



Engineering Your Competitive Edge...

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Why Clients Use Our Services

Virtual Engineering customizes programs to suit our Client's problem-solving needs

We offer solutions at every stage of the development process



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Our Core Services

- **Conceptual Design** **preliminary concepts and industrial design sketches**
- **Brainstorming & Innovation** **develop new ideas and solutions to complex problems**
- **New Product Development** **to commercialize a new product concept**
- **Finite Element Analysis** **evaluate structural integrity of parts & assemblies**
- **Field Failure Analysis** **eliminate warranty issues and reduce costs**
- **Value Analysis Engineering** **evaluate products for cost reductions**

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Our Approach...

Results:

- **Designs that are geared towards the desired functions while using the appropriate manufacturing processes**



Experience:

- Founded in 1992
- Highly skilled, degreed engineers
- Solid engineering capability
- Vast manufacturing knowledge
- Emphasis on implementation

Versatile:

- Napkin sketch concepts to production support
- Services can turn “on” or “off” as necessary

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...Benefits of Our Approach



Quicker response times

Lower project cost

Reduced design cost

Reduced engineering overhead

Robust designs

Better customer communications

Customized programs

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Engineering Expertise

Product Development Processes

- CAD modeling / surfacing (Creo)
- Motion studies and animation
- Tolerance studies
- Drawings
- GD&T
- FEA (Creo Simulate – Linear)
- DFMEA
- DVP&R
- Test Specifications
- Test Plans
- Test witnessing and results review

Manufacturing Experience

- Conventional Stampings
- Fineblank Stampings
- Cold form / headed
- Screw machine
- Springs
- Threaded fasteners / bolted joints
- Injection mold
- Die cast
- Powder metal
- Rivet and stake
- Arc weld
- Laser weld
- Finishes / coatings

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Products Developed That Went Into Production

- **Chrysler LLC**
 - ND84 Rear Seat Inertia Latch
 - HB 2nd & 3rd Row Mechanisms
 - LX Rear Seat Back Latch and Striker
 - PL Rear Seat Back Latch and Striker
 - D Segment Rear Seat Latch and Striker
 - DR/DS Mega Cab 2nd Row Recliner / Back Latches
 - KJ Hinge, Leg, and Isofix Assemblies
- **Ford Motor Company**
 - P131 Truck Full Bench Seat Latch
 - P221 Armrest Latch
 - D219/258 Recliners & Latches
 - S197 Rear Seat Striker, Latch & Cable
 - U387 2nd Row Recliners
 - VN127 Floor Latch
 - C170 Rear Seat Latch & Striker
 - P251 Rear Seat Back Latch
 - D471/472 2nd and 3rd Row Mechanisms
 - P415 1st and 2nd Row Mechanisms
 - B515 2nd Row Recliners
- **General Motors Corporation**
 - H2 /GMT900 40 Percent Cushion Latch
 - GMT560 Armrest Latch
 - GMT560 Recliner
 - GMT560 2nd Row Mechs
 - GMT355, GMX322, GMX511 Rear Seat Back Latch
 - GMX 211/231 and 365/367 Rear Seat Back Latch & Striker
 - GMT610 Recliners & Striker
 - GM Epsilon Rear Seat Latch and Striker
 - GMDAT C100/105 2nd & 3rd Row Mechanisms
 - GMX319 2nd Row Mechanisms
 - 2010 GMX226 Rear Seat Latch and Striker
- **Nissan**
 - TK Rear Seat Back Latch
 - TK Rear Seat Back Latch and Striker
- **GMDAT**
 - 2006 GMDAT C100/ C105/ GMT 319 2nd Row Floor Latches
 - 2006 GMDAT C100/ C105/ GMT 319 Recliners
 - 2006 GMDAT C100 3rd Row Rear Seat Latches
- **Hyundai**
 - 2006 CM 2nd Row Floor Latches
 - 2006 CM 2nd Row SIR and Non-SIR Recliners
 - 2006 CM 3rd Row Rear Seat Back Latches
- **KIA**
 - 2010 XM 2nd Row Floor Latches (NA and Asia production)
 - 2010 XM 2nd Row SIR and Non-SIR Recliners (NA and Asia production)
 - 2010 XM 3rd Row Rear Seat Back Latches (NA and Asia production)
 - 2015 UM 3rd Row Rear Seat Back Latches
 - 2018 QM 3rd Row Rear Seat Back Latches
 - 2020 MQ4 3rd Row Rear Seat Back Latches
- **Ssang Yong**
 - 2017 Y400 2nd Row 2nd Row Floor Latches
 - 2018 Q200 2nd Row High Back Latches
- **Visteon**
 - ICES Radio – Manual Articulating Door
 - ICES Radio – Power Articulating Door
- **Knoll**
 - Sapper XYZ Monitor Arm
 - Sapper XYZ Crossbar Monitor Arm
- **Gateway**
 - Desktop PC Door
- **Homedics**
 - Powermat Phone Charger Cases and Doors for Cell Phones
- **Mytox**
 - Power Running Board Transmission
- **Ford Motor Company**
 - Articulating Cupholder – Mark VIII

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Customers

- AASTROM
- ACCURIDE
- ALLSTEEL
- ANDERSON COOK, INC.
- BRONSON
- CAMACO
- CAMBRIDGE
- CONCORD
- DELTA USA
- DESIGN RESEARCH ENGINEERING
- DURA
- FASCO
- FAURECIA
- FISHER DYNAMICS
- FIRST ALERT
- FORD
- FRIGIDAIRE
- FREEDMAN SEATING
- GATEWAY
- GENERAL MOTORS
- GILL
- GORILLA, INC.
- GRAND HAVEN STAMPED PRODUCTS
- GRAND RAPIDS CONTROLS
- HAUSER
- HAWORTH
- HERMAN MILLER
- HICKORY SPRINGS
- HIGH TECH PERFORMANCE TRAILERS
- HOMEDICS
- INDUSTRIAL DESIGN INNOVATIONS
- IKEDA ENGINEERING
- IMAGINESTICS
- INJECTECH
- INVACARE
- IRWIN SEATING
- IRVIN AUTOMOTIVE
- JAY INDUSTRIES
- JETSKIM
- JOHNSON CONTROLS
- KIMBALL
- KMM
- KNOLL
- LEGGETT & PLATT
- LAY-Z-BOY
- LEAR
- LOVEJOY
- LM GEAR
- MAGNA
- MCLEOD DESIGN
- MODERN METAL PRODUCTS
- MOEN
- MYTOX
- NUCRAFT
- OPTREX
- OUTBOARD MARINE
- PL PORTER
- POLYTECH
- REUM
- ROCKFORD PROCESS CONTROL
- SHUANGLIN AUTO PARTS
- SOMIC ISHIKAWA
- STEELCASE
- STERIS
- STRYKER
- SUNDBERG FERAR
- TOYOTA BOSHOKU
- TEKNION
- TREBMOTION
- UNISYS
- VERTEX
- VICKERS
- VISTEON
- WEBASTO
- WHIRLPOOL

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