

**HOWMET
AEROSPACE**

Huck® Fasteners for Track and Crossing Applications

Reduced Maintenance
Longer Track Life
Quick Installation

HUCK

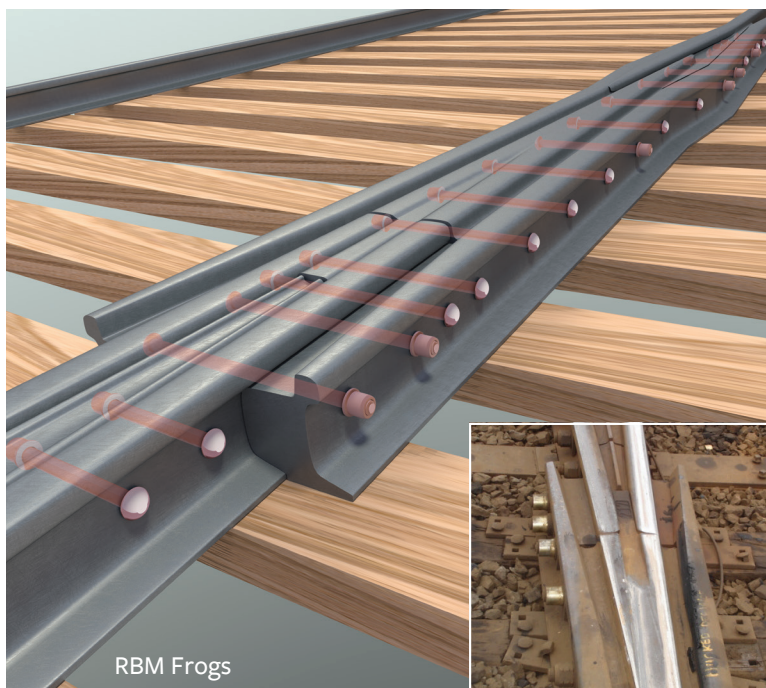
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Huck® Fasteners

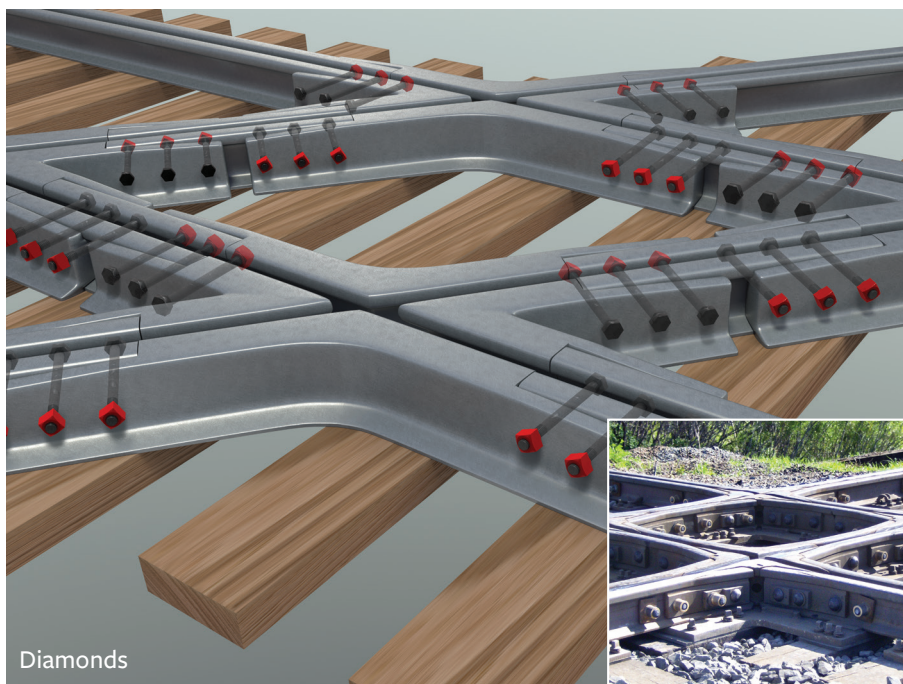
Reduced Maintenance, Longer Track Life and Fewer Headaches

For track and crossing applications, the Huck C50L®, BobTail® and Huck 360® combine strong, never-come-loose joining power, and easy, safe installation. Huck® fasteners have been proven in track applications ranging from insulated joints and gauge plates, to crossing applications that include RBM frogs and diamonds.

In fact, Huck fasteners have been utilized in over 3,000 frogs and hundreds of other track and crossing components for more than a decade.



RBM Frogs



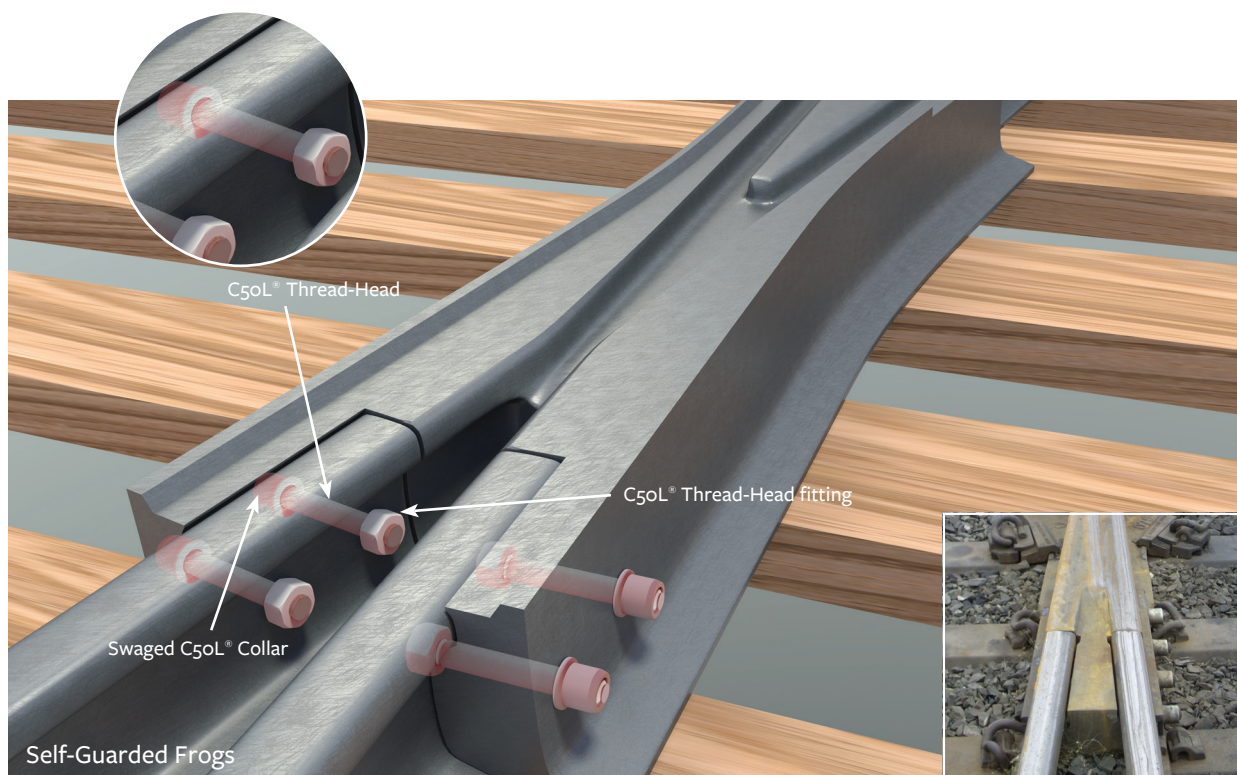
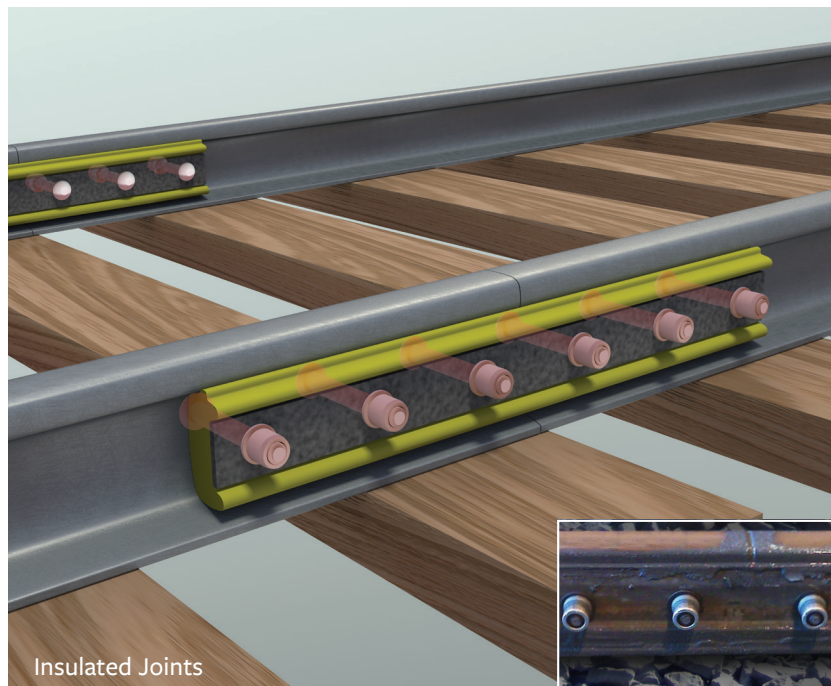
Diamonds



Gauge Plate

Huck-engineered for the ultimate in uniform clamping power, C5oL, BobTail and Huck 36o HuckBolts® also deliver unmatched vibration resistance. That means reduced flexing, and ultimately, extended track and crossing life. Because Huck fasteners never come loose, maintenance intervals are greatly extended.

Together with unparalleled fatigue life, and safe, quiet, consistent installations, Huck fasteners provide a simple, cost-effective upgrade for your track and crossing applications.



HuckBolts

For Heavy-Duty Track Applications

C5oL®

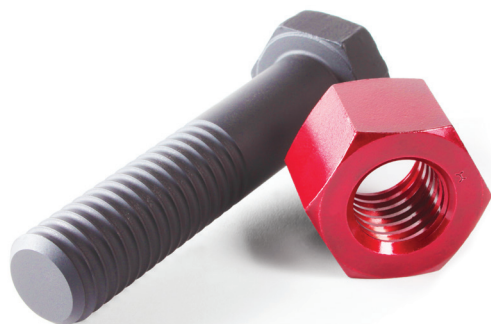
The C5oL® has defined HuckBolt® for more than 50 years. Offering superior vibration resistance and overall durability for heavy-duty fastening jobs, C5oL is ideal for use within applications where consistent, uniform high clamp force is required. Testing has proven that C5oL fasteners meet or exceed the performance of torqued bolts in both shear and tensile strength, as well as fatigue life.

- Available with conventional head or thread-head design
- Superior vibration resistance and overall durability for heavy-duty applications
- Meets or exceeds torqued bolts in shear and tensile strength, and fatigue life
- Offers consistently high, uniform clamp force
- Exceeds ASTM 325 specifications

Available Sizes: 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-3/8"

Materials: Steel, Aluminum

Headstyles: Head Styles: Round, 90° Flush, Stainless Cap, Truss, Large Truss, Thread Head



Huck 360®

The Huck 360® is the most advanced nut-and-bolt fastening system available today. A high-strength, vibration resistant, easy-to-install engineered fastener, Huck 360 can be installed and removed using conventional tools, often in under 2 seconds. Huck 360 has been proven to deliver 5 times the fatigue life of a standard thread bolt, and is virtually maintenance-free.

- Available with conventional head or thread-head design
- Highest-in-class vibration resistance
- Virtually maintenance-free
- Can be installed and removed using conventional tools
- Most advanced nut-and-bolt fastening system available

Available Sizes: 3/8", 7/16", 1/2", 5/8", 3/4", 7/8", 1", 1-3/8"
10mm, 12mm, 14mm, 16mm, 20mm, 24mm, 36mm

BobTail®

The Huck BobTail® represents the most advanced fastening technology to date.

Engineered to meet the challenges of a wide range of assembly applications, BobTail offers high performance and reliability in a unique, pintail-less design. It delivers up to 5 times the fatigue strength of conventional nuts and bolts, unmatched installation speed, and vibration resistance. Ideal for the demanding track industry, BobTail is the industry's next-generation lockbolt.

- Unmatched installation speed – often under 2 seconds per fastener
- Unique, low-swage technology enables installation with lightweight, ergonomic tooling
- No-break-off pintail means highest corrosion resistance in its class
- Quick visual inspection is all that's needed for a quality-assured joint

Available Sizes: 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1"
12mm, 14mm, 16mm, 20mm

Materials: Steel, Aluminum, Stainless Steel

Headstyles: Round, Truss, 90° Flush, Flanged, 98T, Thread Head



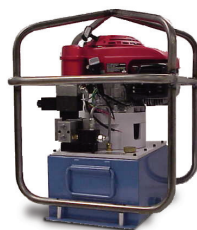
Advanced Huck® Tooling

Huck offers a full line of advanced, heavy-duty hydraulic installation tools and nose assemblies that work with each engineered fastener. For instance, models 2630, 507, and 12142 installation tools work ideally with the C50L fastener, model BTT57 is specifically designed to install the Huck BobTail, and the Huck 360 is installed with conventional tools.

Supporting each installation tool is Huck's wide range of hydraulic Powerig® power units. The Powerig 913H is a gas-powered mobile unit perfect for field use, while the 940 model Powerig is an electric-powered portable unit used for moderate production and repair applications.



Powerig®
Model 940



Powerig®
Model 913H



Model
BTT57



Model
2630

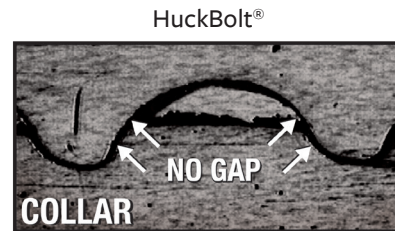
Huck® Fastening Technology

Vibration Resistance: How Huck Does It

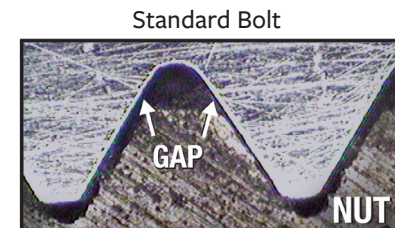
Huck engineering. It's what makes a HuckBolt a HuckBolt. And, it's what gives each C50L, BobTail, and Huck 360 its strength and vibration-resistant properties – the highest level of vibration resistance you'll find in the industry.

Eliminating the Gap

In conventional nut and bolt installations, gaps between nut and bolt threads are a source of potential loosening. The HuckBolt design practically eliminates these gaps, by featuring full metal-to-metal contact between the swaged on collar and the pin. This unique swaged connection provides unwavering vibration resistance, even in the most vibration-intensive environments.



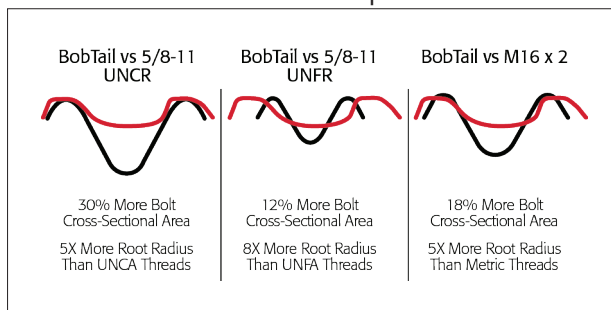
The swaged collar forms over the lock thread, and eliminates the gap.



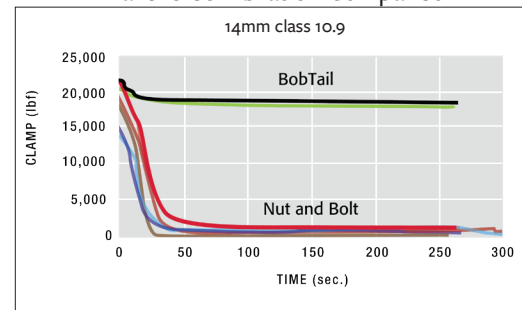
Regular nuts and bolts have gap, which allows for loosening by vibration.

When compared with conventional nuts and bolts, HuckBolts have a much larger cross-sectional area and larger root radius, resulting in a much stronger and more secure joint. In fact, HuckBolts have up to 30% more bolt cross-sectional area, and up to 5x more root radius than regular bolts, depending on the bolts used.

Bolt Thread Comparison



Transverse Vibration Comparison



Huck vs. Conventional Joining

As compared with conventional torqued-on nuts and bolts, and when contrasted with welding, Huck fasteners offer the combination of a reliable, vibration-resistant joint, and a safe, efficient installation process. Huck fasteners are proven to never come loose, even in the most vibration-intensive applications, and maintain strength and structural integrity for the life of the joint.

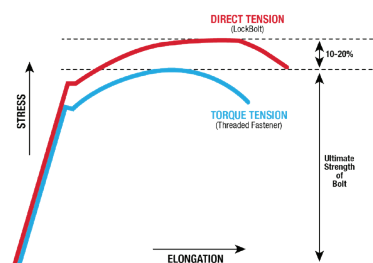
Huck Vs. Torque Clamp: The True Measure of Joint Integrity

Torque has long been the standard by which tightness of a joint was measured. However, clamp has been proven to be the true indicator of whether or not a joint exhibits high strength and long life. Only HuckBolts, which use the direct tension/swaging method of installation, deliver that consistent clamp. To prove it, Huck engineers tested conventional nuts and bolts and established that even when torque is consistent, clamp isn't. The result of that testing is found below.

Torque at 226 ft-lb					
GRADE 8 FASTENER	CLAMP LBF TEST 1	CLAMP LBF TEST 2	CLAMP LBF TEST 3	CLAMP LBF TEST 4	% VARIATION
FREE RUNNING NUT	15,000	20,000	21,000	18,000	40%
NYLON LOCK NUT	21,500	18,000	18,000	24,000	33%
STOVERIZED LOCK NUT	26,000	21,000	28,500	23,000	36%

Because HuckBolts are not subjected to torsion during installation, they can safely be taken to higher preload values than conventional bolts. This installation requires direct-tension only, while conventional bolts are under a combination of tension and torsion during installation. Conventional bolts develop torsional forces from friction and geometric factors between the mating threads, resulting in a reduction of yield and tensile strength of 10% to 20%. The torque-tension relationship is shown in the chart to the right.

Direct vs. Torque Tension Comparison

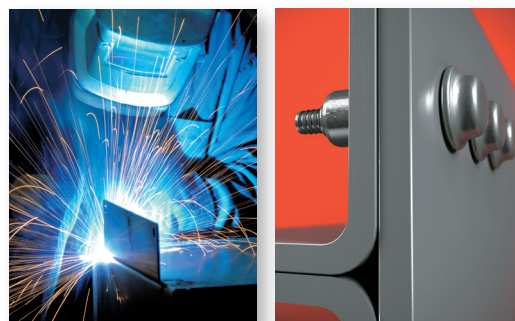


See for yourself.

Watch the video at AFSRHuck.net/clamp.

HuckBolts Change The Equation

While welding has long been utilized to deliver a secure joint, there are several strong reasons to consider a proven alternative - direct-tension, swaged on HuckBolts. Fastening with vibration-resistant HuckBolts instead of welding offers five key benefits over welding: safety, simplicity, speed, cost-savings, and structural integrity. Utilized over more than 30 years in the harsh trucking and rail industry environments, Huck fasteners have proven they perform.





Howmet Fastening Systems

Industrial Division Brands



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