



Technical Support



Value Analysis/Value Engineering (VA/VE)

Four engineering activities from Infastech that reduce manufacturing cost and improve product performance

Infastech VA/VE is a cross-functional, creative and systematic approach used by Infastech application engineers interacting directly with customers to help eliminate waste and improve their manufacturing process efficiency and product quality:

- Product Teardown
- On-Site / On-Line Assembly Evaluation
- Assembly Process Design
- Fastener Consolidation Program

Product Teardown

Our Application Engineers conduct VA / VE workshops with customer design and engineering teams involving the disassembly and analysis of products focusing on component and joint design utilizing DFM / DFA principles. These constructive VA/VE sessions help to identify potential manufacturing cost savings, quality enhancements, improved assembly methods and reduction of internal DPPM levels.



On-Site / On-Line Assembly Evaluation

An on-site assembly evaluation is an organized method of physically scrutinizing the assembly process to evaluate joint designs and assembly methods. Infastech multi-disciplinary teams can evaluate customer assembly line operations, and this helps ensure the right balance between fastener-in-application and application-in-assembly is achieved to maximize output and minimize production time. On-line assembly evaluations are helpful in identifying and analyzing areas such as:

- Awkward assembly and internal DPPM outcomes
- High labour content
- High scrap rate

Assembly Process Design

This is a systematic review of the product assembly process that combines customer components and Infastech fasteners with installation tooling to ensure maximum efficiency on the production line.

Fastener Consolidation Service

This process involves the careful analysis and consolidation of customer Bills Of Materials and parts lists to ensure joint performance is maintained whilst minimizing the number of active fastener parts. This service helps to reduce inventory and all associated "hidden" costs.

cross-functional, highly creative, systematic approach and multi-disciplined Infastech engineers

Other Infastech Engineering Services

Fastener Selection

Our Infastech Application Engineers work directly with customer design and engineering teams to provide fastener and assembly advice, joint strength & performance requirements, Imperial / Metric conversions, selection of finishes, material and heat treatment selection.

Application Component Design

Infastech will use its broad manufacturing capabilities and extensive engineering experience to design the optimal fastener solution if your existing fastener and component styles do not meet your needs.

Performance and envelope requirements are defined in order to find the optimal joining solution for your application - from fasteners through to components and engineered assemblies we ensure that they adhere to global standards.

Prototype Samples

From application opportunity to idea generation through concept development, Infastech disciplined prototype sample programs can help you solve your challenging fastening problems. Samples from tooling followed by testing and value analysis complete the review and approval process.



Joint Analysis

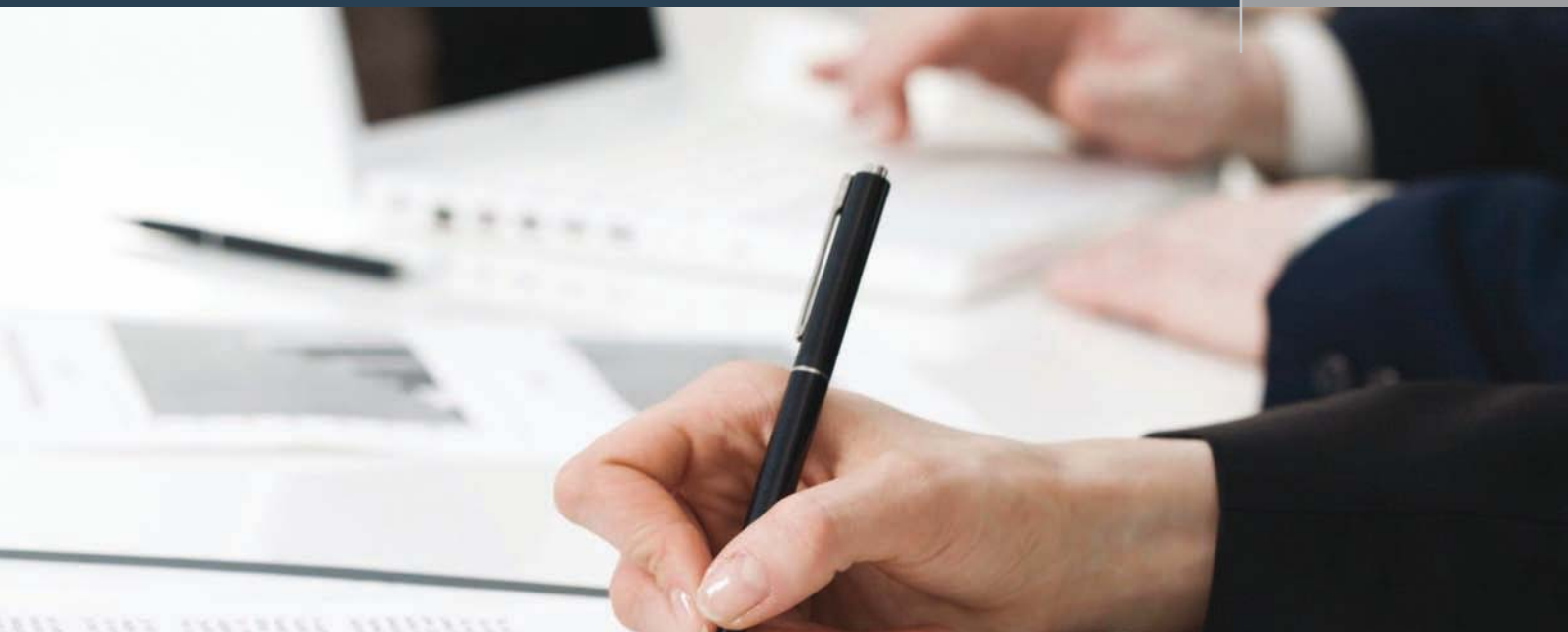
Involves the testing and evaluation of application prototypes to help improve design and in-service performance, whilst minimizing manufacturing costs. Infastech engineering software includes FASTCALC II™ and JointWorks™ and this helps to predict areas of risk and to detect design improvement options.

Model Shop

Infastech model shops and technical centres are dedicated to stretching the limits of design and manufacturing capabilities. Our dedicated model shop provides support for major programs where research and product / process development is crucial to bring various concepts to reality. We can quickly produce prototypes and small lot samples for customer testing to ensure these parts meet exact requirements before production begins.

Performance and Application Testing

Application testing is an important technical resource for evaluating fastener and joint behaviour. As a world leader in fastener, mechanical and performance testing,



Infastech is equipped with state-of-the-art testing facilities to analyze every aspect from the fastener to the entire final assembly including:

- Tensile / compression / shear
- Torque / tension with angle analysis
- Pull-out / push-out
- Joint durability
- Fastener fatigue
- Clamp retention using thermal soak and cyclic test principles
- Hydrogen related failure from stress corrosion and hydrogen embrittlement
- Fastener drive system analysis, including drive tip engagement, wear, fatigue, and ultimate strength
- Joint pressure distribution and leak prevention
- Molding and optimization of plastic boss designs

The benefits of Application Testing include:

- Prototype joint research and validations
- Assembly method recommendations
- Field failure analysis
- Equipment / test method recommendation

Infastech also has the capability to test fastener sizes M0.8 to M25 and portable equipment is available for use on customer assembly lines.

Fastener Training Seminars

We conduct fastening technology training seminars for customers' engineers. These seminars can be either market segment or fastener group specific and can

deal with common fastening problems and solutions.

Subjects covered in the seminars include:

- Bolted joint behaviour
- Torque / tension relationship
- Tightening strategy
- Seating torque value development
- Fatigue considerations
- Plating and finishing
- Manufacturing processes
- Fastening into metals & plastics
- Imperial & Metric standards
- Stress corrosion and hydrogen embrittlement
- Custom presentations to meet specific needs

Supply Chain Solutions

Infastech has the capability to design a customized program to meet your global needs. We offer a full range of global supply chain and logistics programs to keep your assembly line running with an assured line of supply whilst delivering bottom-line savings. Infastech currently provides programs to several major automotive, non-automotive, transportation and electronics manufacturers globally.



Disciplined Values

Our value-added strategy/strength is in aligning businesses, products and services around the needs of our customers. This strategy is supported by our **global footprint of design/engineering, manufacturing and distribution networks.**

As a global leader in the design, manufacturing and supply of innovative fasteners and installation systems, we offer a wide range of customized and standard mechanically engineered products. Infastech's differentiation and value as a preferred business partner is delivered through:

- In-depth technical knowledge-base resulting from our long history in the industry. We have operations that trace their origins back to early 20th century.
- Commitment to deliver superior customer satisfaction through consistent quality assured products, on-time delivery, industry leading technical and application engineering support.
- Strong network of manufacturing and distribution operations, certified partner factories and suppliers enable us to meet your product, service and technical support requirements effectively.
- Ability to quickly understand varying industry specific customer requirements drawn from our experience supporting customers from the automotive, electronics, aerospace, industrial, mining, and the building & construction industries.
- Global footprint positioning us to support you as your business expands regionally & globally.
- Commitment to long term business relations, founded on strong business ethics.