

BOLTIGHT HYDRAULIC BOLT TENSIONING

ENSURE ACCURATE AND EVEN PRELOAD ON CRITICAL BOLTED JOINTS



WHATEVER YOUR BOLTING CHALLENGE, WE CAN MEET IT

In heavy industry, power generation and oil & gas, where large machines, pipelines and equipment build and shape our world – details matter. No one should ever have to question the integrity of critical bolted connections.

As a global leader in hydraulic bolt tensioning, Boltight is strengthening public and industrial infrastructures that shape modern living.

Boltight has developed a deep understanding of hydraulic bolt tensioning and the markets we serve. We work hard to deploy the latest technology and advanced bolt tensioning solutions that permanently eliminate the risk of loose or over tightened bolts.

Every day, we embrace our customers' challenging and unique technical requirements. We understand that every application is different and some specifications have simply never been seen before. This is where we excel.

If no tool exists that fits your application, we can engineer one specific to your requirement.





This gas turbine casing application is just one example of the solutions we provide to address demanding bolted connections in industries around the world.

Our design team go to work each day determined to take on the most difficult bolting challenges, and enable today's engineers to shape modern living in the decades to come.

WHEN ACCURACY IS ESSENTIAL

Boltight hydraulic bolt tensioning tools are used extensively across many industries where bolt load accuracy is critical. As bolts increase in size, the load critically increases, and operators are faced with the challenge of ensuring bolt load accuracy. When tightening a bolt by any method, the operator is aiming to achieve the correct bolt elongation. Due to friction, this can be difficult to accurately control when using traditional torque tightening methods.

Using high pressure hydraulics and a predetermined pressure, Boltight hydraulic bolt tensioners axially stretch the bolt. The nut is then rotated down the joint face, accurately locking in the bolt load.

WHATEVER THE TASK, BOLTIGHT TENSIONERS MAKE ON SITE BOLTING JOBS SAFER, FASTER AND MORE EFFICIENT.



THE RIGHT TOOL FOR ANY CHALLENGE

IF WE DON'T HAVE
IT, WE'LL MAKE IT
— FAST

Our solutions have been at the forefront of the hydraulic bolt tensioning business for many years. Working together with our customers, we have continuously developed new ways to deliver cost-effective solutions for numerous industrial bolting applications. Today, we offer a comprehensive range of standard and bespoke bolt tensioning tools.



Quality and environmental certification

We incorporate the latest technology and safety features into our designs. Our business is also LRQA certified for quality and environmental assurance to ISO 9001:2015.



Certified to ISO 9001:2015

Certified repairs and refurbishment

Our in-house technicians can provide a complete tool repair and refurbishment service for Boltight hydraulic bolt tensioners and ancillary equipment.

Training and support

Boltight engineers will help you get the most from your equipment and ensure operatives are trained to use our systems safely and correctly.

TOOLS FOR EVERY APPLICATION



T-SERIES STANDARD BOLT TENSIONER RANGE T21-T27

Standard range of topside Hydraulic bolt tensioners are easy to install. Designed to fit most standard flanges (ANSI 16.5, API 605, MSS SP44, etc).

Specification:

- 1500 bar
- 15mm stroke
- Quick release bridge
- Improved durability due to specially developed surface coating
- Long life composite seals

Options:

- Standard sizes 5/8" - 4" (M16-M100) held in stock
- Interchangeable adapter kits
- 7 load cells to cover standard sizes
- Single or twin port options
- Swivel connection available
- Custom designs available to your specification

Applications including:

- All Oil & Gas Flanges
- Heat Exchangers
- Pressure vessels
- Exchange covers & nozzles
- Boiler feed pump
- Manufacturing machinery
- Cranes
- Clamps

NEW TSR+ SPRING RETURN TENSIONERS TSR+0-TSR+7

TSR+ auto return tensioner range has been designed to ensure fast, simple, safe and reliable operation, with a focus on productivity and a reduction in downtime. Designed to fit most standard flanges (ANSI 16.5, API 605, MSS SP44 etc).

Specification:

- Fastest auto return tensioner on the market
- Fully interchangeable with existing TSR tensioners
- Optimised design far out performs previous models
- 1500 bar
- 10mm stroke (except TSR+0 – 8mm)
- Relief valve to protect tools from overstroke
- TSR+0 does not have auto return functionality

Options:

- Standard sizes 3/4" - 4" (M20-M100)
- Interchangeable Adapter Kits
- 8 load cells to cover standard sizes
- Single or twin port options
- Swivel connection available
- Custom designs available to your specification

Applications including:

- All Oil & Gas Flanges
- Heat Exchangers
- Pressure vessels
- Exchange covers & nozzles
- Boiler feed pump
- Manufacturing machinery
- Cranes
- Clamps

XTRA LOAD RANGE C1-C18

Xtra load hydraulic bolt tensioners have a 30% higher load than Boltight's standard range of hydraulic tensioners. Xtra load tensioners fit standard and compact flanges (ANSI, API 605 NORSOK L-005).

Specification:

- 1500 bar
- 15mm stroke
- Higher load output
- Direct fit reduces weight and tool outside diameter
- Long life composite seals

Options:

- Standard sizes 3/4" - 4" (M20-M100) in stock
- Interchangeable Adapter Kits
- 8 load cells to cover standard sizes
- Single or twin port options
- Swivel connection available
- Custom designs available to your specification

Applications including:

- All Norsok compact Oil & Gas Flanges
- High pressure pipeline flanges
- Hydroelectric turbine



SUBSEA TENSIONERS G1-G5

Configured for use on common oil and gas flanges. A reduced number of components assist ease of use on underwater bolting applications, in fitting ANSI, API 6A/17D and compact SPO flanges.

Specification:

- 1500 bar
- 30mm stroke
- Corrosion resistant finish
- Integrated body and bridge

Options:

- Standard sizes 7/8" - 3 1/2" (M24-M90) with other sizes available
- 5 tools available to cover range
- Solid or split reaction nuts
- Custom designs are available to your specification

Applications including:

- Subsea flange connections
- Subsea clamps



TYPHOON TENSIONERS TTM-TTS

The Typhoon tensioner range guarantees a high load output in problem areas where there is either a radial or vertical restriction prohibiting the use of many standard tensioners. Used extensively within the wind energy sector they are also perfect for many other limited access applications.

Specification:

- Designed for high loads – up to 95% yield stress for 10.9 bolts
- High cycle/fatigue life
- Spring return
- Durable coating on all components
- Joint misalignment compensation features
- Internal fail safe mechanism

Options:

- Standard sizes from M24 – M64 in stock but other sizes are available
- Custom designs are available to your specification
- Cycle counter
- Carrying Handle
- Manifold safety handle

Applications including:

- Tower connections
- Nacelle to frame
- Front main bearing
- Blade bearings
- Main shaft to hub
- Blade to hub
- Main rotor shaft bearing support
- Rotor shaft to gearbox coupling



FOUNDATION TENSIONERS TRN

Hydraulic foundation tensioners are used to tighten anchor bolts in sizes to suit your specification. Foundation tensioners are reliable, easy to use, supplied with a maximum stroke indicator and have an extra durable gearbox. Thread forms available including (but not limited to) Williams, Dyson, Macalloy, Metric, Imperial, FATBAR

Specification:

- 1500 bar
- Corrosion resistant finish
- Integrated body and bridge

Options:

- Single or twin connections
- Cycle counter
- Carrying Handle
- Manifold safety handle
- Economy, Custom Nut and Split nut types available
- Spring return
- Gearbox
- Positive Stop

Applications including:

- Wind turbine foundations
- Civil



MULTI STUD TENSIONERS

Multi stud tensioners allow simultaneous tightening of all bolts in a joint, speeding up installation time. A reduced number of hydraulic hoses & connections are required.

Specification:

- Higher load / compact designs
- MST's can be supplied in complete ring or segmented depending on application.

Options:

- Spring retraction
- Gear driven sockets
- Positive stop

Applications including:

- Manway covers
- Hand hole covers
- Subsea flanges
- Vessel lids



HYDRAULIC NUTS

Hydraulic nuts are a permanent replacement for standard nuts – and remain on the application after tensioning.

Specification:

- 1500 bar and 2500 bar designs
- Compact and cost effective
- Less stud protrusion required than for detachable tensioners
- Sizes up to M400 previously supplied – larger sizes are available on request
- 100% simultaneous tension
- Quick and easy to install

Options:

- Shim, top or bottom collar
- Custom designs for bespoke applications

Applications including:

- Heavy Machinery
- Compressors/rotating equipment
- Mining
- Hydraulic presses



HYDRAULIC CLOSURE SYSTEMS

Hydraulic closure systems provide a temporary joint closure solution during maintenance outages - offering substantial time savings compared with conventional methods such as bolt heating.

Specification:

- Typically 2500 bar designs
- Database of common casing designs held for many leading OEM's

Options:

- Custom made tools to your specification

Applications including:

- Turbine clearance checks on steam and gas turbines



ROTOR TOOLS

Rotor tools are custom made to suit your specification although a large database of existing designs is available. Suitable for power generation applications.

Options:

- Metric or imperial sizes
- Spring return
- Cycle counter
- Gear box

Applications including:

- Gas turbine rotor bolting



CASING TOOLS

Casing tools are custom made to suit your specification although a large database of existing designs is available. Suitable for power generation applications.

Options:

- Metric or imperial sizes
- Spring return
- Cycle counter
- Gear box

Applications including:

- Steam Turbine Casing
- Gas Turbine Casings



ENGINE TOOL SETS

Tool sets designed for the installation and maintenance of gas & diesel engines. Supplied with pumps, hoses and operating manual.

Options:

- Available for various OEMs including (but not limited to) MWM-Deutz, Wartsila, Man, Cummins and Jenbacher.
- Custom tool kits can be designed based on your specification.

Applications including:

- Gas engines
- Diesel engines
- Generator sets



ULTRASONIC BOLT MEASUREMENT EQUIPMENT ECHOMETER, ECHOMETER+

Our range of ultrasonic bolt measurement equipment offers fast and accurate measurement of bolt elongation. An ultrasonic signal is used to measure changes in bolt length which can be directly correlated to bolt stress. Data can be converted into load, stress or strain. Measurable range 25.4mm – 25,400mm (Dependant on model selection)

Options:

- Transducers & probes
- Calibration bars
- Temperature sensor



PUMPS HAND, AIR AND ELECTRIC

Boltight has a variety of reliable pump units which include air driven, electric and hand pumps, for when an air supply is not available. Electric pumps supplied with remote operation pendant. Hand pumps are light weight and economical.

Options:

- 1000-2500 bar (14500-36250 psi)
- Model lists available on request
- New Intelligent Electric Pump (IEP)
- Other pressures and pump types are available



HOSES, ASSEMBLIES, CONNECTORS AND FITTINGS

Hoses / fittings are assembled with self-sealing quick connect couplings and nipples for fast and clean operation.

Options:

- Pressures available 1000-2500 bar (14500-36250 psi)
- Various lengths of hoses
- Variety of connections and fittings

BOLTIGHT INNOVATION

Our customers are at the centre of everything we do. With several hundred years of combined experience, we have the expertise to help you solve any hydraulic bolt tensioning challenge. We work closely with you to determine the best solution, whether it is from our standard range, or a special tool designed to meet your exact needs.

For many applications we can modify an existing design, ensuring a cost effective solution.

If one of our existing tools cannot be modified, we will design and manufacture equipment to suit your exact specification. We have manufactured tensioners for bolts ranging in size from M8 to over M400.

WHATEVER THE REQUIREMENT, BOLTIGHT IS COMMITTED TO OFFERING A FAST TURNAROUND.



THE WORLD'S TOUGHEST WORKING ENVIRONMENTS

WE'LL WORK THERE WITH YOU

Boltight equipment is used all over the world on demanding applications ranging from deep water to the tallest buildings. No matter where you are or what you are working on, we will be there to help you ensure safer, more efficient operations.





POWER GENERATION

Our equipment is used within the power generation sector often in environments which are extreme and hazardous. Boltight with its ever-evolving range of bolt tensioning solutions, plays a major role in future developments.

We work closely with major OEMs, utility companies and service contractors to deliver cost effective bolt tensioning solutions for your applications.

We design and manufacture tooling for all sectors of the power generation industry. Whether it is construction of new plants and equipment or routine maintenance programs, our tooling is used extensively around the world.

Applications including

- Casing half-joint
- Turbine Casings
- Boiler feed pumps
- Marriage joints
- Heat exchangers
- PRV
- Manways
- Handholes
- Access points
- Tops on/tops off work on turbine casings
- Steam valves
- Rotors
- Impellers
- Couplings
- Hydro

WIND

Wind turbines are the largest application within the renewable energy sector. Although their size allows them to produce more energy, it also makes them more difficult to build and maintain. Working at height makes safety paramount. Tools must be small and lightweight to carry and be able to fit in restricted spaces. Offshore windfarms are difficult to access and tools must be reliable and easy to maintain.

Our wind industry equipment is tried and tested as a reliable tensioning solution for critical joints on offshore and onshore wind turbines and associated structures. The superior quality of Boltight products ensures continued performance throughout high cycle usage, without the need for frequent maintenance and repair. Engineered for many applications on OEM turbines, our tools are incredibly popular with construction and installation contractors and inspection and maintenance providers around the world.

We design and manufacture tools for the following applications:

- Blade bearing
- Main shaft to hub
- Main rotor to shaft bearing support
- Rotor blade to gearbox coupling
- Rotor shaft to gearbox coupling
- Frame to tower connection
- Nacelle to yaw bearing
- Tower bolting
- Foundation bolting
- Monopile to transition piece (MP/TP)

Boltight tools have been engineered to suit the technical requirements of major OEM wind turbine manufacturers including (but not limited to):

- Siemens/MHI
- Vestas
- Nordex
- Gamesa
- GE
- Acciona
- Enercon
- Alstom
- Acergy
- RE Power
- Goldwind





OIL & GAS

Boltight tools are used extensively throughout the oil and gas industry, where reliable and accurate bolt tightening is critical to operational efficiency. We are at the forefront of developing solutions to optimize bolt tightening during construction and maintenance operations, offering both standard and special tools. Working closely with our customers, we have developed a deep understanding of their requirements and the requirements of the industry.

Our standard bolt tensioners are used onshore, offshore and subsea on applications including but not limited to:

- Pipeline flanges
- Compact flanges
- Cranes
- Pumps
- Valves
- Heat exchangers
- Pressure vessel covers
- Manways

SUBSEA

We work closely with the subsea industry to develop solutions that suit your unique requirements. Our bolt tensioners are in service all around the world, and have a proven track record for reliability, quality and safety when operating in the toughest conditions.

Used onshore and offshore for subsea flange applications our standard equipment supports construction and maintenance projects and specialist diving companies.

Deeper waters often require custom designed solutions, which can be integrated into ROV equipment and emergency pipeline repair systems (EPRS).



OTHER INDUSTRIES

Boltight tools are used across many industrial sectors where critical bolted joints require accurate and repeatable tightening.

Applications including

- Safety Shear bolts fitted bolt flange
- Cable banding strap on suspension bridges
- Industrial aluminium extrusion machine
- Tunnelling machinery
- Load testing machine testing train gauge jaw clamp
- Crane slew rings
- Propulsion shaft

For industries including:

- Manufacturing & Processing
- Construction & Bridge Building
- Mining & Minerals
- Transportation including Aerospace and Railway
- Machine Building
- Steel Production
- Shipbuilding & Marine
- Space
- Medical & Health

SAFEGUARDING HUMAN LIVES AND CUSTOMER INVESTMENTS

NORD-LOCK GROUP

In 1982, Nord-Lock developed the original wedge-locking technology that secures bolted joints. Since then, the company has grown to include a range of cutting-edge bolting technologies that together, provide the most comprehensive bolting solutions on the market.

Owned by Swedish investment group Latour, Nord-Lock Group is a global partner for all industries. We are present in 65 countries, with six production plants and six technical facilities around the world.

Nord-Lock Group is on a mission to make the world a safer place and help our customers go beyond what's possible. With a unique combination of bolting expertise and a comprehensive product range, we will provide you with the best solution for your bolting challenge.

NORD-LOCK®

Creator of the original wedge-locking washer technology and global leader in industrial washer solutions.

SUPERBOLT®

Inventor of the patented Superbolt multi-jackbolt tensioners, designed to eliminate unsafe bolting methods.

BOLTIGHT™

Pioneer in innovative hydraulic bolt tensioning, specialising in extreme environments.

Expander®

Leader in pivot pin technology, on a mission to end lug wear on industrial sites everywhere.



65+
COUNTRIES

25+
OFFICES
WORLDWIDE

500+
EMPLOYEES

6
PRODUCTION
PLANTS

6
TECHNICAL
CENTERS

ESSENTIAL INFORMATION FOR CRITICAL APPLICATIONS

When specifying the correct tool for any project it is vital that all relevant information relating to the application is collected.

Below is our easy to follow guide on what information is required to allow Boltight to specify the correct solution for you.

Customer name _____

Customer contact details _____

Customer project or Application reference _____

CRITICAL INFORMATION

1 Bolt data

Bolt thread diameter & pitch _____

Bolt material _____

2 Load data

Load _____ kN lbf

Required load Residual Applied Tool

3 Nut data

Nut type Round Hex Drilled Other
 Provide details below

Nut AF _____

Nut Height (T) _____ Nut (AC) ϕ _____

Hole (H) ϕ _____ Hole Position (P) _____

Hole Quantity _____ Other _____

4 Bolt spacing

Number of bolts _____ Bolt pitch _____ BCD _____

5 Space envelope

A _____ B _____ C _____

D _____ E _____ R _____

Washer ϕ _____ Washer Thickness _____

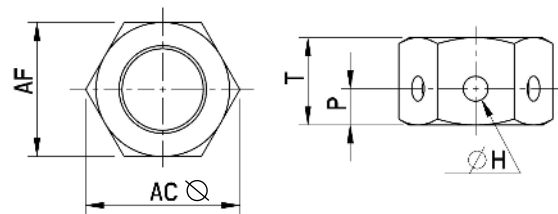
Washer material _____

ADDITIONAL CONSIDERATIONS

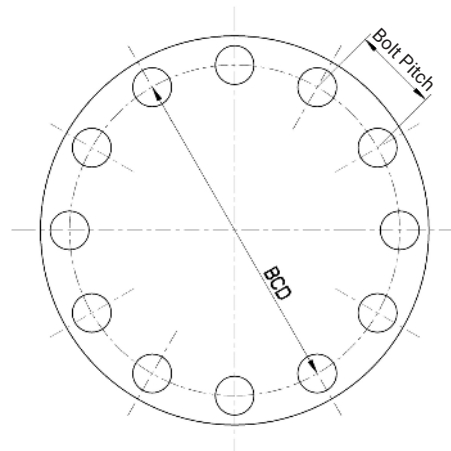
Provide details separately

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> Frequency of use | <input type="checkbox"/> Washer |
| <input type="checkbox"/> Spot Face | <input type="checkbox"/> Orientation |
| <input type="checkbox"/> Handling | <input type="checkbox"/> Environment |
| <input type="checkbox"/> Additional Tool Feature | <input type="checkbox"/> Temperature |
| <input type="checkbox"/> Castellated/Flat Nut | <input type="checkbox"/> Other |
| <input type="checkbox"/> Stud Coatings | |

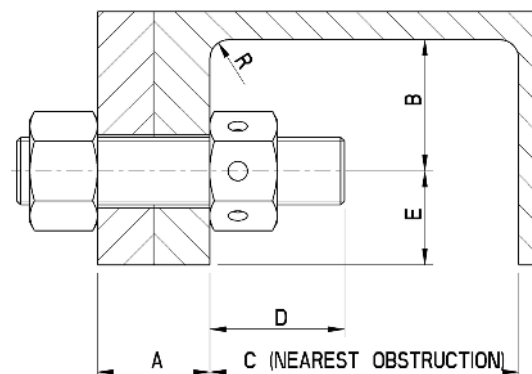
3 Nut data



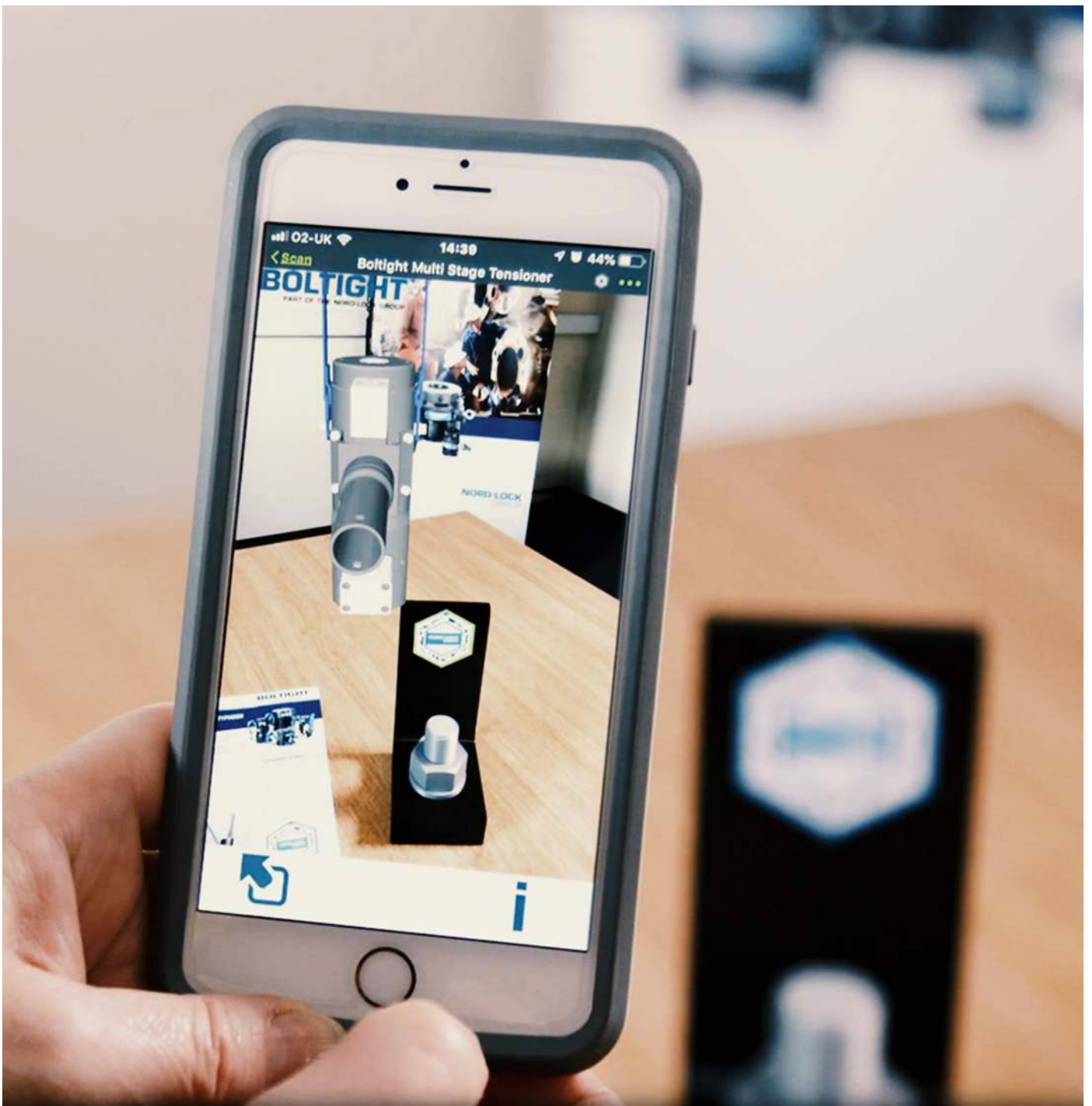
4 Bolt circle diameter



5 Space envelope



Please complete this form online at www.nord-lock.com



THE FIRST STEPS TOWARDS DIGITAL TRANSFORMATION

EMBRACING AUGMENTED REALITY (AR)



To view Augmented Reality experiences download the **Vuforia View App** and scan this mark

Boltight's products are brought to 3D life by an innovative AR experience which provides customers with an exploded view of the products. With links to literature, videos and the website, the experiences also give the user all the information they need to understand how the products are used.

The detailed level of interactivity offers customers a much better idea of product design and functionality, as well as giving access to a wealth of information at the touch of a screen. As the AR experiences are developed further, they will include installation instructions, manuals and e-learning.

WHEN SAFETY REALLY MATTERS

Over 20-years of advancing and perfecting our hydraulic bolt tensioning technology has cultivated our expertise in bolting. As global leaders, we are up to any challenge. We will do anything in our power to help you eliminate breakdowns, control downtime and ensure safety for your entire team.



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GROUP