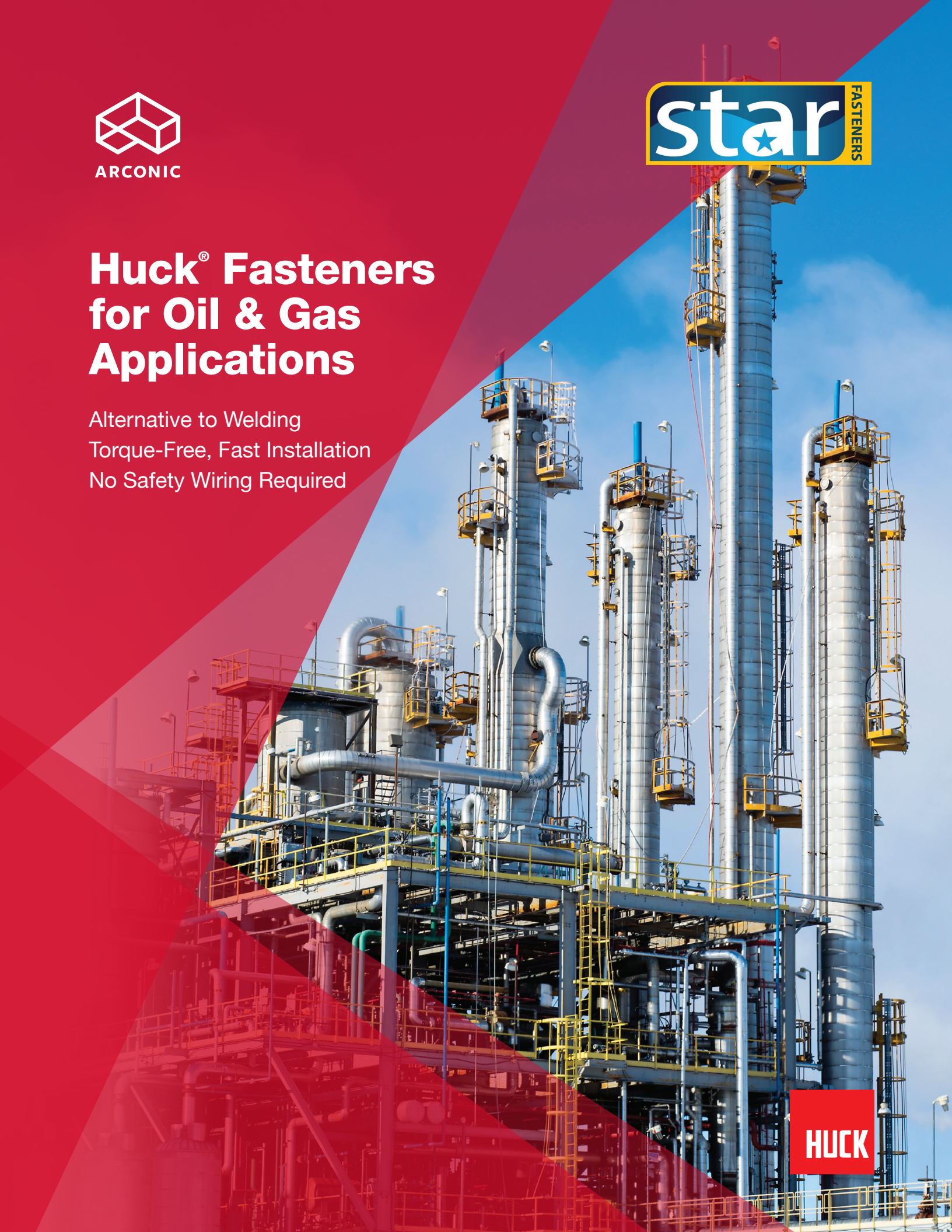




Huck® Fasteners for Oil & Gas Applications

Alternative to Welding
Torque-Free, Fast Installation
No Safety Wiring Required



Huck® fasteners are designed for the toughest oil and gas applications.

Whether it's skid mounting of equipment, safely installing accessories on rig structures, assembling tanks and towers, or joining elements of a compression station, vibration-resistant Huck® fasteners are engineered to securely meet the requirements of a wide range of demanding oil and gas applications.

In many situations, HuckBolts® have been proven superior to all other forms of assembly for speed and accuracy of installation, safety, and overall productivity. For even the toughest jobs, HuckBolts deliver extremely high shear and tensile strength, and are proven to hold tight in high-vibration environments.

Based on their unique characteristics, Huck fasteners provide the best solution for a variety of oil and gas applications.



Upstream

Huck fasteners can be used in the assembly of oilfield skids, solids handling systems, and various offshore structures.

Midstream

Huck fasteners' design and characteristics make them ideal for such applications as tank cars, in-line pumping and monitoring stations, and ancillary component supports.



Downstream

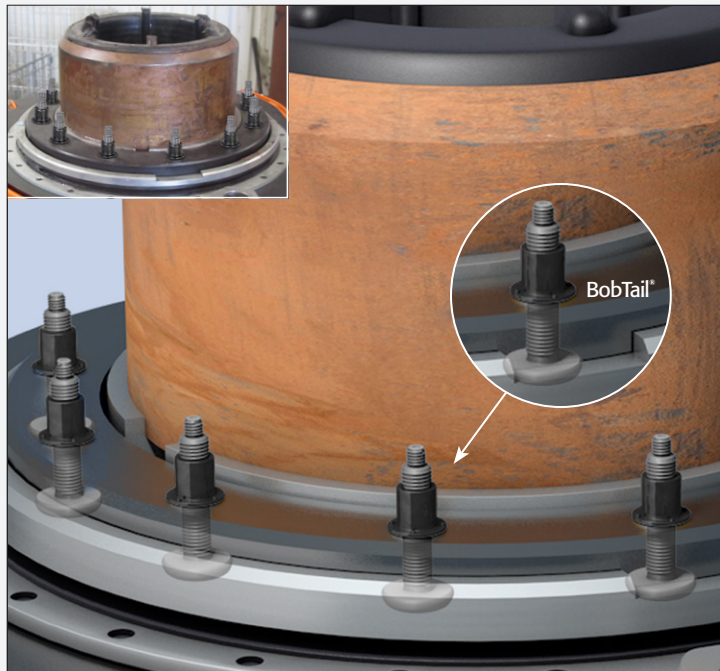
Huck fasteners have been proven to perform in a number of applications, including heating and cooling facilities, modular construction, and a range of skid-mounted assemblies.

No welding. No safety wiring. No torque.

It's proven that in many instances, Huck® engineered fasteners can replace welding, offering a faster, safer, more productive and environmentally friendly joining alternative. That's because advanced, two-piece Huck fasteners are installed using a torque-free, direct-tension/swaged-on method, providing for a smooth, jolt-free installation.

This joining method ensures consistent clamp – the key to a strong, reliable hold – so you know the joint is permanent and vibration-resistant. In fact, a Huck-fastened joint is so strong, no safety wiring is required – it will never loosen.

The broad line of Huck fasteners, which includes structural blind fasteners and HuckBolts®, offers a wide range of strength characteristics and holding performance, providing a solid match of fastener to application.



The HuckGuard™ Advantage

HuckGuard™, a zinc-rich basecoat plus an organic topcoat developed by Huck, provides a high level of corrosion resistance. To prove HuckGuard's powerful corrosion resistant properties, these bolts were subjected to 1,000 hours of salt spray testing. As you can see, the difference is dramatic.



Hot dip galvanized bolt



Huck 360® bolt with HuckGuard™

Huck® Fasteners For Oil and Gas Applications

HuckBolts®

Huck 360®

The Huck 360® nut and bolt system is designed for applications where the joining performance of a HuckBolt® is required, and standard tooling is used. The only HuckBolt requiring torque for installation, this breakthrough system delivers 5 times the fatigue life of a standard threaded bolt. The Huck 360 can be installed and removed 300% faster than conventional locknuts, adding to the efficiency and productivity of a wide range of assembly operations.

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®

Engineered to meet the challenges of a wide range of oil and gas applications, Huck® BobTail® offers high performance, vibration resistance, and reliability in a unique, pintail-less design. In addition, the BobTail has earned approval from the world-renowned DIBt for use in both static and dynamic applications.

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



Advanced Huck Tooling

Huck offers a full line of advanced, pneumatic and heavy-duty hydraulic installation tools and nose assemblies that work with each engineered fastener. Supporting Huck hydraulic tooling is Huck's line of Powerig® power units.



Huck® Structural Blind Fasteners

BOM®

The Huck® BOM® (Blind, Oversized Mechanically locked) fastener is so strong, one can do the work of up to four conventional fasteners. Its unique push-and-pull installation design makes it ideal for oil and gas industry use.

Available Sizes: 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" **Material:** Steel



Other Structural Blind Fasteners

When only one side of the joint material is accessible, performance-engineered Huck structural blind fasteners are the smart choice. Each Huck blind fastener offers unique features that make it ideal for certain applications. Offering the industry's best range of shear and tensile strength, Huck structural blind fasteners include HuckLok®, Magna-Lok®, Magna-Bulb®, and Auto-Bulb™.

Available Sizes: 3/16" – 1/2"* **Materials:** Steel, Aluminum, Stainless Steel*

Headstyles: Protruding, Truss, 100° Flush, 100° Oval Countersunk, Countersunk*

*Not applicable to all Huck structural blind fasteners



Related Alcoa Fastening System Products

Keysert® Solid Inserts

Keysert® solid, one-piece, key-locking inserts are used to repair damaged threads or for use in original equipment. The Keysert locking keys provide a positive mechanical lock, which prevents rotation due to vibration or torsion. Keyserts are available in carbon or stainless steel, with internal thread diameters ranging from #6 through 1-1/2" and external diameters ranging from 5/16" to 1-7/8".



Recoil® Threaded Inserts

Recoil® threaded inserts deliver positive locking performance and long thread life. Made from 304 Stainless Steel as a standard, Recoil inserts are also available in a wider range of materials including Inconel, 316 Stainless Steel, and Phosphor Bronze. Recoil sizes range from #2 through 1-1/2" (*inch series*) and M2 through M39 (*metric series*).



Marson™ Blind Rivets

Proven in a wide range of assembly applications, Marson™ blind rivets are available in Buttonhead, Large Flange, and Countersunk headstyles in a wide range of materials and sizes ranging from 3/32" to 1/4".



Marson Rivet Nuts

Marson offers a wide selection of rivet nuts that provide permanent thread placement in thin materials while reducing the surface damage that can occur with other fastening methods. These rivet nuts are available in a wide variety of styles, with grip ranges from 0.020" to 0.500".



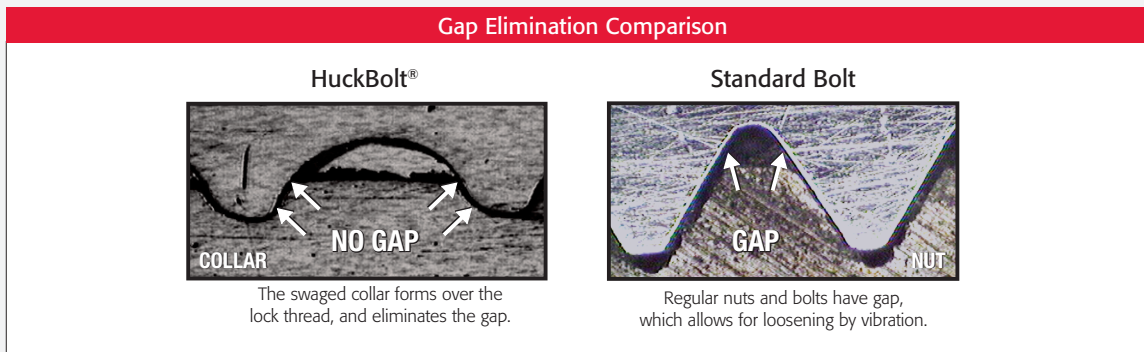
Huck Fastening Technology

Vibration Resistance: How Huck Does It.

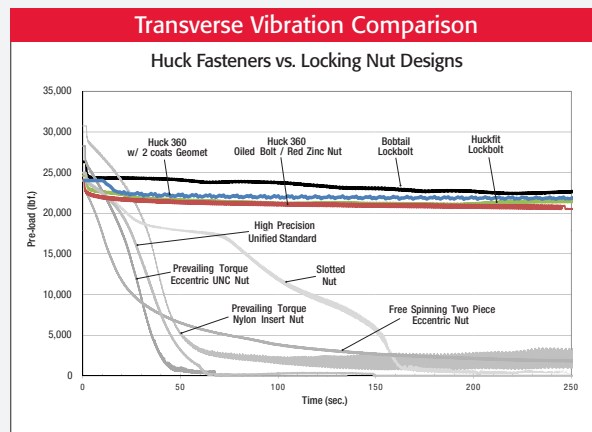
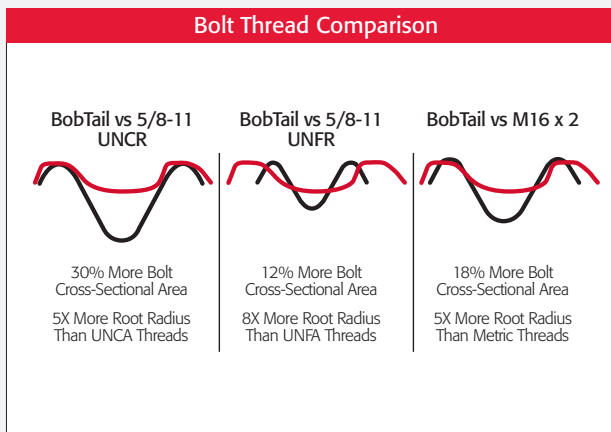
Huck engineering. It's what makes a HuckBolt® a HuckBolt. And, it's what gives each C50L®, BobTail®, and Huck 360® its strength and vibration resistant properties – the highest level of vibration resistance you'll find in the industry.

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.



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.



Huck® vs. Conventional Joining

As compared with conventional torqued-on nuts and bolts and when contrasted with welding, Huck® fasteners offer consistent clamp that is designed into the fastener itself – clamp integrity is not dependent on the tool or the operator.

Huck fasteners offer a combination of a reliable, vibration-resistant joint, and a safe, efficient installation process. Even in the most vibration-intensive applications, Huck fasteners are proven to never come loose, 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.

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%

TORQUE
@226FT-LB

*Results based on 5/8" diameter bolt.

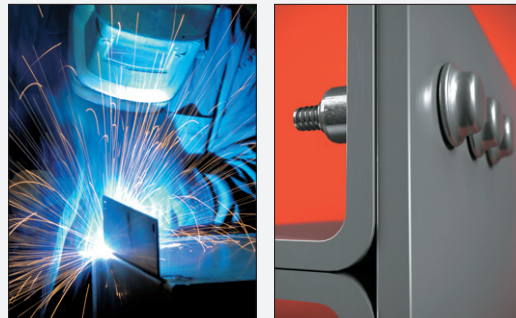
Because HuckBolts are not subjected to torsion during installation, they can safely be taken to higher preload values than conventional bolts. This installation requires direct tension only, while conventional bolts are under a combination of tension and torsion during installation.

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%.

Huck Vs. Welding

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 60 years in the harsh trucking and rail industry environments, Huck fasteners have proven they perform.



Arconic Fastening Systems



Arconic Inc. (NYSE: ARNC) creates breakthrough products that shape industries, providing solutions to complex engineering challenges to transform the way we fly, drive, build, and power. Combining ingenuity and advanced manufacturing, we deliver products that meet the challenges and demands faced by our customers.

Arconic Fastening Systems is a global leader in fastening technology. Offering the greatest breadth and depth of fastening system solutions in the industry, Arconic continues to reflect the same commitment to product quality and support that customers have come to expect. To serve its growing market, Arconic Fastening Systems and Rings maintains corporate offices worldwide. In addition, Arconic distributors are located in many key industrial centers throughout the world, providing a ready supply of fasteners, installation tools, tool parts, and application assistance.

Americas

Waco Operations
8001 Imperial Drive
Waco, TX 76712, USA
P.O. Box 8117
Waco, TX 76714-8117, USA
Tel: 800 388 4825
Fax: 800 798 4825

Kingston Operations
1 Corporate Drive
Kingston, NY 12401, USA
Tel: 800 278 4825
Fax: 845 334 7333

Tracy Operations
1925 North MacArthur Drive
Tracy, CA 95376, USA
Tel: 800 826 2884
Fax: 800 573 2645

Carmel Operations
14300 Clay Terrace Blvd.
Suite 250
Carmel, IN 46032, USA
Tel: 800 826 2884
Fax: 800 573 2645

Tacubaya Operations
Avenida Parque Lira
79-402 Tacubaya
Mexico C P 11850
Tel: +52 55 5515 1776
Fax: +52 55 5277 7564

São Paulo Operations
Av. Nações Unidas, 12.901
Torre Oeste, 3º andar
São Paulo – SP – Brasil
04578-000
Tel: 0800 015 9888
Fax: +55 11 5509 0200

International Locations

Kolkata Operations
Unit no. 28, Chowringhee Court
55/1, Chowringhee Road
Kolkata – 700071
India
Tel: +91 33 4069 9170/80
Fax: +91 33 4069 9184

Tokyo Operations
Arconic Japan Ltd.
#1013 NBF Hibiya Bldg.
Uchisaiwai-cho, Chiyoda-ku
Tokyo 100-1011
Japan
Tel: +81 3 3539 6577
Fax: +81 3 3539 6585

Melbourne Operations
1508 Centre Road
Clayton, Victoria, 3168
Australia
Tel: +61 3 8545 3333
Fax: +61 3 8545 3390

Suzhou Fasteners Operations
58 Yinsheng Road, Shengpu
Suzhou Industrial Park
Suzhou Jiangsu 215126
China
Tel: 0512 62863800-8888
Fax: 0512 62863810

Telford Operations
Unit C, Stafford Park 7
Telford, Shropshire TF3, 3BQ
United Kingdom
Tel: +44 1952 2900 11
Fax: +44 1952 2904 59

St. Cosme Operations
9 rue de Cressonnieres
72110 Saint Cosme en Valrais
France
Tel: +33 0 2.43.31.41.00
Fax: +33 0 2.43.31.41.41

Kelkheim Operations
Industriestr. 6
65779 Kelkheim
Germany
Tel: +49 [0] 6195 8050
Fax: +49 [0] 6195 2001



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Email: sales@starfasteners.co.uk | Tel: +44(0)115 9324 939