



HOBSON NEWS

Hobson Engineering

Volume 34

Engineering



Laboratory Accreditation and variations in test results

From the desk of Peter Hobson

Most will be aware of NATA accreditation. NATA stands for National Association of Testing Authorities. It operates mainly in Australia and New Zealand. Hobson Engineering maintains a NATA accredited laboratory for Fastener Testing. We use this lab for research and development, resolving customer quality issues and general batch testing of product before releasing it for sale.

NATA is the authority that provides independent assurance of technical competence through a proven network of best practice industry experts for customers who require confidence in the delivery of their products and services. NATA provides assessment, accreditation and training services to laboratories and technical facilities.

ILAC and the ILAC Mutual Recognition Arrangement (MRA)

The International Laboratory Accreditation Co-operation (ILAC), is the international organisation for accreditation bodies operating in accordance with ISO/IEC17011 and involved in the accreditation of conformity assessment bodies including testing, calibration and medical testing (pathology) laboratories, inspection bodies, proficiency testing providers and reference materials producers.

ILAC works in harmony with Regional Co-operations such as the Asia-Pacific Laboratory Accreditation Co-operation (APLAC) and works closely with the International Accreditation

Forum (IAF), the international organisation for accreditation bodies accrediting certification bodies.

One of the primary roles of ILAC is to establish and maintain a mutual recognition arrangement (MRA) between member accreditation bodies, based on mutual evaluation

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Engineering

and acceptance of each other's accreditation systems. Signatory status to the ILAC MRA is based on a comprehensive peer review process confirming an accreditation body's compliance with ISO/IEC 17011 and relevant ILAC mandated requirements, and its capability to deliver technically sound accreditation to its accredited conformity assessment bodies. The ILAC MRA therefore provides assurance of the integrity of the technical operations of accredited conformity assessment bodies.

NATA is one of the 90 accreditation bodies that have signed the ILAC Arrangement.

New Australian standards such as AS1252:2016 will be referencing ILAC accredited laboratories, hence you will start to notice that a proportion of our test reports available through our website will show ILAC accreditation stamps rather than what you may be used to, NATA. As you can appreciate from the above, the only difference is, that the laboratories being used are not in Australia. This does not mean they are of a lesser standard, in fact from the frequent audits we carry out, they are of a higher standard in relation to fastener testing due to the volumes they are testing. The ILAC accreditation assures the standard

of these laboratories is of the same standard as the NATA labs. We will continue to be testing product in our own NATA accredited laboratory, other NATA accredited laboratories in Australia as well as ILAC accredited laboratories overseas. We strictly control the sample selection process and review and approve each test report irrespective of which laboratory carried out the testing.

Variation in results from Laboratory testing

A very interesting technical article written by Kyle Kruger of Collaborative Testing Services in the USA explored the variations in hardness HRC testing results within labs and between labs. Over 5000 pieces were hardness tested in 154 different labs in over ten countries. Over 23,000 data points were collected on product from the same batches. I will not bore you with the in depth statistical analysis, but from all these tests, the results ranged from 35HRC to 37HRC. A deviation of 5%. The standard deviation of the means was only 0.55HRC. I make no real comment on this, apart from that it is interesting and is consistent with our own analysis of results that we have obtained from many years of testing at our lab and others. We often send the same items from

the same batches to three or four laboratories just to ensure we are getting consistent results. A lot of Fastener Companies in Australia talk about quality control, we actually carry it out as is evidenced by the tens of thousands of test reports available on our website.

References:

NATA website: Article by Kyle Kruger of Collaborative Testing Services published in the Fastener Technology International publication.

Hobson Engineering is Accredited to ISO 9001: 2015

ISO 9001
BUREAU VERITAS Certification
Nº.9000117



Hobson Engineering Product Testing Facility is Accredited to NATA



Nº.18918

DID YOU KNOW?

about our... **vmaX[®] TRIM HEAD TORX DRIVE**



On Location

Royal Botanic Gardens

CRANBOURNE, VIC



Amongst the gorgeous landscaped gardens we found Hobson Fasteners!



The Skillion

TERRIGAL, NSW

Here are Hobson Fasteners enjoying a stunning view!



How to link your part number to a HOBSON part

Next to **My Part**
Click the [Allow Editing Box](#)

My Part <input type="checkbox"/> Allow Editing	Part
	ABBRPCM051000
	AL04PC0250914

Now, type in your part number next to the HOBSON one that you want to link it with.

My Part <input checked="" type="checkbox"/> Allow Editing	Part
THEADM051000 	ABBRPCM051000
THEADM250914 	AL04PC0250914

Your part number will now be linked with the HOBSON part.
You can now search for YOUR part in online ordering.

Now when you download your order to excel **your part numbers will appear** next to the HOBSON part numbers.



WHERE TO BUY

Since 1935
... because quality matters

\$10.41 Saved 197.80 Sub-Total

Price	Quantity	Extended	Cat.
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The world's biggest crane



Growing demand in the world's construction industry has seen the rise of a new breed of super cranes. However, one of the biggest and best in the world is the Bigge 125D AFRD (A-Frame Ring Derrick). Not only can it lift loads of up to 7,500 tonnes, it can manage this from one single location, thus eliminating the need for crane relocation or multiple lifting devices. Once installed the Bigge 125D can move anything, anywhere – quickly and efficiently – and offers a degree of flexibility unprecedented in the construction industry.

Currently, two Bigge 125D cranes are being used to construct two new side-by-side reactor units at two different nuclear power plants in the U.S. By deploying the Bigge 125, the new reactors can be built at once without relocating the crane.

It goes without saying that a machine of this size and capacity needs a strong bolting solution. However, when construction is complete, it also needs to be dismantled, transported and reassembled at another site. For this reason, Bigge Crane & Rigging has chosen to use

Superbolt tensioners to connect large components. Not only can they offer the required security, they can also be assembled and disassembled easily.

Customer: Bigge Crane & Rigging Co.

Height: 170 metres

Product: Bigge 125D AFRD Super Crane

Coverage: 113,000 square metres

Maximum capacity: 7,500 tonnes

Horsepower: 3,450 hp

Product used:

Superbolt tensioners

Product Spotlight



NORD-LOCK
GROUP

SUPERBOLT™
your flexible friend

Q: How does the added flexibility of Superbolt improve the bolted joint?

A: In normal bolted joints, the stress concentration of loads on the first 1-2 threads is one of the main reasons why a bolted joint fails. With a joint utilizing **Superbolt** multi-jackbolt tensioners, as the jackbolts are torqued to stretch the stud/bolt, the tensioner body radially flexes in at the top and flexes out at the bottom. This flexing action transfers the load from

the first few threads and distributes the load evenly throughout the entire engaged thread length between the tensioner and stud/bolt. This simple flexing action dramatically increases the strength of the joint by reducing the stress concentrations on the first couple of threads.

In addition, this radial flexing action combined with axial flexing results in added elasticity in the joint. In a typical bolted joint, the average clamp length of the joint is around 2

to 5 thread diameters in length. The combined flexing in the MJT creates a higher load point, which increases the clamp length of the joint by as much as 2-3 thread diameters. It can be concluded that the Superbolt tensioner could double the elasticity of a standard bolted joint. This eliminates the need for lengthening the bolt/stud and adding a spacer or multiple spring washers, (both of which can be costly), to improve the elasticity of the joint.

No downtime with innovative pivot pins

Rambooms Oy is a global supplier of breaker boom systems to crusher manufacturers and mines. Based in Finland, its products are used to break oversized rocks.

Pivot wear on these applications is a natural occurrence through time and repeated use, and the company had previously been using its own solution to prevent this. This solution, with a basic conical locking, had caused some issues. Rambooms' own pins also arrived at its factory in pieces rather than assembled, which meant extra repacking work for personnel when sending the pins on as spare parts.

In 2009, the company took the decision to test the Expander System pivot technology and has been extremely satisfied with the results.

Expander System pivot pins are already fully assembled when they arrive. This represents a significant time and cost saving in a competitive industry. Technicians have found fitting and locking much easier than the company's previous solution.

The Expander System has offered Rambooms significant peace of mind, as it has had no customer issues with pivot wear since the company employed it. A marked improvement in delivery times has also been noted, as Expander always has the stock ready to ship.

"Our customers recognise the fact that the Expander System pivot technology means good quality. This reflects well on us and our business," says Samppa Varhomaa, Product



Photo credit: RAMBOOMS

Manager at Rambooms Oy.

The Expander System is locked into the pivot on the machinery when fasteners are tightened. The double-sided locking increases safety and stability, while both fitting and dismantling is simple.

Customer: Rambooms Oy

Range: >40 models from 450 kg to 20 tonne

End-customers: Crusher manufacturers and mines

Applications: Breaker boom systems

Products used: **Expander System pivot pins**



Product Spotlight



Photo credit: SLEIPNER

Faster transport for heavy machinery

Excavators are a vital piece of machinery for any mine, but for all their horsepower, they are incredibly slow and cumbersome to move. In fact, 15 percent of their time is spent travelling, and this enforced downtime means lost income.

However, with a relatively simple yet unique solution, Sleipner has revolutionised excavator logistics, reducing travel time by 70 percent.

The E550, Sleipner's biggest carrier, can transport excavators weighing up to 565 tonnes. Traditionally, Sleipner has used welded frames. However,

in order to increase loading capacity they needed to find a more secure connection. They elected to use Nord-Lock washers as these were able to withstand the heavy loads without loosening.

With customers all over the world, carriers are often sent to isolated places with limited resources, such as the Australian outback or the far north of Finland. For this reason, Sleipner uses Superbolt tensioners to connect the wheels to the frame as using a fastener that can be tightened with standard hand tools is

a huge advantage when working in remote areas with no power supply.

Customer: Sleipner Finland Oy

Product: E550

Loading capacity: 565 tonnes

Wheel diameter: 2.7 metres

Width: 5.4 metres

Weight: 80.5 tonnes

Tyres: 8

Products used: Nord-Lock washers and Superbolt tensioners



SUPERBOLT™

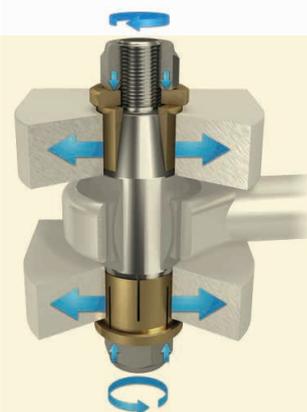
Superbolt™ multi-jackbolt tensioners (MJTs) from the Nord-Lock group offer an innovative technology for tightening bolts & studs

The multi-jackbolt tensioners offer you simple and cost effective tightening for large size bolts.



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 torquing 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 permanent solution for pivot wear



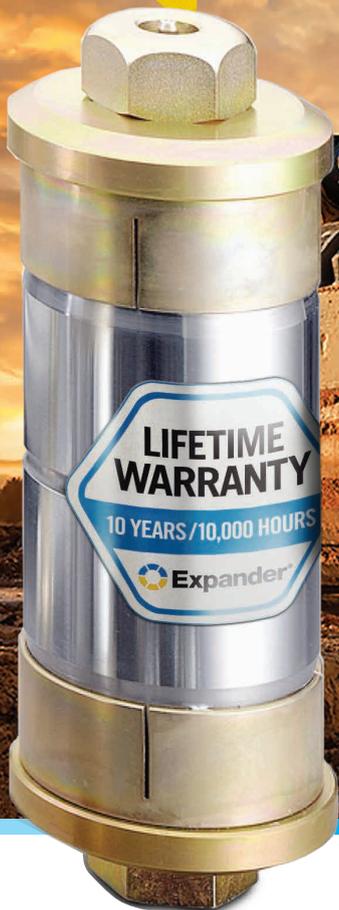
Expander®

An Expander System pivot pin consists of an assembly that includes: an axle which is tapered at both ends, two expansion sleeves, two tension washers and two fasteners. When the fasteners are torqued, the tension washers push the expansion sleeves up the tapered part of the pin, thereby locking the system into the lug ears and eliminating movement that causes pivot wear.

The double-sided locking mechanism provides increased stability, security and a backlash-free joint. Installation can be easily done in the field, reducing downtime and cost.

ARE YOU GETTING THE MOST OUT OF YOUR MACHINE?

All machinery pivots wear with time - especially when driving and working in tough environments. A repair using the Expander System pivot pin is quick, easy and permanent. Assembly and disassembly can usually be done in the field. The maintenance costs associated with traditional fastening methods are completely eliminated!



THE PERMANENT SOLUTION TO PIVOT WEAR