



SUPERBOLT TECHNOLOGY

Advanced bolting solutions

 **SUPERBOLT™**
PART OF THE NORD-LOCK GROUP

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WHATEVER COMES ALONG, WE HOLD IT TOGETHER.

Superbolt was the world's first to revolutionize nuts and bolts with the multi-jackbolt tensioner (MJT) in 1984. Since then, Superbolt has proven its technology in tens of thousands of successful installations. Superbolt tensioners are easy to work with and provide an overwhelming mechanical advantage with their unique design, which divides the load among multiple small jackbolts. Once installed properly, MJT connections are reliable, and can stay tight indefinitely. Even MJTs of enormous sizes are safe and can be installed or removed by a single worker with ordinary hand tools.

But the revolution hasn't stopped here. Superbolt continues to develop a multitude of solutions to solve the next generation of bolting challenges. With the widest range of tensioners on the market and constant growing portfolio, Superbolt has got you covered.

Superbolt is a part of the Nord-Lock Group. Our global team of sales engineers and partners will give you the support needed to ensure that your bolted connections are optimized and safe.



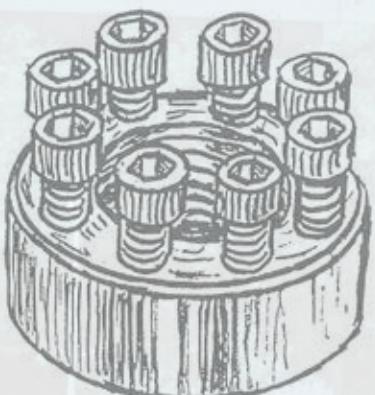
THE MAN FROM PITTSBURGH WHO CHANGED BOLTING TECHNOLOGY FOREVER

World-renowned Superbolt, Inc., got its start in Pittsburgh, Pa., USA, when the region was best known as America's "Steel City". In 1974, local inventor Rolf Steinbock was designing and building custom equipment for the steel industry. A local steel manufacturer purchased one of his designs, a scrap chopper, which solved problems that plagued older devices. But the new machine's constant rotation tended to loosen critical bolts. Downtime for maintenance became a daily necessity, and it involved re-tightening with a heavy wrench and a sledge hammer.

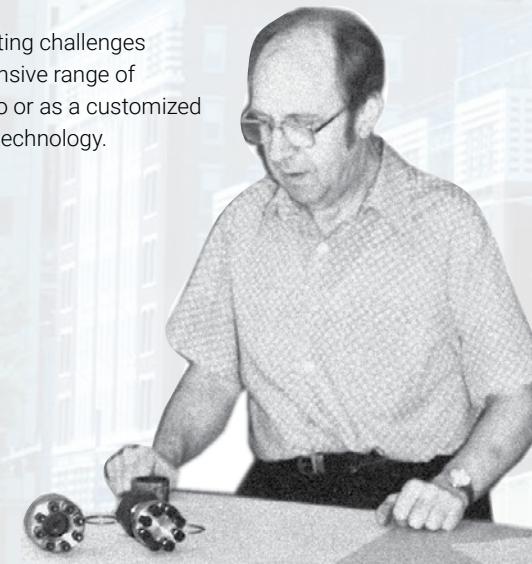
Mr. Steinbock took one look at this hazardous, repetitive chore and came up with a better idea: Instead of struggling with the massive torque of large hex nuts, why not divide the torque into multiple manageable forces?

He sketched out the first multi-jackbolt tensioner (MJT) for fabrication by a local machine shop. With a set of MJTs installed, the scrap chopper's bolts never came loose again. Mr. Steinbock patented his invention and founded Superbolt, Inc., in 1984 and in 1988 a sister company in Switzerland was founded. After almost three decades of growth, both companies became part of the Nord-Lock Group, the global leader in secure bolting solutions, in 2011.

Ever since the introduction of the MJT, solving tough bolting challenges has been our quest. Today you can choose from an extensive range of standard and pre-engineered designs, within our portfolio or as a customized design, all based on decades of experience in tensioner technology.



Early sketch of a Superbolt used in the very first advertisement.



Rolf Steinbock testing early Superbolt designs.

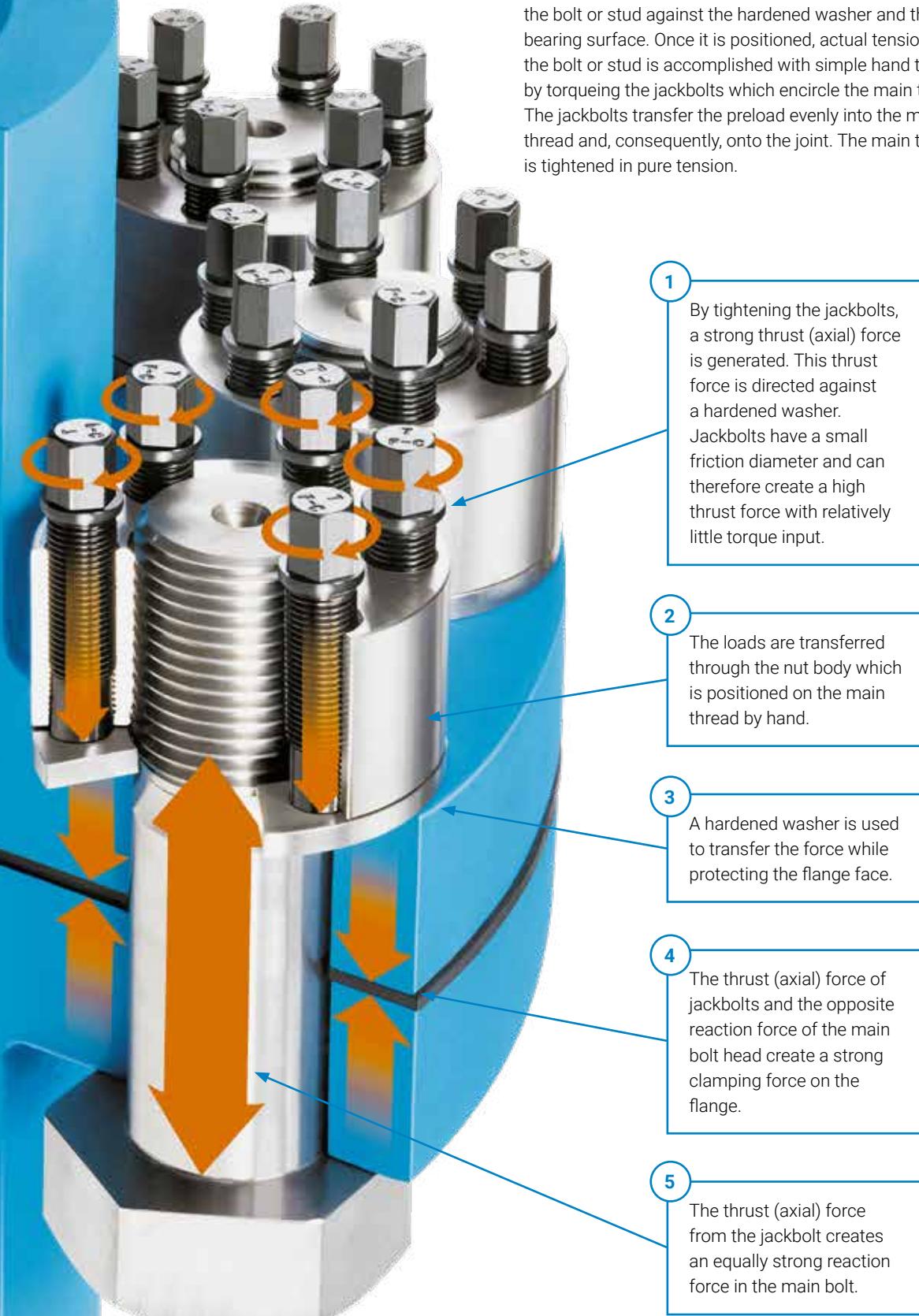
IF YOU'RE NOT
USING SUPERBOLT
TENSIONERS,
YOU'RE WORKING
TOO HARD.



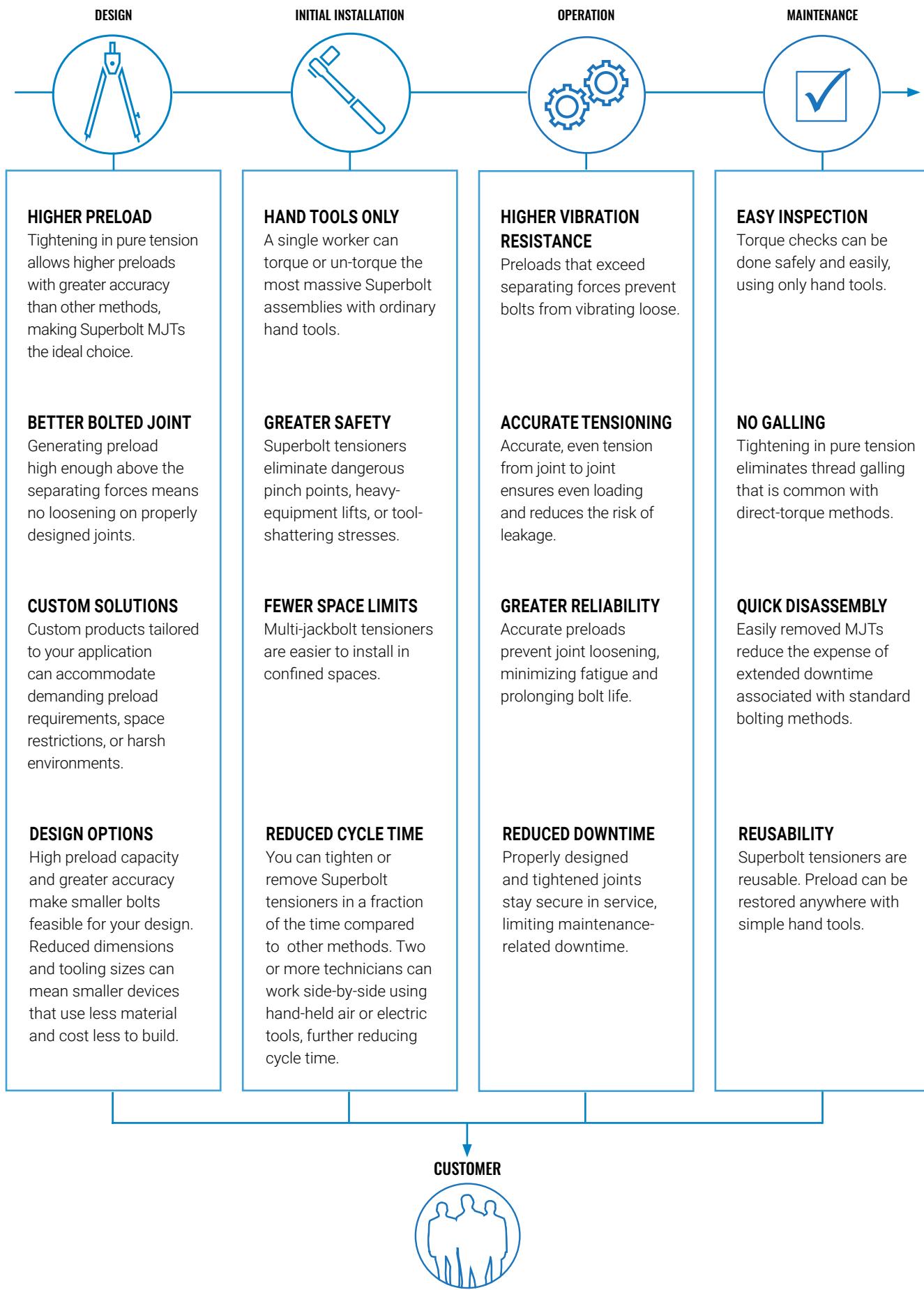
The chart shows how Superbolt tensioners remain easy to install, even on larger sizes, compared to standard hex nuts. Only hand tools are required to tighten any diameter stud/bolt.

The Superbolt Principle

Superbolt tensioners are designed as direct replacements for conventional nuts and bolts. These devices can be threaded onto a new or existing bolt, stud, threaded rod or shaft. The main thread serves to position the tensioner on the bolt or stud against the hardened washer and the load-bearing surface. Once it is positioned, actual tensioning of the bolt or stud is accomplished with simple hand tools by torqueing the jackbolts which encircle the main thread. The jackbolts transfer the preload evenly into the main thread and, consequently, onto the joint. The main thread is tightened in pure tension.



A Full Lifespan of Advantages



EXPERIENCED ENGINEERS AND TOTAL CUSTOMER SUPPORT

From design and manufacturing to installation and operation, our expertise is at your service through our global network of sales offices. Find yours at nord-lock.com.



Accessories and consumables

The wrong parts, tools, and materials can reduce the function of Superbolt tensioners or cause direct and indirect damage. You can protect your investment in safe bolted connections by using high-quality, Superbolt-recommended accessories and consumables, including:

- Lubricants • Sockets • Pneumatic/electric wrenches
- Protective caps • Torque wrenches

Instruction manuals

To ensure correct assembly, and increase safety, speed, and service life, we include a complete installation and removal manual with every Superbolt tensioner shipment. You can access the same useful information anywhere, anytime in PDF or video form at www.superbolt.com. For further info on using, applying and maintaining Superbolt tensioners, contact your local Nord-Lock sales office.



Engineering support

Joint calculation & verification, product development, customer unique with tailored designs, calculation sheets, finite element analysis, and more. Contact us for preload monitoring options for on-site service with high value.



Installation assistance

Our expertise is at your service. When you need backup, trained Superbolt technicians can:

- Train your team
- Support your team during installations
- Perform/assist with installations

Joint design and installation



STUD BOLTS

Superbolt nut-style tensioners may be used on studs into blind-tapped holes. Tightening in pure tension means studs will not gall in the tapped hole and can be easily removed.



TAPPED HOLES

Superbolt bolt-style tensioners are often used into blind-tapped holes. MJT bolt heads are more compact and fit into tighter areas; additionally they reduce the number of parts.



THROUGH-HOLES

A common application of double-ended studs uses Superbolt nut-style tensioners and a reaction nut (Flexnut) on the other end. Flexnuts add elasticity to the stud, increasing the fatigue life.



COUNTER BORES

Superbolt bolt-style tensioners can be provided to fit completely into small counterbores. An internal installation removal hex allows for easy turning into position.

Helpful tips



CENTERING OF WASHER ON THREAD

Make sure the washer is not resting on one side of undercuts or radius of mating studs.



MATERIAL WITH LOW STRENGTH

A thicker/larger washer or an additional washer may be necessary when materials with low strength are used on the joint.



LARGE OR SLOTTED HOLES

An additional washer or a large washer is necessary to transfer the bolt load to a supported surface.



SPACE REQUIREMENTS

Check for space restrictions when using a socket and wrench combination.



TENSIONER AT THE END OF STUD

An additional distance spacer may be necessary to bring tensioner closer to the end of the stud for proper socket fit.



VERY LONG THROUGH-STUD

A special tensioner with a larger circle of jackbolts may be necessary to properly access the jackbolts for tightening.

If your application corresponds to one or more of the above mentioned design criteria, we will help you find the best solution.

WE'VE GOT THE GLOBAL MARKET COVERED



PRESSES

Press columns, tie rods, bearing blocks, high pressure piping, die cushions, cylinder ram bolting, anchorbolts and more.



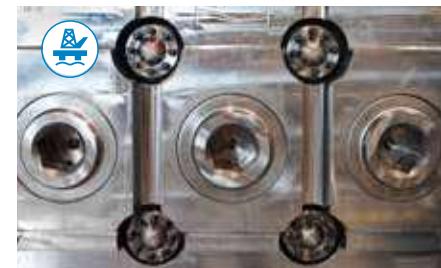
OIL, GAS & PETROCHEMICAL

Top drives, blow out preventors, mud pumps, fracturing pumps, reactor covers, heat exchanger heads, turbine control valves, turbine joints, pipe flanges, anchorbolts, couplings and more.



GAS COMPRESSION

Crosshead jamnuts, counterweight crosshead jamnuts, couplings, connecting rod nuts, distance pieces, end plates, compressor cylinders, doghouse bolting, piston end nuts, valve jackbolts and more.



**THE TOUGHER YOUR PROBLEM,
THE MORE WE LIKE IT**

Visit Cutting-edge solutions (p.54) for more inspiration or contact us for detailed support.

MINING

Boom points, ring gears, side frames, hoist motors, pedestal tie-downs, drag-lines, pinion gears, hoist and drag drums, split gears, bolted segments, excavator bearing caps and more.



POWER GENERATION

Including nuclear, wind, hydroelectric, fossil, and other. Turbine couplings, stay rods, manway doors, inlet flanges, boiler pump, main flange, boiler feed pump head, barrel casing, blade bolts, pelton turbine nozzles, servo piston nuts, and more.



STEEL MILLS

Thrust collars, coupling bolts, tie rod nuts, anchor bolts, mill motors, bearings, shaft mounts, roll tables, BOF and EAF applications, coilers, hydraulic cylinders, cranes, slitter knives, universal joints, back-up roll bearings, work roll bearings, pipe mills and more.



INNOVATIVE AND PROVEN NO WONDER WE'RE CALLED SUPERBOLT

Superbolt products are proven in every major industry. Tested in the field, our tensioners are preferred for space, mining, oil and gas, petrochemical, forging and presses, power generation, marine propulsion, and many other industry-specific applications. Customer-focused solutions that optimize the bolting process from start to finish have made Superbolt the trusted choice worldwide.

Our engineers go to work each day determined to take on the world's most difficult bolting challenges. We are the first to offer a full lifecycle warranty for Superbolt technology, enabling engineers to shape modern living in the decades to come.

World-class manufacturer

Superbolt products meet the industry's highest standards. They're manufactured at our state-of-the-art facilities in Pittsburgh, Pa., USA, and St. Gallenkappel, Switzerland, where advanced CNC machining allows exceptional precision and quick turnaround. Most standard products are available off-the-shelf or within short lead times. Quality control, including thread-gauging and measurement systems, is standard operating procedure, and every multi-jackbolt tensioner is marked for traceability.

Project engineering

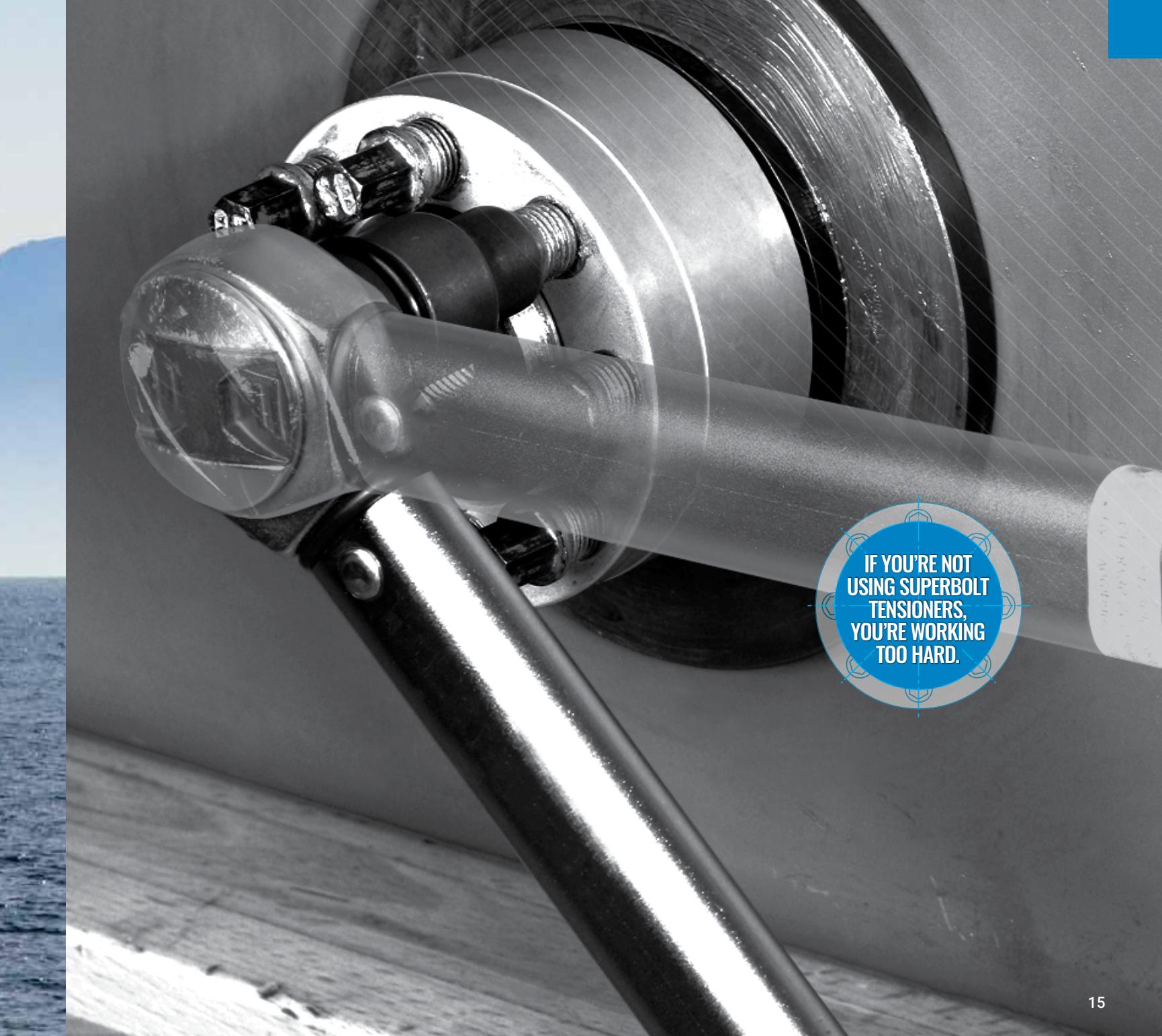
Our in-house engineering team provides a center of continuous product innovation, grounded in decades of bolted-joint know-how. Superbolt's design expertise extends into dozens of industries, where we've gained specialized knowledge – and numerous certifications – by solving difficult bolting challenges.

Speaking your language

Our parent company, Nord-Lock Group, is a global leader in secure bolting solutions with an international network of sales offices and partners. Superbolt has representation in 65+ countries.



TORQUE OR UN-TORQUE MASSIVE ASSEMBLIES WITH ORDINARY HAND TOOLS



NEWS & INNOVATIONS

From day one, innovation has been synonymous with Superbolt. Today, we continue to lead the way as evidenced in our newest product lines: Global Standard GT/GTS Series Tensioners, VersaTite Hydraulic Mechanical Tensioners, EzFit Mechanical Expansion Bolts, and HyFit Hydraulic Expansion Bolts.

Read on to learn more about these groundbreaking offerings, and count on Superbolt to continue advancing bolting technology...now and well into the future.



Innovative ways to help our customers!

Custom products can be designed and manufactured quickly, to ensure that our customers' downtime is minimized and their equipment is back up and running safely and efficiently.

BEST OF BOTH WORLDS IN A NEW RANGE

Introducing the new
global tensioning range



Superbolt is proud to introduce the new GT range – a merging of our MT and CY lines, offering the best of both worlds. This new range provides numerous advantages to a broad application base:

- Range standardization, as all sizes follow the global standard, streamlined for ISO 898 compatibility.
- Shortened lead time and increased stocking globally.
- Increased mechanical advantage, which includes optimized load and torque output.
- And more!

THE NEW GLOBAL TENSIONING RANGE

GT

NEW RANGE, ENHANCED MATERIAL & CAPABILITIES.

The all-new GT Mechanical Tensioner series from Superbolt is your go-to bolting solution for common high-strength studs and bolts found throughout industry. The GT is well-suited for the toughest of applications, enabling you to achieve high bolt loads safely and with ease. They are compatible for use on 8.8, 10.9 or equivalent-grade studs and bolts.

GTS

Also available: new GTS super-duty mechanical tensioners, designed for super high-strength load applications on 10.9, 12.9 or equivalent studs and bolts!



VERSATITE SPEED, UNIFORMITY AND ACCURACY.

Mechanical tensioners. Hydraulic tensioners. Each has its advantages. But what if one product could incorporate the strengths of both approaches?

That combination is here, in the groundbreaking new VersaTite Hydraulic Mechanical Tensioner. Now you can attain the speed and uniformity of a hydraulic tensioner with the accuracy of a mechanical tensioner.

TWO TECHNOLOGIES IN ONE SYSTEM



VersaTite,
the latest generation
in tightening solutions.

NEW!

Hydraulically pressurized VersaTite delivers a fast, uniform initial preload. The design lets you accurately control the final preload mechanically by applying torque to a system of jackbolts. Removal method is up to you – mechanical or hydraulic.

- Depending on location, number of fasteners, space constraints, time, and availability of tooling, your operator can choose either mechanical or hydraulic removal.
- VersaTite incorporates reliable Boltight hydraulic tensioning with state-of-the art seal and pressure design.
- The achieved preload is easily controlled by applying the final torque mechanically with Superbolt multi-jackbolt tensioning.

VERSATITE™

COUPLING BOLTING MADE SIMPLE



The innovative EzFit coupling bolt from Superbolt provides fast and accurate coupling maintenance using simple hand tools.

- Truly fitted bolt ensures optimum drive and prevents coupling slippage.
- Reusable – installed and removed in clearance condition.
- No bolt or coupling hole damage.
- Generous hole tolerance and split sleeve expansion minimize requirement for on-site hole preparation.

EZFIT™

EZFIT
SIMPLER,
LOWER-COST,
BOLT
REPLACEMENT.

Incorporating Superbolt technology, EzFit mechanical expansion bolt is able to offer tremendous radial expansion and joint clamping power in one bolting system. The expansion bolts replace traditional interference or force-fit bolts. The key to this solution is the split expansion sleeve that mates with the customer's machined holes. The split sleeve requires less tolerance on mating parts than is traditionally required with interference fit, saving critical machining time.

HYFIT COUPLING CHALLENGES RESOLVED.

HyFit, the hydraulically operated expansion bolt by Superbolt, has been designed to address safety concerns expressed by many current users of hydraulic coupling bolts. In also providing the solution for coupling maintenance where standard-type "fitted" bolts cause major outage delays, its application solves most large coupling bolt issues in a totally unique package. HyFit is ideal for steam turbines, gas turbines, marine propulsion drives and all heavy rotating equipment plants. Benefits include:

- Truly fitted bolt
- Easily installed and removed in clearance condition
- Accommodates varying hole sizes
- Provides accurate maintenance scheduling
- Fully reusable – only requires sleeve replacement in the case of rotor change
- No bolt/hole damage, no re-work required

SUPERIOR HYDRAULIC COUPLING BOLT



HyFit, the new advanced hydraulic expansion bolt.

NEW!

HyFit delivers high-performance torque transmission for critical-load rotating shafts and couplings. It's an advanced solution for every coupling that requires truly fitted bolts:

- Reduce maintenance costs.
- Improve efficiency.
- Maximize plant availability.
- Minimize coupling breakout/make-up times.
- Quickly and easily regain alignment and concentricity.
- Increase peace of mind.

HYFiT™

COMMON APPLICATIONS

- Mining equipment •
- Anchor bolts •
- Gearboxes •
- Crushers •
- Compressors •
- Presses •
- Flange connections •
- Split gears •

STANDARD NUT & BOLT-STYLE TENSIONERS

When it comes to standard nut & bolt-style tensioners, Superbolt has got you covered for a wide range of applications across all industries.

The GT and GTS Series, Superbolt's newest lines, provide range standardization that offers global feasibility, increased mechanical advantage, and more to a broad application base.

The MT and SB8 Series offer nut and bolt-style solutions for general mechanical applications, while the CY and SB12 Series provide solutions for high preload applications.

Medium-temperature applications are best suited for Superbolt's H650 Series, though the H650T Series is ideal for use where space is limited.



Reliable from start to finish

Our engineering team can help you determine your bolted joint's critical dimensions and load conditions to ensure a reliable and cost-effective solution.

REACTIVE SIDE SOLUTIONS

Superbolt developed the Flexnut for through-hole applications. Flexnuts bring the advantages of MJT-type elasticity to the reactive side of the joint.

Flexnuts are designed to flex out at the bottom and flex in toward the top of the nut. This distributes the bolt load along many threads, adds elasticity, and prevents stress concentrations in the first few threads.

INSTALLATION TIP: Flexnuts are reactive nuts, designed to be applied opposite Superbolt tensioners. They are never torqued directly to achieve preload.



Get design flexibility during installation

Our design capabilities and quick service give you unequaled flexibility, for trouble-free installation.

- COMMON APPLICATIONS**
- Hydraulic cylinders
 - Pipe flanges
 - Shaft mounts
 - Gearboxes
 - Machine tools
 - Presses
 - Pinion stands
 - Bearings
 - Mill motors
 - Brake wheels

COMPACT/LOW-PROFILE TENSIONERS

Height restrictions in applications make it difficult to preload joints adequately. That's why Superbolt developed our range of low-profile tensioners, bringing all the advantages of a traditional MJT in a compact design.

The SJ and SJX series can be used in general applications where height is a concern.

SSJX bolt-style tensioners are designed to fit inside the same low-profile counterbore as standard socket-head cap screws.

The NM and NI series are designed as direct replacements for many standard series bearing locknuts and include a locking side-screw to secure tensioners to shafts.

The SMX series are designed as a direct replacement for mill motor armature nuts.



 You're never limited with Superbolt technology.

Over the decades, Superbolt and the Nord-Lock Group have solved millions of bolting challenges across a multitude of industries. We work closely with customers all over the world to ensure safety and reliability on the job.

- COMMON APPLICATIONS**
- Compressor crossheads
 - Piston-end nuts
 - Rotating equipment
 - Mining
 - Crushers
 - Gearboxes
 - Presses
 - Bearing caps
 - Coupling nuts
 - Engines

DYNAMIC APPLICATIONS

Generating correct preload forces for compressors and rotating equipment can be especially demanding. Superbolt tensioners for dynamic applications incorporate an added safety design feature – captive machinery-style jackbolts.

Gain a competitive advantage with cross-head jamnuts (CN Series) for reciprocating compressor crossheads. Simple hand tools and an easy-to-follow specific installation procedure make CN a preferred solution.

Piston-end nuts (SP Series) are specially designed to match the custom counterbore necessary dimensions of the nuts they replace.

MR Series with captive tensioners replace the traditional MT Series for rotating equipment.

The MRA Series – an armored-style tensioner with countersunk, captive jackbolts – is the solution for couplings and harsh environments.



Custom-designed products

When off-the-shelf parts just won't do the job, you can rely on the Superbolt Technical Center to design and manufacture exactly what you need. We respond fast to keep your downtime to a minimum and get your equipment back up and running safely, efficiently, and cost-effectively.

BOLT-INTENSIVE COMPRESSORS: THIS IS A JOB FOR SUPERBOLT.

Reciprocating compressors incorporate a tremendous range of complex bolted connections.

Superbolt can help you solve just about any challenge on your compressor.

Superbolt CN and SP custom tensioners are designed specifically for challenging reciprocating compressor applications. MR and MRA also feature captive jackbolts and are useful on many compressor applications, engines and couplings.

CN Compressor Crosshead Jamnut

CN compressor crosshead jammuts are safe and easy to install or remove. Designed in collaboration with a major compressor manufacturer, they incorporate Superbolt captive jackbolts as an added safety feature. An extra-wide bolt circle positions jackbolts away from the piston rod for better wrench clearance.

SP Compressor Piston End Nut

These custom-designed, nut-style tensioners are ideal for attaching compressor pistons to piston rods. There's no need to clamp the rod when installing or removing Superbolt piston-end nuts, which incorporate captive jackbolts as an added safety feature.

For sizes and availability of CN and SP tensioners, please contact your local Nord-Lock Group office.

Foundation Bolts



Connecting Rods



Main Bearing



Crosshead Housing



CN Tensioner on Crosshead



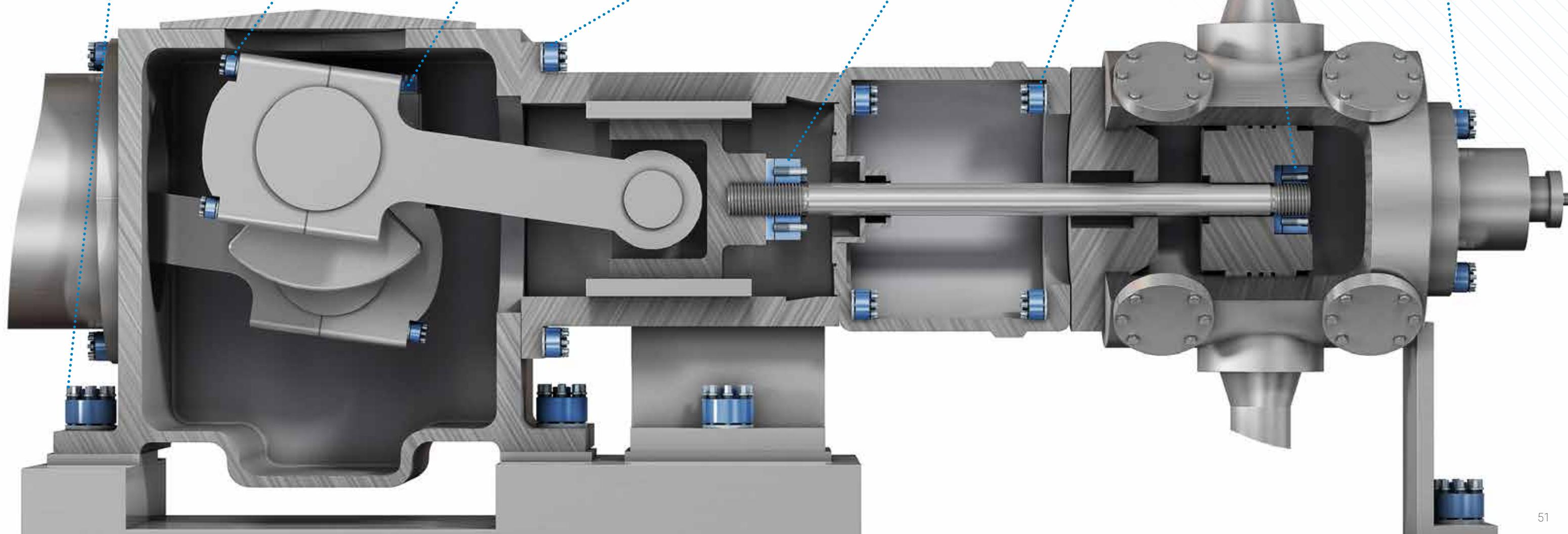
Distance Piece



SP Tensioner on Piston



MT Tensioner on Cylinder Heads



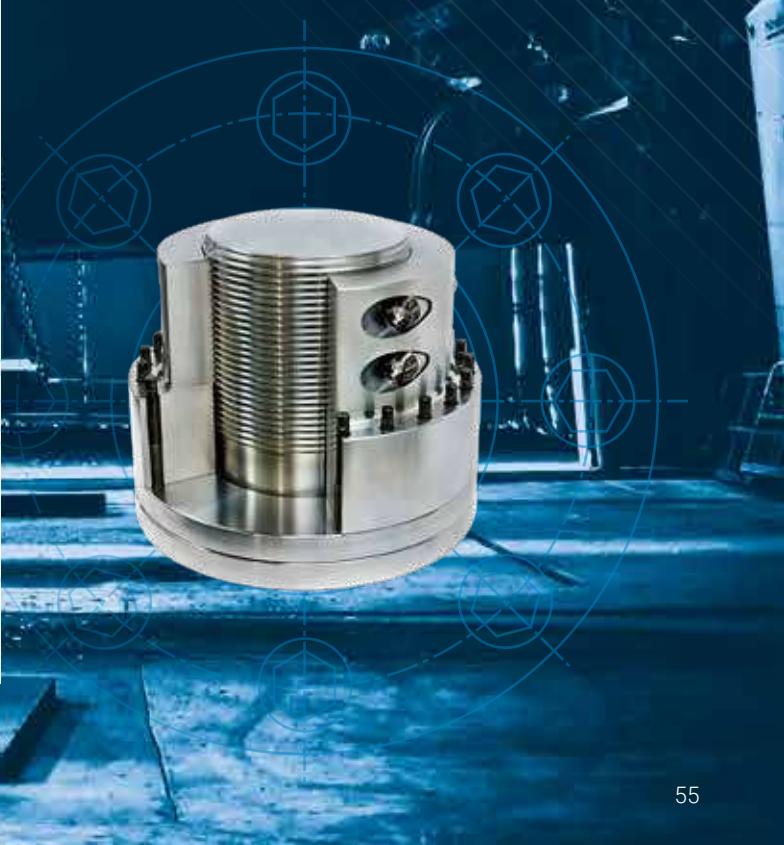


- SECTION INCLUDES**
- Extreme requirements • for any challenge
 - Extreme industry applications
 - Unique designs for your requirements

CUTTING-EDGE SOLUTIONS

Bolted connections are difficult to set up, maintain, and disassemble under normal conditions. Add challenges such as heat and pressure, and your job just got a whole lot tougher.

As an example, forging presses must handle extraordinary forces routinely. But when you need to prestress or disconnect large-diameter columns and tie rods, you experience first-hand the giant gap between human-sized effort and the super-human torque that the job requires. Similarly, when your installation gets as hot as a reactor's pressure vessel, you know ordinary nuts and bolts won't give you the long-term security that safety and proper functioning require. Under extreme conditions, experienced plant engineers turn to Superbolt for high-preload, large-size, or heat-resistant tensioners that translate mechanical advantage into maintenance reductions, cost savings, and faster, safer operations.



Real-life testing and validation at your site

Our skilled engineers can perform a thorough investigation of your bolted connections, including real-life tests or validation, at your site.



EXTREME REQUIREMENTS FOR ANY CHALLENGE

Large diameters & high preload

Other bolting methods would be heavily challenged to solve the many bolting problems found in giant machines such as forging presses, cranes, or mining machines. All of these have large diameter nuts and bolts well over M100 (4 inch) that require extremely high preloads. Superbolt is right at home in these applications and still allows you to achieve the preload, getting the job done without increased hassle. Thread diameters of 1,5 M (60 inch) and with clamp ranges up to 90 MN (20 Mlbf) have been produced.



Superbolt STC

Innovative and easy to use Split-Nut Thrust Collar (STC) tensioners are the perfect solution for large sized threads and high preload requirement applications. A threaded split nut (1) is positioned over a threadless ring (2). When tightened, the jackbolts – which are contained in the ring – push against a hardened washer (3) and cause the ring to thrust against the split nut, thereby preloading the joint. The installation is quicker and with less heavy turning equipment.



Assembling an enormous 1016 mm (40 inch) thread tensioner, used on a 50,000 ton press.

Material Requirements, Environmental & Corrosion Protection

No matter the environment, Superbolt has plenty of product-enhancing options to keep things protected. From stainless steels to various coatings, we can meet your requirements in humid environments, offshore & salt water splash zones or chemical exposure. In addition to corrosion protection, coatings can be beneficial for various purposes, e.g., color-coding, durability and conductivity enhancement, as well as friction control.

Stainless materials adapted for the requirements:

- Martensitic
- Austenitic
- Duplex
- Precipitation hardened
- Inconels & Monels

Examples of coatings and platings including:

- Electroless nickel
- Xylan
- Zinc
- Black oxide
- Zinc flake
- PVC & metal caps



The world's largest bolt-style Superbolt being installed in a two-post hydraulic forging press.

High- & low-temperature tensioners



Extreme temperatures increase the complexity of bolting. Superbolt products are available in solutions to meet temperature ranges of -270°C (-450°F) to 600°C (1150°F). Due to the complexities of low- and high-temperature bolting, Superbolt offers a variety of solutions based on the temperatures and code requirements. Such cases are often found in power or petrochemical plants where extremely low temperatures (liquid hydrogen, fusion reactors, etc.) and extremely high temperatures (combustion chambers, turbines, steel mills, furnace equipment) exist.



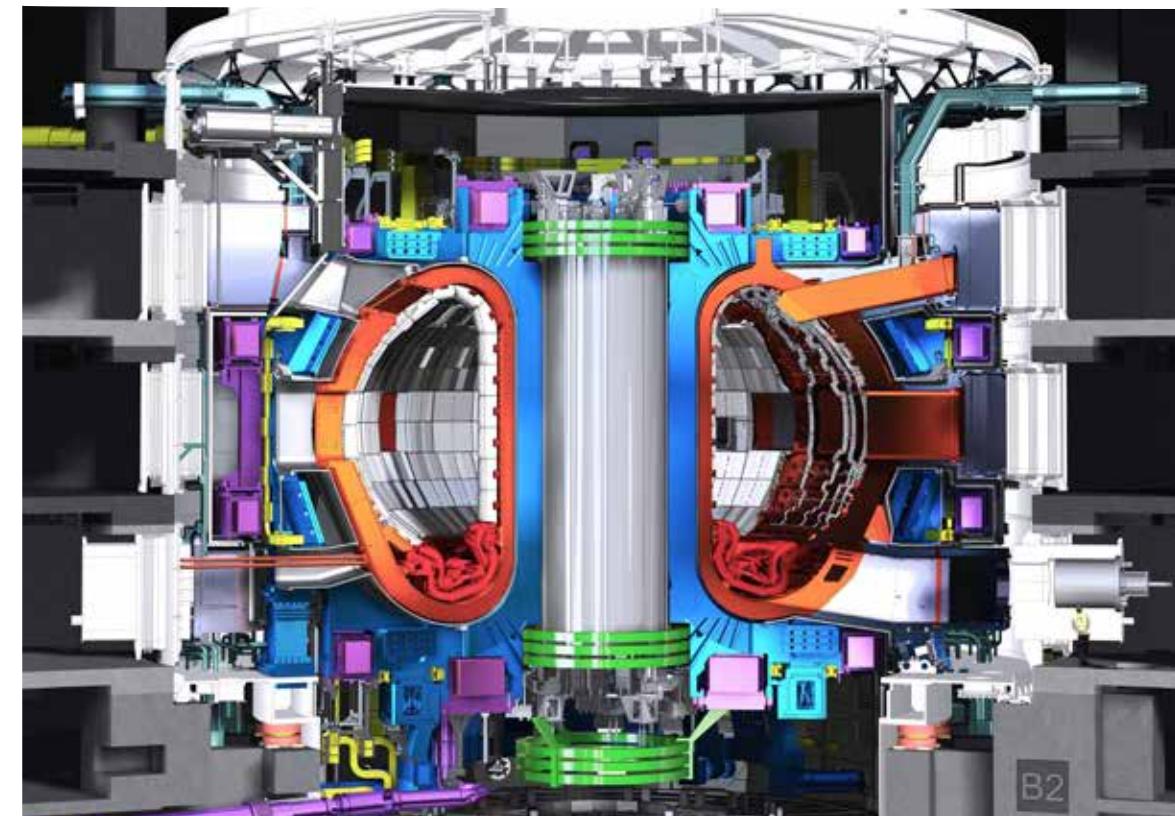
IT'S JUST ROCKET SCIENCE.

EXTREME INDUSTRY APPLICATIONS



Space

Superbolt is rocket science! Not that it is difficult to handle or use, but we have the bolting know-how that space environments require. We are useful on launch craft equipment, satellites, International Space Station (ISS), and many more. Since there are no torsion effects and only small handheld tooling is needed, the small torques on the jackbolts make bolting possible in non-gravity environments. Additionally, space-approved lubricants are utilized.

Credit: © ITER Organization, <http://www.iter.org/>

Fusion Power

Superbolt are ideal for Tokamak structures where there is a mixture of bolting complexity and extreme requirements. This means the need for precise material properties, meeting extreme bolt loads, working within limited spaces, and where both extremely high and low temperatures exist is now possible. Superbolt is ideally suited for applications like ITER.



Nuclear Power Generation

Superbolt tensioners are ideal for nuclear plant critical and high-radiation applications. Significant savings in worker exposure and outage time are realized. Applications examples: valves, heaters, manways, pumps, turbines, shaftline couplings. Manufactured from approved materials.

Particle Accelerators

Superbolt provided over 1,400 nut-and-bolt-style tensioners and pins for securing the assembly of 30-foot diameter magnet endcap disks inside the underground tunnel that holds the collider. Large loads were required and only small spaces were available.

Defense Land, air or sea

Superbolt tensioners are ideally suited for the many "can't fail" extreme applications required for national defense. Superbolt offers Resistant Hull Integrity Stud/Bolt Tensioners designed as an alternative to heavy hex monel self-locking nuts. They are shock-qualified and salt-waterproof, ideally suited for commercial marine, navy, and offshore applications.

UNIQUE DESIGNS FOR YOUR REQUIREMENTS

Ever since the beginning, we have been proud of our ability to meet any bolting challenge. From engineering to design to manufacturing to installation, from our standard range, our pre-engineered range or customized solutions, we have the know-how to provide the right design for your application. The following are just a few examples of what we can do.



Offshore/Sub-sea

Superbolt offers a unique combination of features built into this specialized multi-jackbolt tensioner for offshore bolting applications. It incorporates three key features:

- 1) The washer is captive to the nut body to prevent loss of the washer,
- 2) corrosion protection to address the harsh conditions, and
- 3) integral flats on the nut for turning assistance on difficult stud threads.



Tamper-proof tensioners

Superbolt offers a tamper-resistant jackbolt design. The tamper-resistant jackbolts are a product improvement for Superbolt's multi-jackbolt tensioner (MJT) bolting system and are intended for use in security-sensitive applications. Tamper-resistant jackbolts are designed to protect MJTs from unwanted tightening and loosening. They utilize an abnormally shaped head set in a counter-bore hole, which requires a special tool attachment to torque or un-torque the jackbolts.



Externally Threaded Tensioners (ETT)

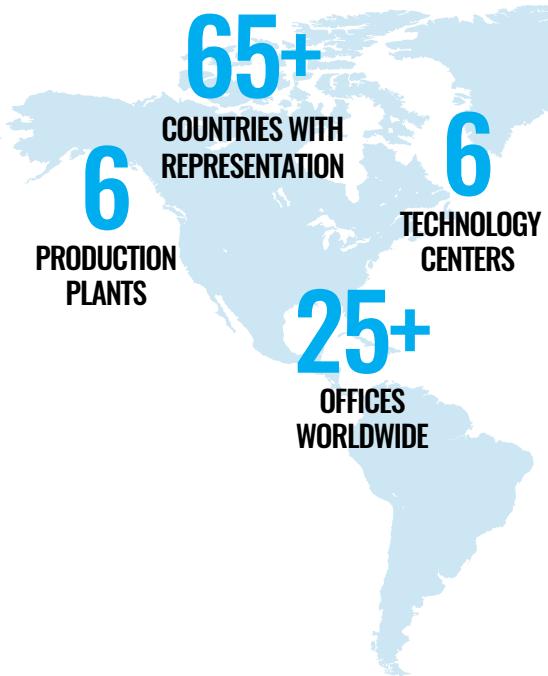


An ETT is an externally threaded tensioner that provides a pushing force for loading or sealing a mating piece (compression member). Unlike conventional nut-style tensioners with an internal threaded portion and machined-surface outer diameter, an ETT has its threads machined onto the outer diameter. The ETT can be solid or hollow (i.e. bored center hole but unthreaded). The ETTs use multi-jackbolt technology to generate compression loads for assembly components in machinery. They simply are turned into position. A large hex or some other provided turning tool is used to facilitate nut turn-down. The jackbolts, which are tightened to a prescribed torque with low-energy handheld tools, push directly against the loading piece. Strong compression or sealing forces are generated.

Customized studs

We sell a majority of tensioners, but also offer one-source shopping for your entire joint hardware. We offer customized studs to meet and deliver a complete bolted package. We have comprehensive threading know-how and an extensive inventory of gaging equipment. Why not choose a Superbolt nut-style tensioner, stud and flexnut kit? Sizes from M16 to over M300 are possible and in a wide variety of materials. We have rolled thread capability and can handle many thread configurations and standards (ISO, DIN, ANSI, Whitworth, Acme, Trapezoidal, and Buttress).





WORLD-LEADING EXPERTS

Joining parts together is one of the most critical steps when delivering a product or system. The Nord-Lock Group is focused on making the world a safer place by offering secure bolting solutions for any challenge.

Innovative technologies

The technologies in our portfolio are developed in-house and are available in a wide range of materials and sizes. Our solutions are specified by world-leading companies within all major industries. Our products hold extensive certifications and are known for their reliability and high quality.

Unmatched expertise

Maximizing customer uptime in today's market means offering competitive solutions over the whole operational life-cycle. The Nord-Lock Group offers knowledge partnership including on-site and remote support, combined with the technical verification carried out from our in-house laboratories. All this to ensure safe and efficient bolting.

Global partnership

We fully control the manufacturing process of our technologies and offer global availability. We have distribution centers in strategic locations and work with a network of authorized partners all over the world.



Find out more about Nord-Lock Group
www.nord-lock.com

COMPLETE RANGE OF TENSIONING SOLUTIONS

In addition to Superbolt solutions, world-renowned hydraulic bolting provider Boltight is part of the Nord-Lock Group. Our extensive experience and wide range of solutions allows us to recommend or design the optimum solution for any bolting challenge.

BOLTIGHT HYDRAULIC TENSIONING

Boltight solutions have been at the forefront of the hydraulic tensioning business for many years. The tools feature advanced technology and are designed for critical applications within various industries. By working in partnership with customers, new ways to deliver cost-effective solutions for numerous industrial bolting applications have been developed.



OTHER NORD-LOCK GROUP TECHNOLOGIES

Nord-Lock Original wedge-locking solutions when failure is not an option

Nord-Lock wedge-locking solutions are recognized around the world for their ability to secure bolted joints exposed to severe vibration and dynamic loads. An ideal solution for bolted joints where failure is not an option.



Expander System advanced and cost-effective solution for lug wear

Expander System is a permanent solution for lug wear, which is a common reason for equipment breakdowns. The technology eliminates the need for welding and line boring while allowing broader tolerances.



WHEN SAFETY REALLY MATTERS

Safer, easier to work with, and far more reliable than conventional bolting methods, Superbolt multi-jackbolt tensioners have proven their superiority in thousands of successful installations. The key is a patented design that divides the load among multiple small jackbolts, giving you an overwhelming mechanical advantage. Connections stay tight indefinitely, yet a single worker can torque or un-torque the most massive assemblies with ordinary hand tools.

The Nord-Lock Group is focused on solving the toughest bolting challenges. We offer a unique combination of bolting expertise and a wide product range – all designed and developed in-house.



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