



COMTEC MFG., INC.



**PERFORMANCE IN THE
DESIGN AND MANUFACTURE OF
POWDERED METAL COMPONENTS**

Our Company...

Comtec is a privately held corporation established in 1987. We produce a wide range of highly engineered powdered metal parts and sub-assemblies. Our manufacturing facility located in St. Marys, Pennsylvania houses a full complement of state-of-the-art equipment and technology. The molding equipment ranges from 4 tons up to 250 tons, and includes a series of multi-action presses. The sintering furnaces use both hydrogen and nitrogen atmospheres. Additional in house capabilities include powder blending, sizing, oil impregnation, sinter hardening, honing, drilling, tapping, polishing, tumbling, tempering and assembly. Outsource capabilities include heat treating, plating, steam treating, machining, finishing and assembly.



ST. MARYS, PENNSYLVANIA

Quality...

It has become a major theme in business throughout the world. COMTEC has developed a "company-wide" quality commitment that involves every employee from top management to machine operators. Exercising "total manufacturing process control" through the use of a computerized statistical process control program. Because of our pledge to maintain our position at the forefront of the powdered metal industry, we commit ourselves to total quality and delivery of defect free products. This commitment is never-ending and remains the "core" of COMTEC'S world class reliability.

David L. DeLullo, Jr.
President

Our Markets...

- Aircraft
- Appliance
- Automotive
- Hydraulics/Fluid Power
- Outdoor Power Equipment
- Power Distribution
- Railroad



Design...

- AutoCAD 2D
- Inventor 3D Parametric Design
- UTS Integrated Gear Software
- Computerized Solid Modeling
- In-House Tool Design
- Conversion/Design Recommendations



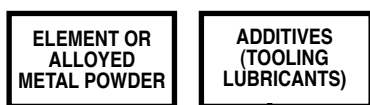
COMMITMENT TO YOUR PRODUCTION REQUIREMENTS OF POWDERED METAL COMPONENTS

Engineering...

Our expertise does not only include the manufacture of powder metal components, but, also complete design assistance in regards to part configuration, materials, and customer application. We utilize the "production simulated" prototype concept which ensures the manufacturing of prototypes in a normal production environment. It is our understanding that a practical approach to design and development best serves the customer's investment in production line components.

OUR CONVENTIONAL POWDERED METALLURGY PROCESS

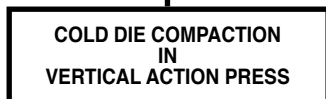
FERROUS & NON-FERROUS MATERIAL



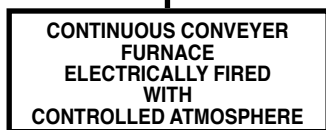
BLENDING



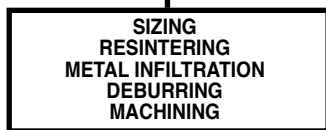
MOLDING



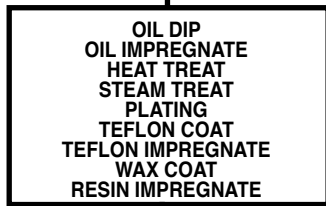
SINTERING



OPTIONAL MANUFACTURING OPERATIONS



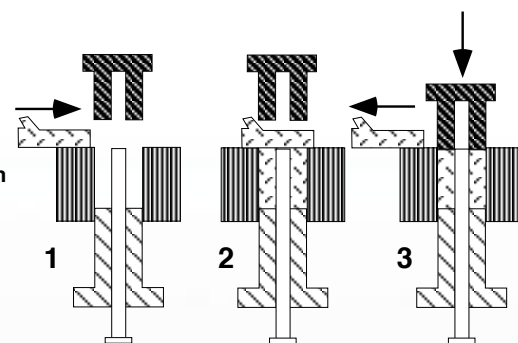
OPTIONAL FINISHING OPERATIONS



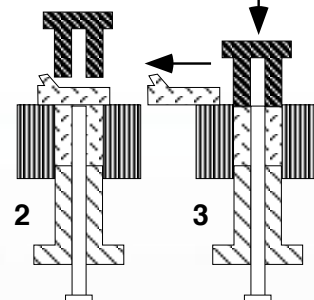
FINISHED PRODUCT



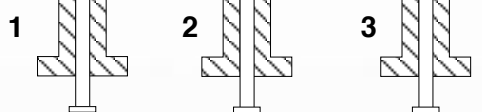
1. Cycle Start



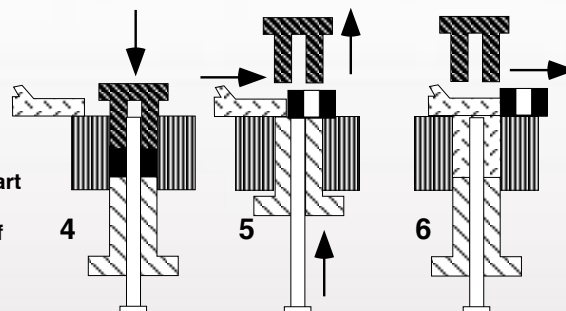
2. Charging (filling) die with powder



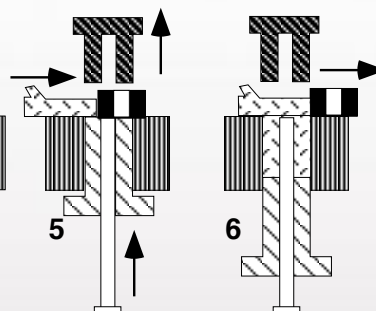
3. Compaction begins



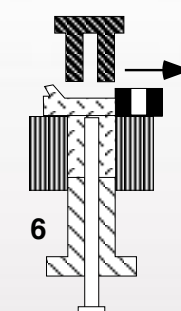
4. Compaction completed



5. Ejection of part



6. Recharging of die



OPERATION OF POWDERED METAL FORM TOOLING IN VERTICAL ACTION PRESS



Above: A characteristic set of molding tools consisting of a single cavity die, upper plunger, lower plunger, and core pin nest assembly.

Below: Raw material and part produced from Iron-Phosphorous on the above tooling.



"An Effective Precision Metal Component Production Alternative"



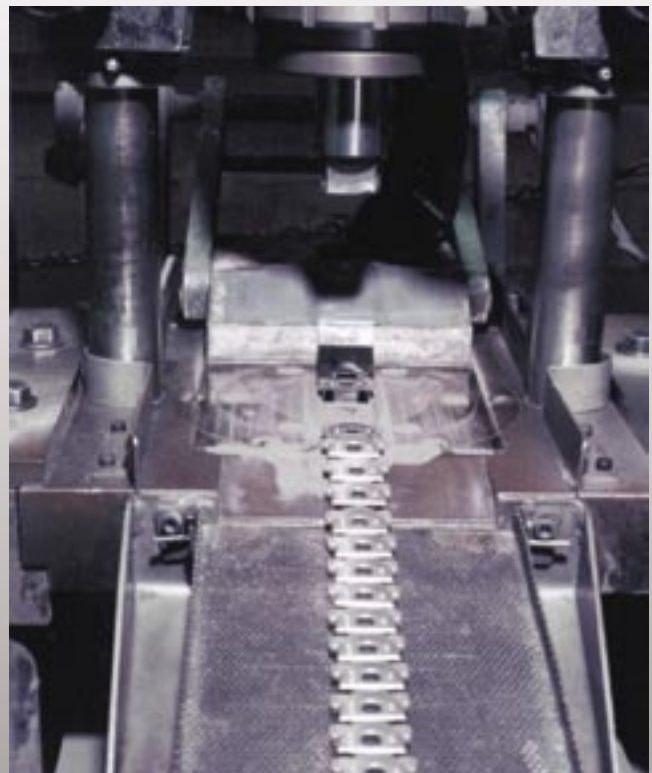
Engineered Materials...

Our process allows us to alloy various elemental materials to attain distinct physical characteristics. Iron, low and high alloy steel, nickel steel, copper steel, iron-phosphorous, 300 and 400 series stainless steel, carbon steel, iron nickel, bronze, brass, copper infiltration, nickel silver, sintered hardened steel, and high conductivity copper are many of the different compositions

of raw material that we currently process. We are equipped to blend our own composition of many material combinations designed to meet our customer's specific performance requirements.

Advantages of Using Powdered Metal...

- A Low Cost Mass Production Method Of Manufacturing High Quality, Strong, Complex Parts.
- Maintain Close Dimensional Tolerances.
- Provides A Good Surface Finish.
- Eliminates Or Minimizes Machining Or Assembly Operations.
- Availability Of A Wide Variety Of Alloyed Materials.
- Provides Materials Which May Be Heat Treated For Increased Strength Or Wear Resistance.
- Reduce Scrap Losses.
- Provides Controlled Porosity For Self Lubrication.
- Facilitates Manufacturing Of Complex Or Unique Shapes Which Would Be Impractical Or Impossible With Other Metal Forming Processes.



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