

Company	Products Offered	Product Descriptions
Applied Bolting Technology www.appliedbolting.com 800.552.1999	DTIs	Assure engineers that the connections they designed will have the minimum preload required regardless of the bolt torque.
	Squirters	Engineers love DTIs! Erectors love Squirters! MSC's "People's Choice Hot Product Award" with a rating of SCORCHING. Squirter DTIs, made to ASTM F959, enable installers and inspectors to verify minimum required bolt tension without feeler gages.
	Field Training	Specializing in bolting ergonomics, we can train your field staff to reduce bolting labor by discussing torque, tension, lubrication, storage, testing, and RCSC specifications.
	Lab Testing	With the largest Skidmore-Wilhelm in production, measuring up to 200,000 lbs of tension, we can do rotational capacity, torque to tension, and pre-installation verification testing in our accredited lab.
Bernard www.bernardwelds.com 800.946.2281	Centerfire™ Series MIG Welding Consumables	New patent pending Centerfire™ gas diffusers, contact tips, and nozzles improve gas coverage and reduce downtime on most MIG welding applications. "Drop-in" contact tips provide quick changeovers.
Biach Industries, Inc. www.biach.com 908.276.3110	Bolt and Stud Tensioning Systems	Bolt-tensioning systems for the construction, power generation, naval nuclear, petro-chemical, and refinery industries. Engineers review customer data to develop the equipment design suitable to the working conditions, environment, bolting geometry, clearance concerns of adjacent components, time concerns, and worker ease. Close attention is given to material and bearing stresses, load requirements, and safety. Provides documentation services through its Biach Information Arts (BIA) division to gather and retain knowledge obtained over the years. BIA also produces complete training packages for training crews on the use of Biach systems. The Field Service Team regularly supports commercial nuclear plants during outages and provides on-site training sessions.
ESAB Welding & Cutting Products www.esabna.com 800.ESAB.123	PowerCut® Family	For manual plasma cutting, trust ESAB's PowerCut line. Portable, powerful, and rugged, PowerCut delivers fast cutting speeds and is suitable for the harsh environments of construction sites.
	Coreshield™ 6 and Coreshield™ 8	ESAB's Coreshield 6 and Coreshield 8 provide consistent performance and are the products of choice for bridge and structural fabrication in seismic areas. These self-shielded flux core wires meet FEMA 353 specification.
	ESAB 653E WeatherGuard	Specifically constructed for harsh working conditions, ESAB's versatile 653E WeatherGuard power source is a multi-process, three-phase power source designed for heavy-duty industrial DC welding applications.
	Atom Arc 7018	ESAB's Atom Arc 7018 covered electrode is the original iron powder, low hydrogen electrode. Used on virtually every structure welded today, Atom Arc electrodes continue to set the industry standard.
Haydon Bolts, Inc. www.haydonbolts.com 215.537.8700	Bolt Wrenches and Bolt Products	Haydon Bolts, Inc. offers the Tone M221 swivel head TC bolt wrench. The head moves 90 degrees to the left or right of the center axis in order to allow easy installation of TC bolts in hard to reach areas. Haydon sells, rents, and services Tone TC bolt wrenches and the "Simple Torqon" electric wrench for hex bolts from 5/8" to 1 1/4" diameter. Haydon specializes in custom-manufactured anchor rods, tie-rod assemblies, U-bolts, eye bolts, and J-bolts up to 4" diameter and up to 40' long, with either roll or cut threads. Haydon distributes of A325-1, A325-111, A490, A449, and A354-BD hex structural bolts and F1852-1 (A325) and A490 TC bolts.
Hilti www.us.hilti.com 800.879.8000	Kwik Bolt 3 Expansion Anchor	With the best independent approval ratings in its class, improved wedge design, higher strength base material, and various sizes, this anchor satisfies a range of fastening applications in various environments.
	HDA Heavy-Duty Mechanical Anchor	Ideal for heavy-duty/safety fastening, the HDA through-set and pre-set anchors provide performance similar to cast-in headed studs. The self-undercutting anchor installs in one minute for fast and easy setting operation.
	HSL Heavy-Duty Expansion Anchor	A torque controlled expansion bolt for high performance in static and dynamic load applications, the HSL is available with several bolt head options for flexibility of flush-mounted, low profile applications.
	HIT HY 150 Adhesive Anchoring System with HIT TZ Anchor Rods	When used together, the HIT HY 150 and HIT TZ help save time and money with no hole cleaning required and 20% less embedment than standard embedded threaded rods.
Hobart Brothers www.hobartbrothers.com 800.424.1543	Tri-Mark® Metalloy Vantage™ Ni1	Designed for welding HSLA weathering steels in structural construction applications, the patented tubular wire produces weld bead toe lines free of silicon deposits, reduces cleanup, and increases travel speeds.

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Infasco www.infasco.com 450.658.7017	Structural and Tension Control Bolts	A325 Type 1 heavy hex structural bolts, A325 Type 3 heavy hex structural bolts, A490 Type 1 heavy hex structural bolts, and F1852 round head Type 1 tension control bolts.
Inventory Sales Company www.inventorysales.com 800.272.7883 (St. Louis) 800.742.1449 (Kansas City, MO)	Structural Bolts	Full line of domestic A325 and A490 TC bolts and regular hex bolts, plain and galvanized.
	Shear Wrench	Tone brand shear wrench stock, both new and used along with a rental fleet and repair station.
	Stud Welded Products	Full line of domestic shear connectors and headed concrete anchors. Full line of stud welders, new and used. Diesel generators for job site work along with a fully qualified repair station.
Kee Industrial Products, Inc. www.BeamClamp.com 800.851.5181	BeamClamp™ Steel-to-Steel Fasteners	Ductile iron, corrosion-resistant fasteners that are engineered clamping systems connecting secondary steel and building services equipment to primary steel without welding or drilling. Fifteen styles available.
	BoxBolt™ Expansion Anchor Bolts	An expansion anchor to make connections to structural tube sections where access is restricted or limited to one side only. Available in three lengths in each of five diameters.
	Grating Clip	Secures steel grating to existing structural steel members without welding or drilling. Installs without the need to access area below the grating.
	Floorfix	Positions raised pattern floor plates without welding or drilling the supporting steelwork. Suits floor plates from 1/8" to 1/2" thick and steelwork flanges to 5/8" thick.
LeJeune Bolt Company www.lejeunebolt.com 800.872.2658	Structural Fasteners	Inventory includes F1852 (A325)TC, A490TC, A325, A490 and A307 heavy hex bolts, F959 DTI washers, A563/A194 heavy hex nuts, and F436 hardened washers. Material and finishes include Plain Type I/Type III, mechanical/hot dip galvanized, and Dacromet.
	Anchors/Threaded Rod	Mechanical anchors including wedge, sleeve, screw, drop-in anchors, and bent anchor bolts. Chemical anchors including acrylic, epoxy, capsule adhesives, dispensing tools, and screens. All grades, lengths, and diameters of studs and threaded rod.
	Stud Welding	Headed concrete anchors, shear connectors, and deformed bar anchors. Threaded arc/capacitor discharge studs in all sizes, grades, and finishes. Stud welding equipment includes electric arc, capacitor discharge, portable genset, and rental systems. Parts and accessories.
	Tools and Equipment	Electric, pneumatic, manual shear wrenches, sockets, and parts. Torqon wrenches, electric/pneumatic impact wrenches, sockets, and parts. Mag drills, cutters, grinders, bits, and reamers. Testing equipment, fall protection, and repair services.
Lohr Structural Fasteners, Inc. http://lohrfasteners.com 281.446.6766	SMARTHEX TC Bolt	Combines the structural integrity of Lohr's original large-head tension control bolt with the familiarity and versatility of a traditional hex.
	1-1/8 A490 Thick Washer Face SMARTHEX	Can eliminate the extra 5/16" washer required under the bolt head for A490 bolts with a diameter of 1". Installed in connections with oversize or short slotted holes in an outer ply, saving even more time and money.
	Conventional Hex Head Sets with Traceable "ID" Code	Bring the convenience, savings, and traceability of Lohr's famous pre-assembled sets to a conventional hexhead.
	Lohr Total Certification Traceability	With Lohr's head-stamped Lot ID and single-sheet certification, you get incomparable traceability, from the factory to the final installation.
Multiquip Inc. www.multiquip.com 800.421.1244	GAW-135H Welder/Generator	The GAW-135H combines 135 amps of DC welding power and 1.5 kW AC output. Dry weight of only 110 lb (49.5 kg) promotes easy transportation around the job site.
	GAW-180HE Welder/Generator	The GAW-180HE is a powerful 180-amp welder, 3kW generator combination. This unit is engineered with a permanent magnet alternator that substantially reduces the machine's weight to 242 lbs (110 kg).
	LT-12 Night Hawk Light Tower	The Night Hawk light tower illuminates five to seven acres. It has a maximum mast height is 30' (9 m) that rotates 360 degrees. This sturdy light tower is stable in winds up to 65 mph (105 km/h).
	GA-6HA Generator	The 6 kW GA-6HA generator allows the operator to power a wider variety of tools. It features the highest quality generator ends constructed with 100% copper windings.

Company	Products Offered	Product Descriptions
Nelson Stud Welding, Inc. www.nelsonstudwelding.com 440.329.0400	Shear Connectors	Shear connectors in low carbon or stainless steel from ½" through 1" diameter up to 15" long for composite construction on bridges and buildings to AWS, AISC and AASHTO specifications.
	Concrete Anchors	Concrete anchors for embedment plates in reinforced concrete for attaching steel beams, pipes, and fixtures in low carbon and stainless steel from ¼" diameter in standard and long lengths.
	Deformed Bar Anchors	Deformed bar anchors in carbon and stainless. 3/8" to 3/4" diameter and lengths to 72", both straight and bent, for column base plates and embedded plates, retrofitting steel framed buildings to seismic codes.
	Nelweld Portable Welding Equipment	Nelweld portable welding equipment with microprocessor controls and closed loop current control. Includes self-diagnostics system and process monitoring to record and retain all weld data for quality control and traceability.
SidePlate Systems, Inc. www.sideplate.com 949-305-7889	SidePlate Moment Connection SidePlate Moment Connection	Provides connection design of and licensing for the patented SidePlate moment connection for healthcare, educational, instructional, commercial, and government clients. The connection is used to design steel moment frames for lateral force resistance and progressive collapse mitigation.
Smith Equipment www.smithequipment.com 800.843.7912	Dual Guard Oxy Acetylene Torch	Torch features in-head flash arrestor, while three-tube construction separates gases until they mix in the tip for double flashback protection. Torch capable of heavy-duty cutting up to 24" thick.
St. Louis Screw & Bolt www.stlouisscrewbolt.com 800.237.7059	Structural bolts, TC Bolts, Anchor Bolts, and Fabricated Rod Products	Stocks structural bolts, TC bolts, anchor bolts, and fabricated rod products. Many grades of domestically produced steels are available for special needs: diameters ½" through 4", and up to 40' in length. In-house quality lab is A2LA certified and CALTRANS approved. SLSB ships to every state in the USA and any foreign country.
Superbolt, Inc. www.superbolt.com 412.279.1149	Multi-Jackbolt Tensioners	Patented Multi-Jackbolt tensioners eliminate common bolting problems. Only hand tools are required for installation and removal.
Tru-Weld www.truweldstudwelding.com 800.321.5588	Weld Studs	Full line of weld studs that includes concrete anchors, shear connectors, deformed bar, and threaded studs. Diameters range for ¼" to 1¼" with lengths up to 60".
	Stud Welding Equipment	Stud welding machines and accessories. New and used equipment along with a large rental fleet. Parts and service for all brands of stud welding machines.
Weldcraft www.weldcraft.com 800.752.7620	CS300 and CS300V TIG Torches	The industry's first 300 amp air-cooled TIG torches increase portability and maintain high performance for critical applications. They eliminate the need for water-cooling systems and are excellent for field applications.

Product Update: New Blind Bolt Available to Industry

Kee Industrial Products, Inc. has introduced a new line of blind bolt to the industry. Released in December 2004, BoxBolt™ is an expansion anchor bolt that provides simple, safe, and secure connections to structural steel tube sections where access is restricted to one side only.

BoxBolt follows Hollo-Bolt, the original blind bolt introduced by Lindapter International in 1995.

BoxBolt secures angle brackets and end plates to structural sections, makes sleeve connections, affixes angles to tubular posts, secures glazing panel brackets to buildings, connects handrail brackets, and helps connect structural tube sections to existing steel without welding or drilling.

The bolt is installed using simple hand



BoxBolt™ by Kee Industrial Products, Inc.

tools. As the bolt core is tightened, the threaded wedge is drawn up inside the body, the fins expand, and a secure connection is made. Because the fins expand, no close tolerance holes are required. A unique one-piece

accessory, BoxSok™, is optionally available to reduce installation time.

Each of the five diameter sizes has three overlapping lengths to accommodate a wide range of material thicknesses. This can eliminate the need to use more than one size when connecting materials of different thicknesses in one application.

Properly connected BoxBolt loads have a 5:1 factor of safety and guaranteed Safe Working Loads (SWL) ranging from 607 to 9,824 lbs tensile strength and 1,574 to 8,992 lbs shear, depending on bolt diameter and screw length.

For more information about BoxBolt, visit the Kee Industrial Products web site at www.keeklamp.com. For more information about Hollo-Bolt, visit Lindapter's web site at www.lindapter.com. ★

Product Case Study

Biach Bolt Tensioning Systems

Biach Industries has considerable experience with cable band bolts on many bridges, having supplied customized tensioning systems for the Golden Gate, George Washington, Brooklyn, Williamsburg, and Verrazano Narrows bridges, among others. Given the critical importance of attaining the proper tension in these bolts, in many cases bolt elongations, and therefore bolt loads, are spot-checked with an extensometer, comparing pre-tensioning and post-tensioning bolt elongation.

Bolt tensioners supplied for cable band bolts are a prime example of why a standard, "off-the-shelf" tool is inappropriate for many of the more important bolting applications in bridge rehabilitation work. Depending on their location on the main cable, the geometry of the cable bands varies, requiring careful review of the bolt tensioners' outside dimensions to ensure proper fit on every bolt and every cable band. The tensioners are sized to be as compact and lightweight as possible for safety and easy handling by operators working on scaffolding.



Bolting bridge support from the Williamsburg Bridge's main cable.

The tensioning method of tightening is not limited to cable band bolts and has proven invaluable for other bridge rehabilitation bolting projects, as well. Tie rods for adding stiffness and support, main cable anchorage bolting, suspender cable tie rods used to level the roadway, pin and hanger retrofits, and even light illumination stand anchor bolting are all examples of critical bolting applications addressed with bolt tensioners. Bolts, studs, and tie rods for these applications have ranged in size, from as small as 1" diameter to as large as 7-1/2" diameter, and are used on a variety of different bridge designs in the United States and overseas.

The fastest and most accurate results have been achieved using bolt tensioners tailored specifically to a project. The tailored approach requires design expertise, experience, and the ability to consider an entire problem to develop the optimal solution—rather than simply specifying a tool based only on load capability or bolt size.

Since 1955, Biach Industries has routinely performed this kind of analysis for a variety of projects. In addition to bridge projects, Biach has worked closely with engineering firms, maintenance personnel, and contractors in the nuclear, petrochemical, construction, shipbuilding, and aerospace industries to provide the best possible solutions for critical bolted joints. Each of these projects required a careful, individualized analysis to provide the best solution. For an overview of the Biach design approach and more details about the mechanics of bolt tensioning, visit the Biach Industries web site at www.biach.com. ★