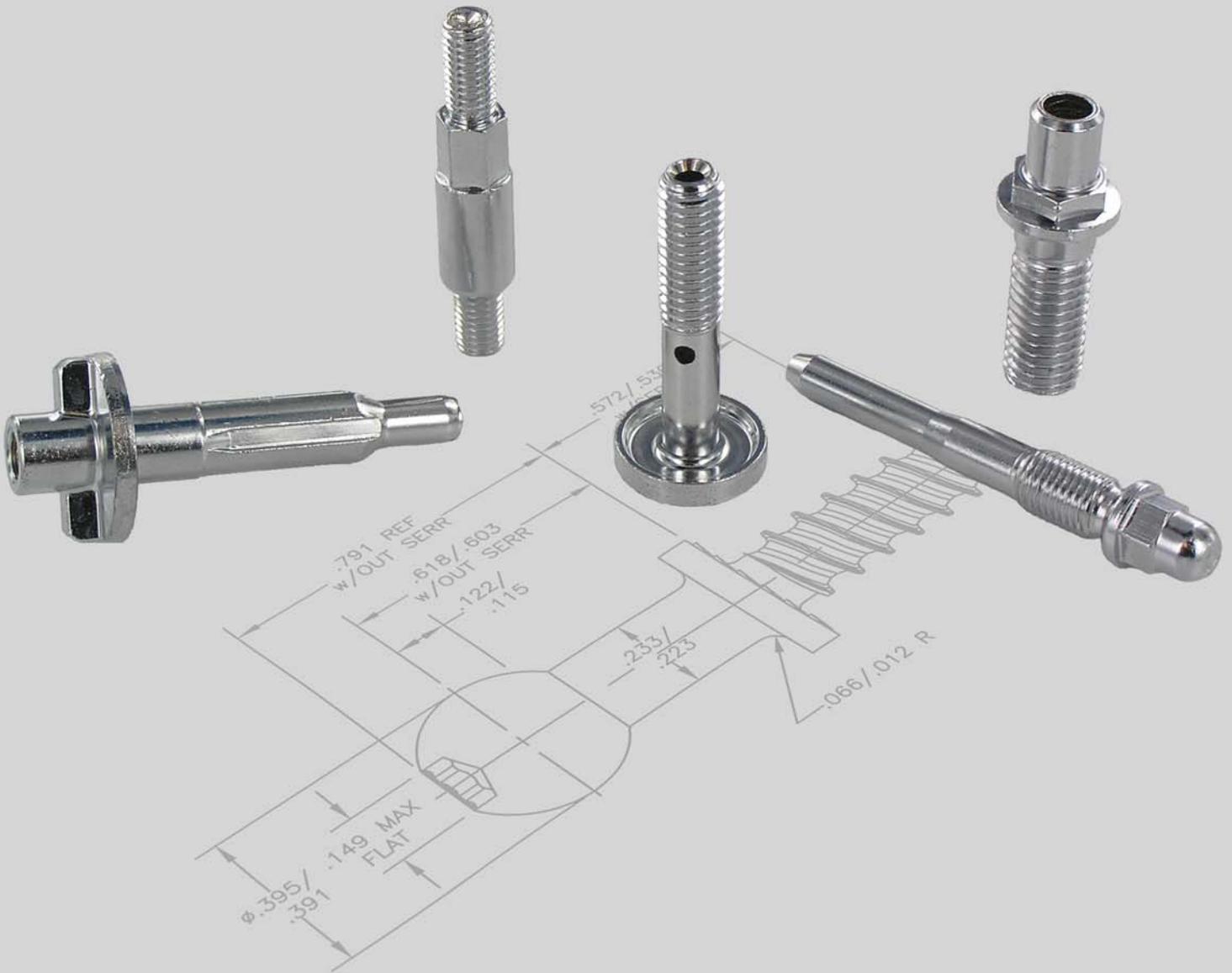


Semblex

Cold Formed Solutions

SPECIALTY COMPONENTS



Net Shapes Equal Net Savings

The Cold Forming Process

Cold Forming is the process of forming metal at ambient temperature to produce 'Net' or 'Near Net' Shapes resulting in material cost savings, increased production rates and consistent quality parts. Cold Forming produces shapes by the movement or shaping of material versus the removal of material so virtually no material is wasted. Because the shape is produced by manipulating volume the grain flow follows the part configuration which provides a higher resistance to fatigue and fractures resulting in a stronger part. The ever expanding Cold Forming Technology allows for increasingly complex configurations produced at very high rates thus reducing costs and improving design flexibility.



Adding Value to the Process with Secondary Operations

The Cold Forming Process can provide a wide range of 'Net' Shapes allowing for optimum savings to the product and the assembly. When additional features or precision tolerances are required the Cold Forming Process can be complemented with secondary processes to meet application requirements. This combination of processes provides high quality, value added products and enhanced performance.



Shaving



Tapping



Drilling



Grinding

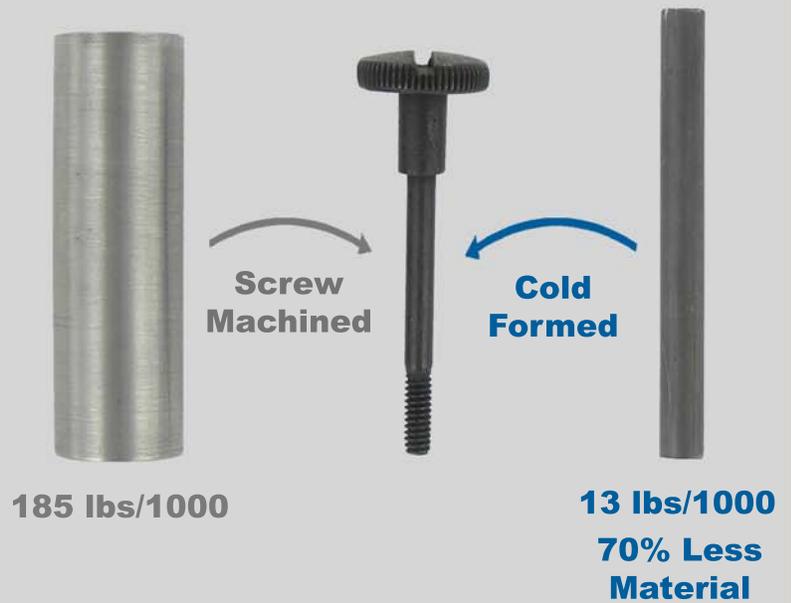


Broaching

Benefits

Cost

- Less material required
- Increased production rates
- Ability to form 'near net' shaped parts
- Potential part consolidations
- Stronger overall product
- Reduced scrap rates
- High speed process

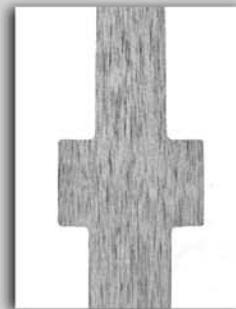


Quality

- Increased product strength
- Improved surface finish (up to 63 micro inch)
- Uninterrupted grain flow

Design

- Unique shapes and geometry are possible
- Non-symmetrical shapes and features can be created
- Large head-to-shank configurations
- Parts can be formed complete, or near complete, reducing process steps
- Tight tolerances can be maintained
- Allows for multi-piece assemblies to be made as a single piece



Screw Machined



Cold Formed

Candidates

- Large features relative to the shank or body of the part
- Multiple sections or diameters
- High production quantities
- Material cost is a significant portion of the part's total cost
- Applications with high dynamic loads
- Designs which require complex shapes or extrusions
- Tight tolerances and positional requirements
- High surface finish requirements



Success Story



Application: Motorcycle Suspension Bolt

Opportunity: Material cost reduction using a process conversion while creating a stronger part.

Process: The original screw machine process required the use of bar stock the size of the largest diameter which resulted in a large amount of material loss. Semblex was able to use less material cold forming the part while using a simple shaving operation to finish the angle and meet print requirements.

Benefits: 50% less material required.

Higher production rates through cold forming process.

Improved strength of part through work hardening and improved grain flow.

Specialty Components



Assemblies

Discover cost reduction opportunities by working with Semblex and our partners to combine Cold Formed Specialty Components, fasteners, plastics, stampings and other items into simple complete assemblies.

Benefits include:

Part consolidation

Vendor reduction

Outsourcing of simple components

Inventory reduction

Labor savings



Capabilities

| | |
|---------------------------------|--|
| Carbon Steel: | Provides good formability, lower cost, good functionality, some hardenability 1010, 1018, 10B21, 1022, 1524 |
| Medium Carbon Steel: | Offers high strength, provides good formability, good hardenability 10B30, 1035, 1038, 1045, 1541 |
| Alloy Steel: | Offers high strength, good formability, increased hardenability 4037, 4140, 8640, 8740, B16 |
| Stainless Steel: | Provides improved corrosion resistance, improved strength through work hardening, resistance to exposure to elevated temperatures 302, 304, 305, 316, 410, 430, A286 |
| Aluminum: | Offers improved corrosion protection, weight reduction, excellent formability, some grades have hardenability 2024, 5056, 6061, 7075 |
| Other: Copper, Brass, Bronze | Offers additional benefits for soldering and conductivity requirements while providing good formability CDA101, CDA102, CDA110, CDA220, CDA230, CDA260, CDA270, CDA651 (Silicon Bronze), CDA510/CDA521 (Phosphor Bronze) |

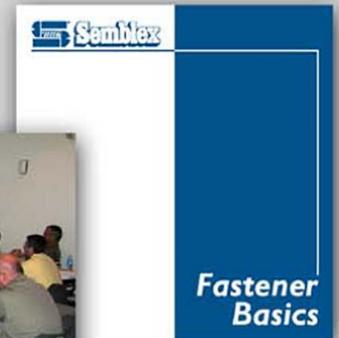
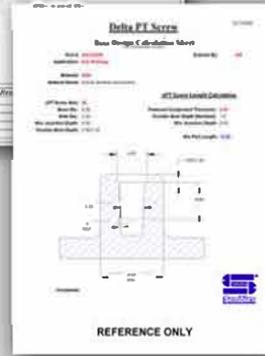
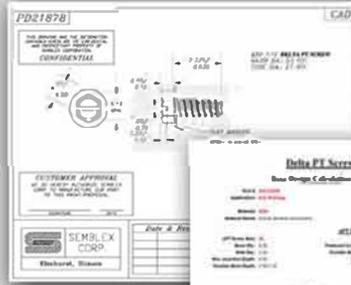
Team Approach

At Semblex, Cold Formed Specialty Components are an important means to meet our customer's needs and exceed their expectations. We accomplish this not only with our equipment, but with our team driven approach. This approach starts with our team working with our customer to understand their needs and the application requirements. Our team's experience and process knowledge allows us to evaluate requirements and ensure the most stable, cost effective processes are used. During this activity we look to identify opportunities for cost savings and improve the product's performance. This allows us to connect our customer's needs with the best, cost effective processes available.

Contact us today to let us help you on your next project.

Engineering Services

Design & Technical Assistance
VA/VE Project Support
Product Engineering Samples
Training Programs
On-Site Technical Support
Application Testing
Product Teardowns



Value Added Services

Technical Sales Team
Focused Manufacturing & Logistics Facilities
Integrated Supply Base
Sourcing Solutions
Customized Labeling and Packaging
EDI Capable
Global Partnerships - North America, Europe, and Asia

Certifications & Accreditations



Final Inspection Laboratory
Cert# 0794.01
Applications Laboratory Cert#
0794.02

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