

Engineering Services

Optimas certified engineers develop and manufacture custom fasteners and guide production facility utilization for industrial OEMs seeking efficiency gains and product quality improvements.

Application and manufacturing engineers, with decades of experience, design part functionality and optimize cold-form production. Industrial engineers identify wasteful practices inside customer facilities and devise more efficient production systems.



Industry Expertise Snapshot

- Automotive/EV
- Heavy Duty Truck/Bus
- Construction/Mining Vehicles
- Power/Renewable Energy
- Heating/Cooling/Refrigeration

ENGINEERED FASTENER EXAMPLES



T-Bolt Clamp



Fuel Line Clamp



Pin with Lanyard



Stamped Bracket

Application Engineering

Application engineers, located in all North American time zones, analyze and design fasteners, joints and installation tools for manufacturers across a wide range of industries. The most common analyses for fastener development include:

Application Analysis to determine the best fastening solution and sourcing recommendations for the product use case.

Application Testing that simulates parts in their working environment and ensures they perform to quality standards.

Installation Analysis which identifies and optimizes the best process and tools for efficient production.

Joint Analysis Data Entry Form

Remarks Forces Bolt Details Property Details Joint Details Tightening Details

The static forces on a joint can be considered in three parts. Whether or not all three forces act on the joint depends upon the application, however a force value is required to be entered into at least one of the boxes.

Axially Applied Force

Value of the Axially Applied Force N

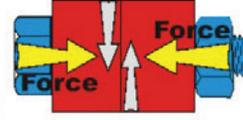
The axially applied force is the value of the force that is applied along the same axis as the bolt. It has the effect of relieving the bolt's clamp force and increasing the possibility of the joint slipping or failing in some other manner.



Clamp Force Needed to Resist a Shear Force Loading

Force required to resist shear loading N

A shear force can be applied to the joint, a clamp force generated by the bolt results in a frictional force that resists this shear force. The clamp force needed to prevent this movement is entered here.



Residual Clamp Force

Residual clamping force required N

Additional Assistance on the Residual Force

In many joints a minimum value of clamp force must be provided by the bolt or bolts in order to ensure that joint integrity is maintained. This is frequently required when joints contain gaskets.

Lower Limit of the Dynamic Force

Lower limit of the dynamic force N

Additional Assistance on Dynamic Forces

If the forces acting on the joint are dynamic in nature, the bolt could fail due to fatigue. To assess this effect the lower value of the dynamic force is required. Whether or not there are any dynamic forces acting depends upon the application.

Calculate Cancel Help

Screen shot of BoltCalc Software.



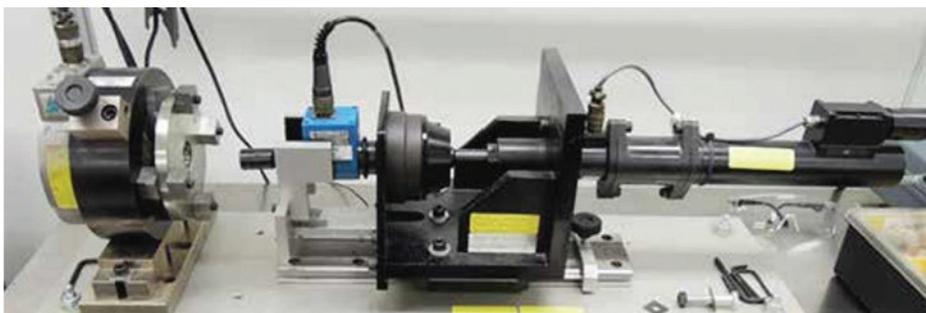
Engineered hose routing bracket for a heavy duty truck application.

Using specialized software like BoltCalc, Optimas engineers validate new and existing fastened joints to identify:

Points of potential failures and required adjustments before production begins.

Failure points and make design enhancements to improve product performance.

Design for Manufacturing processes ensure the part will work most efficiently for the production environment, operator skill set, down-line assembly requirements and product quality standards.



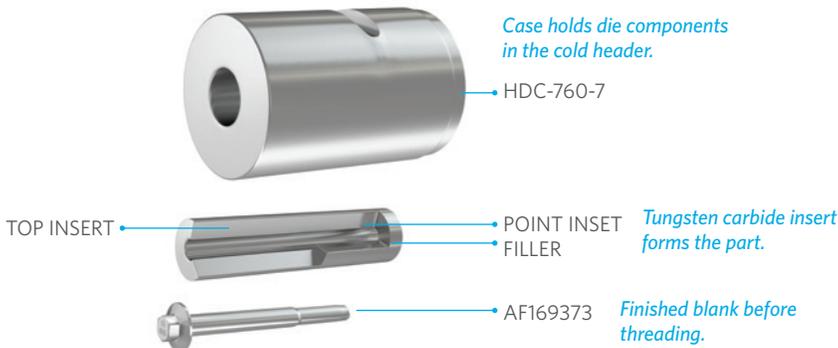
The LabMaster Pro Torque Tensioner used to test fasteners at Optimas' ISO 17025 compliant quality lab in Wood Dale, IL.

Manufacturing Engineering

Manufacturing engineers, centrally located in Optimas' production facility in Wood Dale, IL (Chicago), translate part requirements into a process roadmap that results in finished pieces. This includes:

1. Analyzing part requirements and making cold form production recommendations based on best practices and quality requirements.
2. Choosing and scheduling the correct in-house machines and secondary process/finishing partners.
3. Designing, producing and maintaining machine tools in-house with tungsten carbide and high speed tool steel.
4. Employing Advanced Product Quality Planning (APQP) procedures to confirm every part meets specified requirements before production begins.
5. Performing Finite Element Analysis and other pre-production tests, plus needed modifications, that ensure smooth manufacturing, part functionality and performance.
6. Using 3-D printers to quickly create prototypes and make educated decisions about part design.

COLD HEADER DIE ASSEMBLY



Integrated Talent Pool

With application and manufacturing engineers and ISO certified quality labs, Optimas offers end-to-end solutions that maintain the highest standards for every part manufactured—from design through delivery.

In-house engineers, tool & die makers and machine operators, in one facility, reduce lead time by:

Centralizing relationships from drawing through machining.

Anticipating trouble points and accelerating solutions.

Simplifying scheduling and logistics of producing parts.

Industrial Engineering

Industrial engineers, located throughout North America, apply creativity to increase yield and decrease costs within customer production lines and work cells. Key tools to identify opportunities and implement best practices that simplify manufacturing, elevate production and influence operating financials include:

Line Walks and Document Analyses that identify space, line, cell, tool and part improvement opportunities.

Product Design and Consulting to optimize part development for production and performance.

SolidWorks Design Software to iterate part drawings in 3-D for rapid prototyping and full production.

BoltCalc Software to simulate joint design and identify performance strengths and weaknesses.

Engineering Services

APPLICATION	MANUFACTURING	INDUSTRIAL
Software Analysis - SolidWorks 3-D Design / BoltCalc Joint Design and Testing	Part Requirements	Line Walks
Fastener Analysis / Design / Performance Simulation	Production Recommendations	Document Analyses
Installation Analysis	Tool & Die Drawing, Production and Cataloging	BOM Analysis
Design for Manufacturing	Thermoplastics	Part Consolidation
3-D Printing / Rapid Prototyping	Fiber Reinforced Thermoplastics	Kitting
Part Rationalization / Standardization / Optimization	Photopolymer Resins	Joint Design
Cost Saving Projects	Design Improvements	Problem Resolution
New Product Development / Launch	Increase Throughput	Part Number Reduction

ABOUT OPTIMAS

Optimas is the leading global industrial distributor and service provider specializing in fastening and supply chain solutions for manufacturers seeking to improve efficiency and profitability. We take care of the details so you can focus on manufacturing cutting-edge products—giving you an unparalleled competitive edge.

CONTACT US

info@optimas.com
optimas.com

