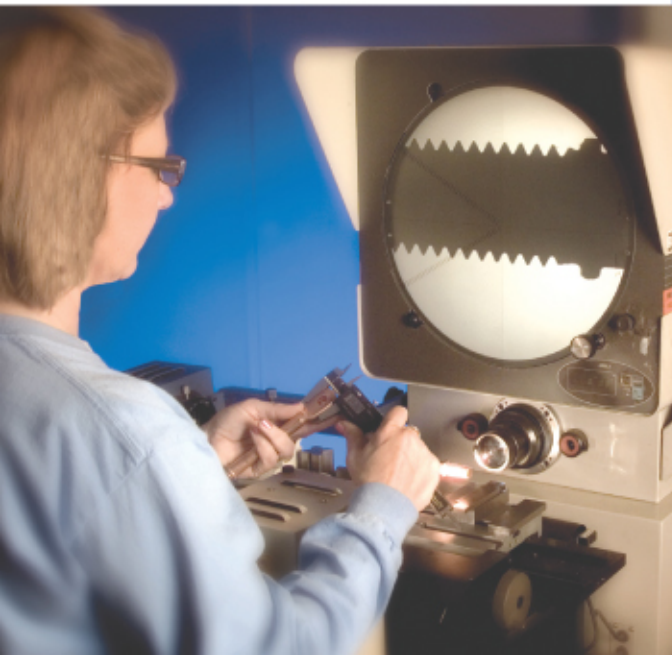


- Axial and Wedge Tensile
- Bend
- Chemical Analysis
- Corrosion
- Double and Single Shear
- Elongation
- Hardness
- Hydrogen Embrittlement
- Low and High-cycle Fatigue
- Macro/Micro
- Proof Load
- Reduction of Area
- Torque
- Ultimate Tensile
- Ultimate Yield
- Yield Strength

### NONDESTRUCTIVE

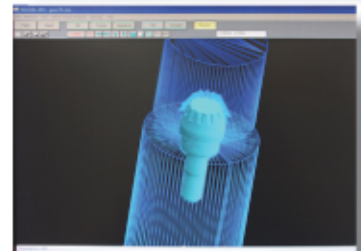
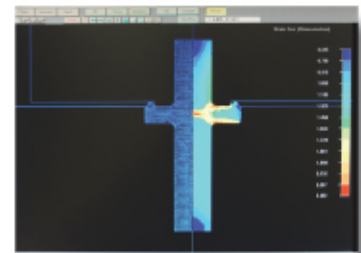


- Fluorescent Penetrant
- Magnetic Particle
- Radiography



**State of the Art computing and design software** is utilized by our Engineering Team to evaluate your components for suitability to the Cold Heading process.

**We can provide 2D and 3D design solutions** backed by the use of **stress analysis software** and **mathematical models**.





**Variable Gauging** is exclusively employed during the thread roll process to meet the requirements of **MIL-S-7742, MIL-S-8879 and FED-STD-H-28/20.** Certification to military requirements is available and complete material traceability is applicable to every part produced.



Utilization of **Statistical Process Control** during our manufacturing process helps **Grandeur Fasteners** to continually meet or even exceed demanding **Aviation, Aerospace and Defense Industry** standards.



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