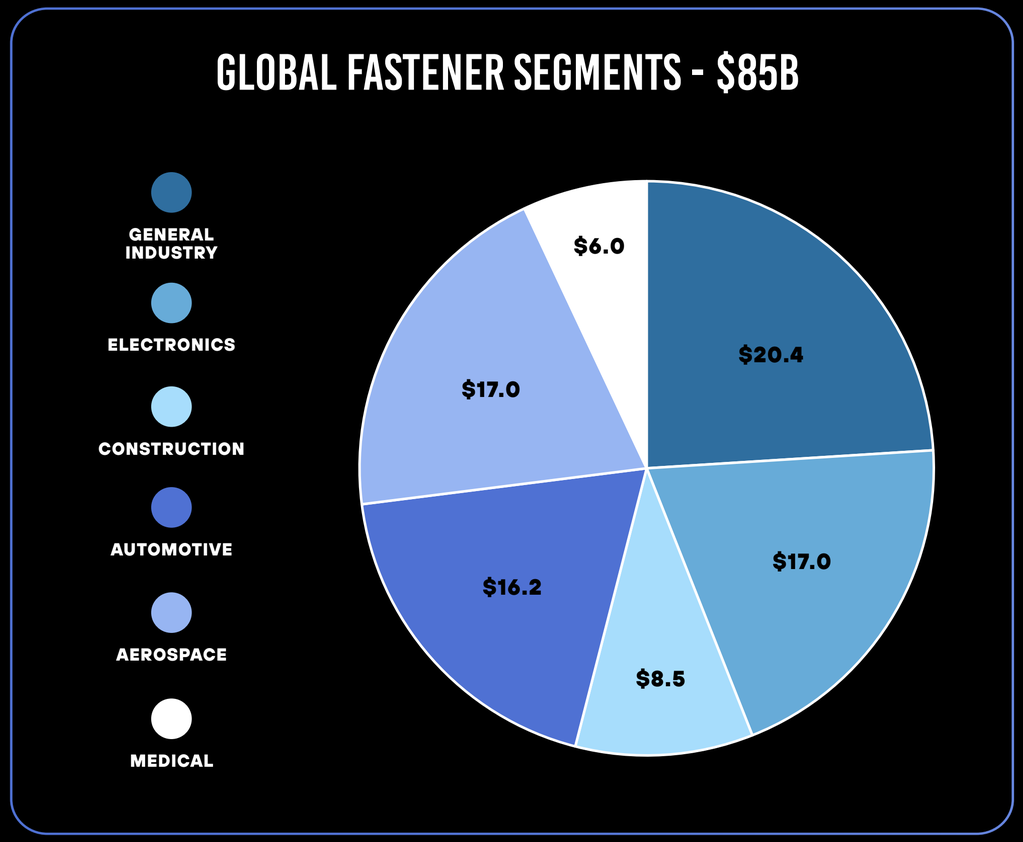
UnifiM.I.™

AUTOMOTIVE, LLC

A FASTENER TECHNOLOGY COMPANY

INDUSTRY BREAKDOWN FOR FASTENERS



EV Fasteners Market to Reach $20 Billion by 2030

According to an analysis by global market research firm, Stratview Research, the global Electric Vehicle (EV) Fasteners Market is projected to witness a growth rate of 13.5% annually from 2024 to 2030, with an anticipated size of some US$20 billion by 2030. The analysis segments the global EV fasteners market based on vehicle type, EV type, application type, material type, threading type, fastener type and region. Visit the website below to get a free sample of the report:

www.stratviewresearch.com

IBISWorld | Screw, Nut & Bolt Manufacturing in the US | May 2024 StanleyBlack&Decker| Investor Presentation| August 2024

EXPERIENCE MATTERS

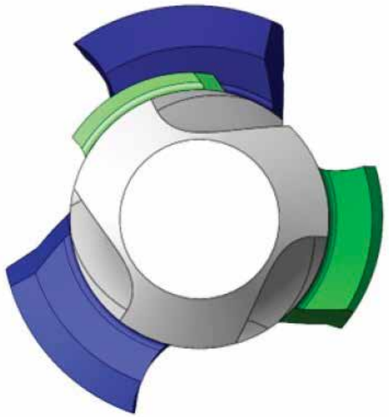
UNIFI*M.I.* FASTENER TECHNOLOGY TRANSFORMED THE MEDICAL DEVICE INDUSTRY.

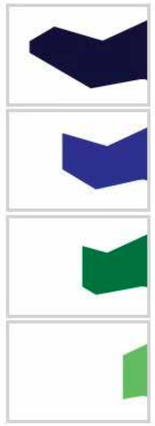
UTILIZED DAILY BY EXPERT SURGEONS 100 UNIVERSITY HOSPITALS TO MAINTAIN IMPLANT STABILITY.

UNIFI*M.I.* PERFORMANCE CAPABILITIES

- PRESERVE THE SUBSTRATE
- INSTANTLY INTERLOCK TO THE PRESERVED SUBSTRATE
- MAINTAIN STABILITY OVER TIME

SUBSTRATE PRESERVING TAP





EXPERIENCE THE DIFFERENCE

CONVENTIONAL 'BUTTRESS' THREADS VS. UNIFIM.I. THREADS

INSERTION TEST

CONVENTIONAL 'BUTTRESS' THREAD FORM

Conventional

- Crushes and plows during insertion
- Creates a damaged and unstable interface

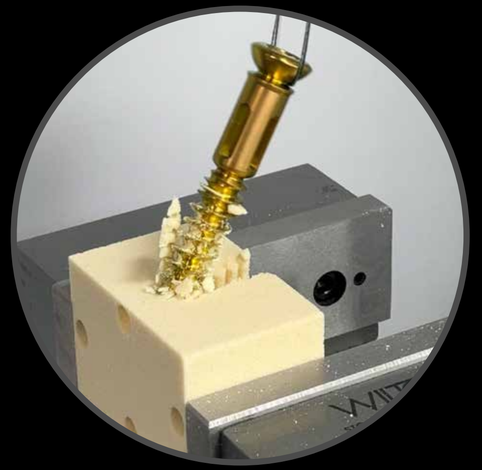
UNIFIMI THREAD FORM

Unifi*M.I.*

- Cleanly prepares and preserves during insertion
- Creates a stable and mechanically integrated interface

PULL TEST

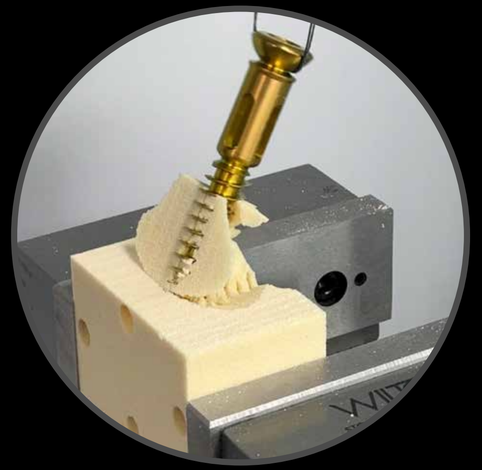
CONVENTIONAL 'BUTTRESS' THREAD FORM



Conventional

- Non-integrated
- Interface crushed and fractured
- Limited load resistance on tension side

UNIFIMI THREAD FORM

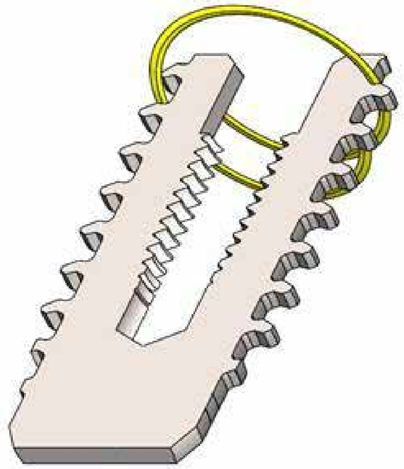


Unifi*M.I.*

- Integrated circumferentially
- Interface preserved and maintained
- Full load resistance on tension side via MI

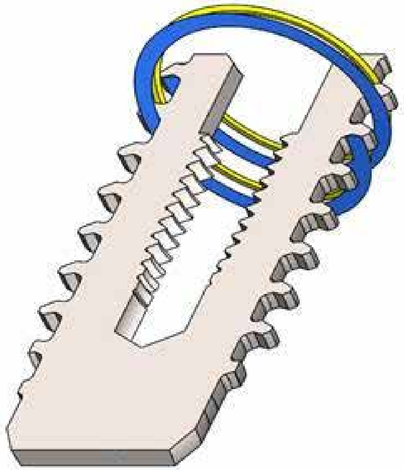
Unifi*M.I.* EXPLAINED

UNIQUE THREAD GEOMETRY: USING UNDERCUTS TO INTERLOCK WITH SUBSTRATE



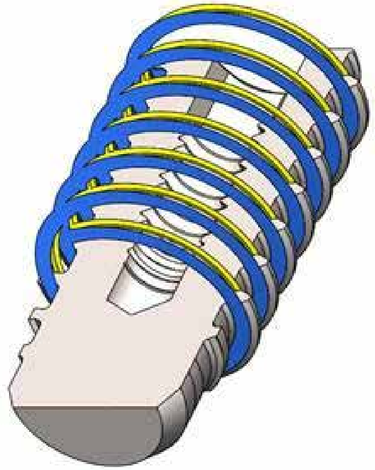
TRAILING UNDERCUT

Trailing undercut provides circumferential resistance to axial pull-out and toggle.



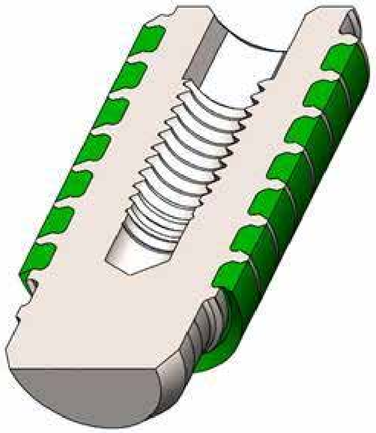
LEADING UNDERCUT

Leading undercut provides circumferential resistance to axial compression and toggle.



WORKING LENGTH

The unique undercut geometry resists loads and supports the insert within the substrate down the entire thread length.



SUBSTRATE CAPTURE

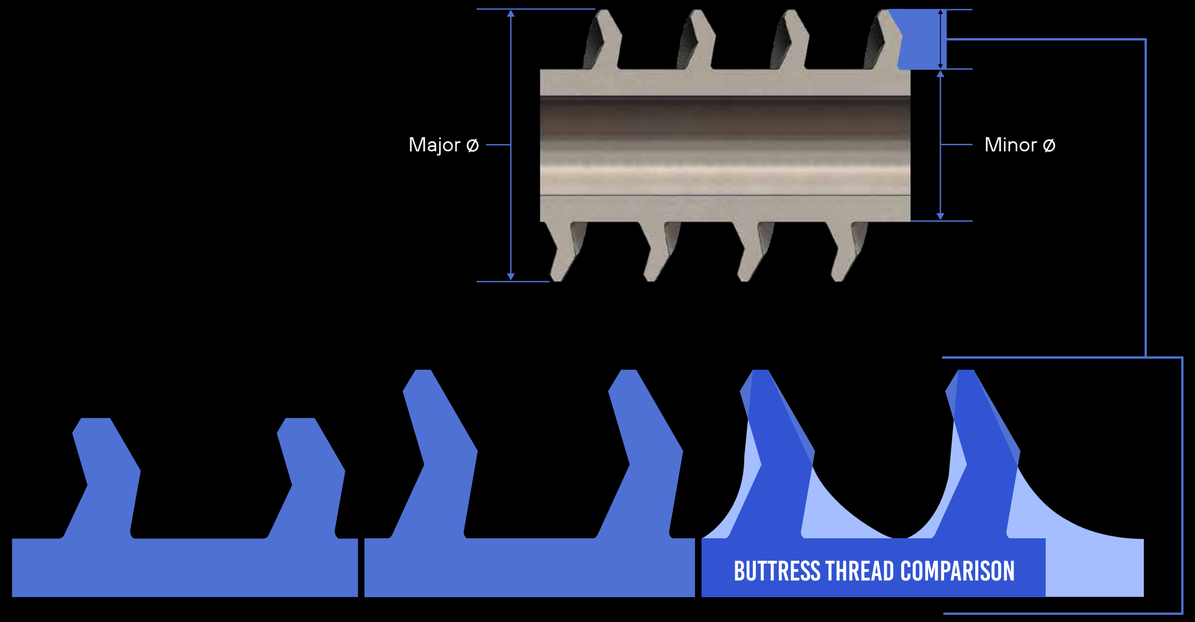
The result is the interlocking of significant substrate volume between threads--providing immediate and lasting stability by sharing loads and reducing stress concentrations.

ADAPTABLE CHARACTERISTICS

BY SUBSTRATE APPLICATION

Ability to control interface depending upon:

- Material Demands
- Application Needs



PERFORMANCE DRIVEN DESIGN

UNIFI*M.I.* THREAD FORM

CONVENTIONAL ‘BUTTRESS’ THREAD FORM

DRILL OPTIMIZATION

TIP ANGLE

SPLIT POINT

PRIMARY & SECONDARY RELIEF

CORNER CHAMFER

FLUTE HELICAL ANGLE

FLUTE EDGE BREAK

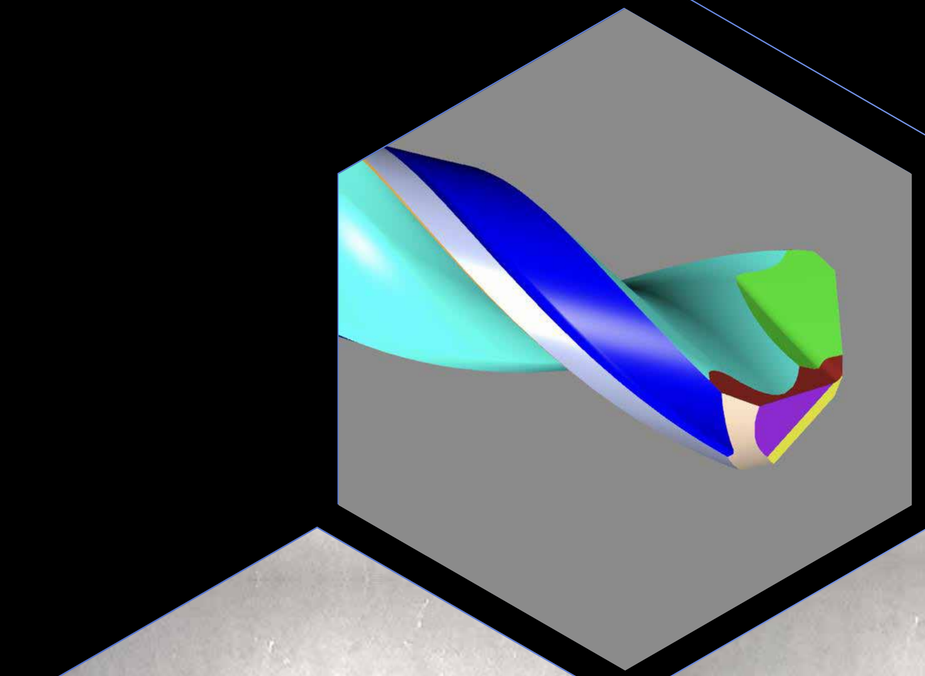
FLUTE MARGIN

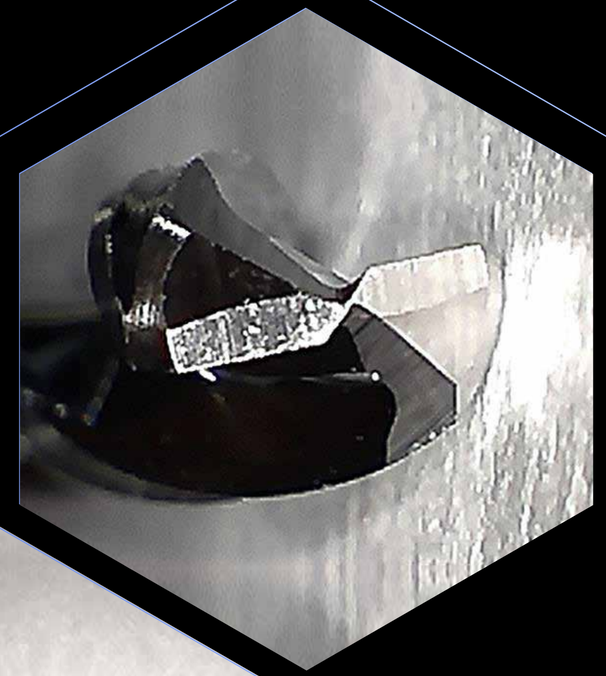
RESULTING IN

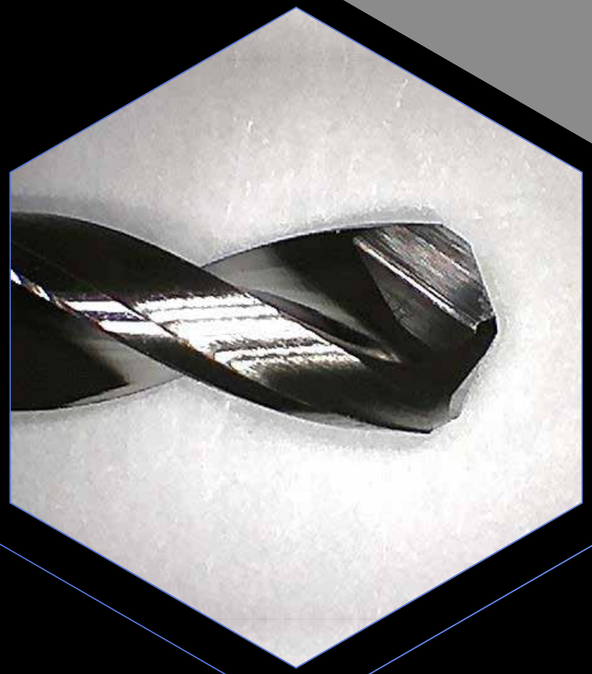
MORE ACCURATE HOLE SIZE

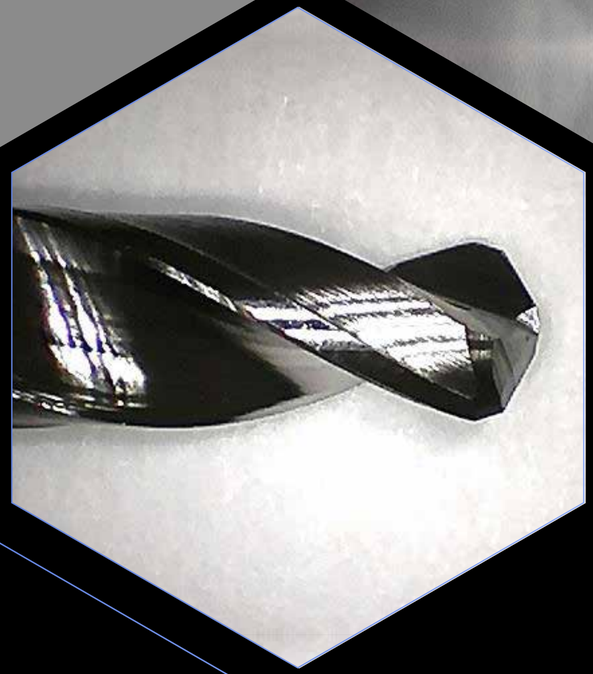
FASTER DRILLING SPEED

LOWER HEAT GENERATION





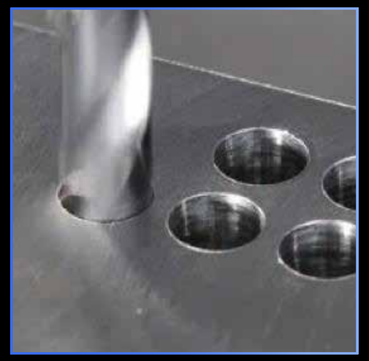




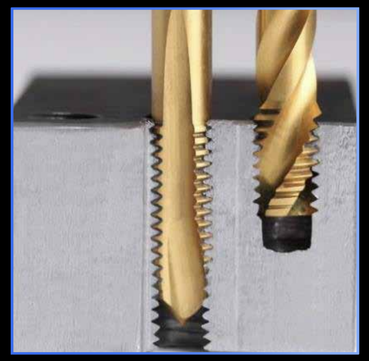
LEVERAGING KNOWLEDGE

APPLICATION OF INTELLECTUAL PROPERTY

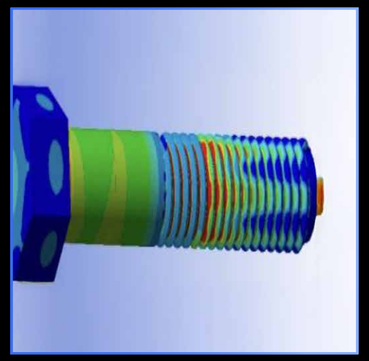
DRILLING



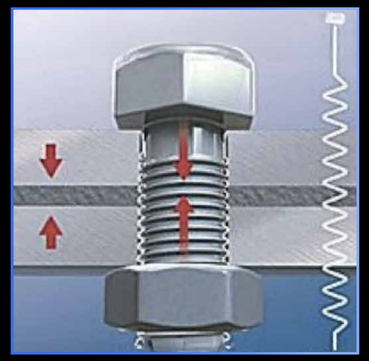
TAPPING



STRESS MANAGEMENT



STABILITY



AUTOMOTIVE APPLICATION

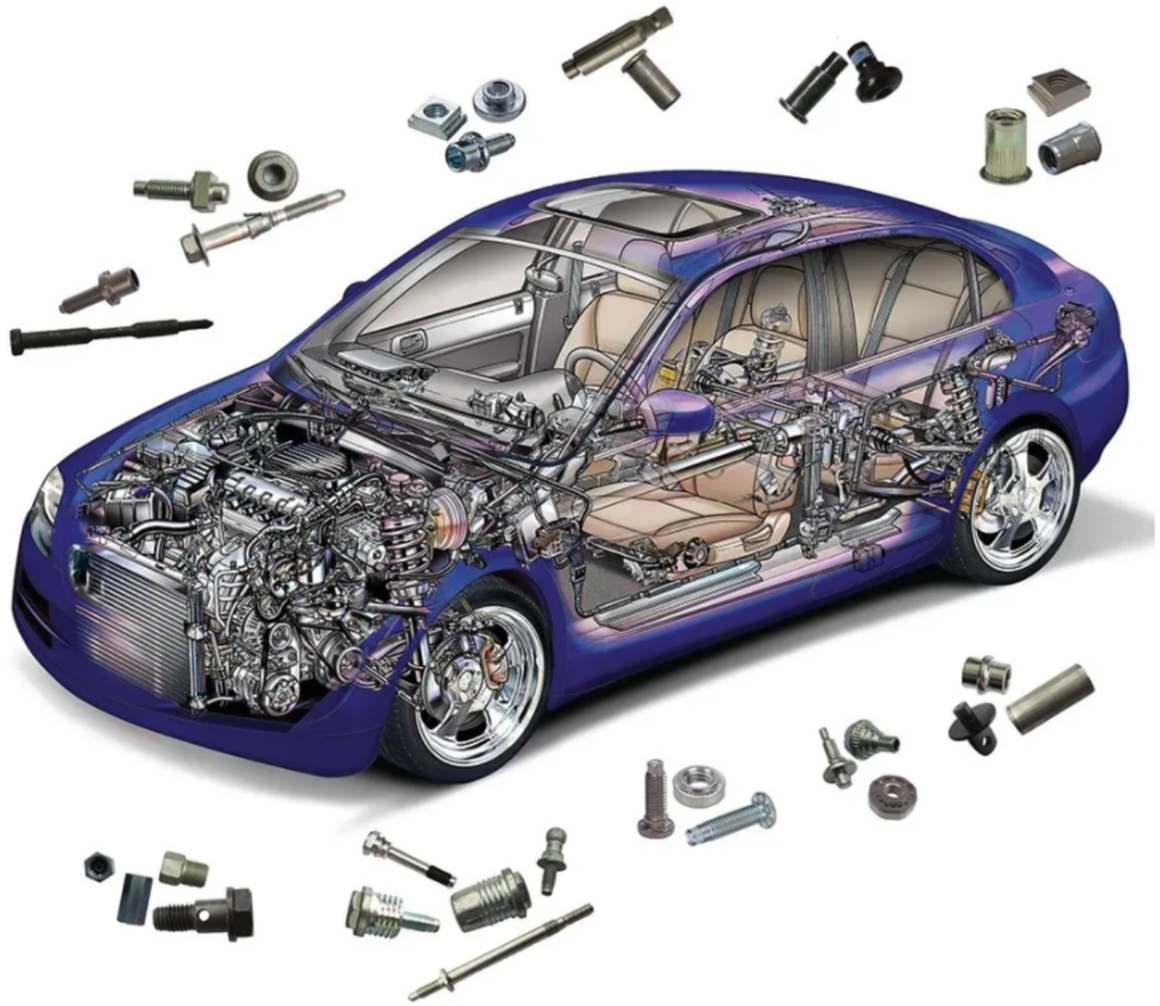
AREAS OF FOCUS

NUT & BOLTS: Engine components, suspension systems, body panels, wheels

SELF-TAPPING SCREWS: Interior trim, electrical components, air intake systems

CLIPS & RETAINERS: Wiring hoses, interior trim

RIVETS: Body panels, chassis components



EV FASTENER NEEDS

INTERNAL COMBUSTION (ICE) VEHICLE
AVERAGE CONTENT

FULLY ELECTRIC & HYBRID ELECTRIC VEHICLE
PROJECTED CONTENT

$9.5/CAR

COMMON APPLICATIONS TO ICE & EV

CHASSIS/BIW | INTERIOR TRIM | EXTERIOR TRIM | LOW VOLTAGE WIRING | AUTO ELECTRONICS

$15/CAR

$30/CAR

$30-$60/CAR

ELIMINATED

FUEL & EXHAUST SYSTEM
ENGINE

$0.5/CAR

ICE ONLY

ADDED

COOLING SYSTEMS | BATTERY SYSTEM | ON-BOARD CHARGER
INVERTERS & CONVERTERS | HIGH VOLTAGE WIRING | E-MOTOR & CONTROLLER

$15-50/CAR

EV ONLY

ELECTRIFICATION DRIVES 3X TO 6X HIGHER CONTENT $ POTENTIAL PER VEHICLE

AUTOMOTIVE APPLICATIONS

ADDRESSING KEY MARKET CHALLENGES

Unifi*M.I.*
FASTENER PLATFORM

ENGINEERED TO DISSIPATE VIBRATIONAL ENERGY & PROVIDE A LONG-TERM STABLE CONNECTION

OPTIMAL MECHANICAL, STRUCTURAL & FUNCTIONAL CONNECTION

REDUCE ASSEMBLY TIME, COST & WEIGHT

UTILIZE TRADITIONAL MANUFACTURING TECHNIQUES

TARGET PARTNERS

$3.2B SALES

ITW

BOLTS, SCREWS AND STUDS	COMPRESSION LIMITERS	NUTS AND RETAINERS
		

$2B SALES

STANLEY Engineered Fastening

STANLEY Engineered Fastening · NELSON · POP · TUCKER · CRIBMASTER · CAM

$723M SALES

SFS

POWERTRAIN	POWERTRAIN TECHNOLOGY
SEATS AND DOORS	SENSORS

$675M SALES

lisi AUTOMOTIVE

DRILL SCREWS	STAINLESS STEEL SCREWS	SELF-TAPPING SCREWS
		

Unifi*M.I.* AUTOMOTIVE ACTION PLAN

1. **Demonstrate** technology capabilities
    a. Tool developmentof dies, taps and drills
    b. Drilling and tapping of concrete, wood, and steelsubstrates
    c. Vibrational, axial and off-axis load fastener substrate testing

2. Top down **education** with bottom up preparation

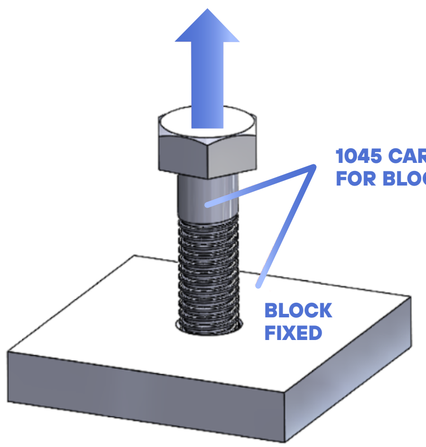
3. Execute **licensing** models

4. Bring **“killer app”** to market with partner

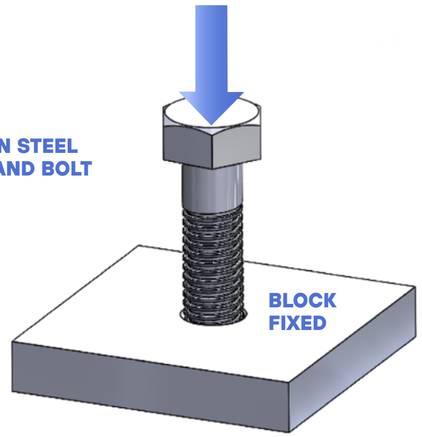
5. **Influence** design and specifications for next gen projects

Unifi*M.I.* AUTOMOTIVE VALIDATION POINTS

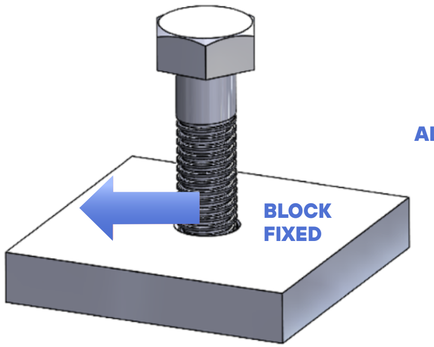
STRUCTURAL & DYNAMIC MECHANICAL TESTING

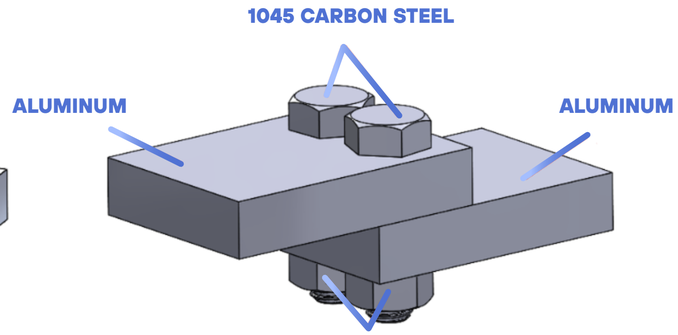


BOLT TENSION



BOLT COMPRESSION





1045 CARBON STEEL
VIBRATION CYCLING WITH CLAMP LOAD CHANGE OVER TIME


RESHAPING
THE FUTURE
UnifiM.I.™
AUTOMOTIVE, LLC