



Greenslade & Company, Inc.



**Fastener
Inspection
Products**

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March 14, 1994

James A. Davis (OWFN 704)
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555
301-504-2713 / FAX 301-504-2666

Dear Mr. Davis,

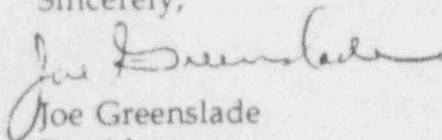
Enclosed is the material regarding fastener inspection and equipment per our conversation last week.

As I told you last week, it is my personal opinion that the use of ASME B1.3M-System 21 thread inspection is not unsafe and its use has never been proven to have played any roll in any fastener failure. There are many cases of fastener failures documented in the past in a variety of industries and applications. In the final analysis the failures are proven to be the result of improper installation, improper heat treat, or improper material chemistry.

I have worked on committees with top ranking personnel in metrology from Boeing, General Dynamics, Grumman, Lockheed, and Douglas who have been involved in the analysis of many part failures. None have ever found thread geometry to be the cause, or contributing factor, of any failure. The Army engineers in charge of helicopter design absolutely deny that thread geometry played any part in the documented failure of rotor nuts.

If you need more information or specific contacts at the above mentioned companies please call me. I hope you find the enclosed information helpful.

Sincerely,


Joe Greenslade
President

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9405270282 940308
PDR COMMS NRCC
CORRESPONDENCE PDR

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FAX TRANSMITTAL SHEET

TO: Mr. Larry Weckbaugh
Calvert Cliffs Nuclear Power Plant
PHONE: 410-260-4826
FAX: 410-260-2263

FROM: James H. Harrington
Johnson Gage Co.
PHONE: (719) 481-9661
FAX: (719) 481-9663

-- Strengthening America's Commitment to Quality --

Mr. Weckbaugh, the Johnson Gage Company, at the request of the NRC, is offering a FREE educational seminar that addresses problems of thread dimensional non-conformance and its impact on the Nuclear Power Industry.

The purpose of the seminar (topical outline attached) is to educate people on the complexities of the screw thread, critical thread characteristics, thread standards and gaging, and the problems the nuclear industry is experiencing with threaded products. The key issue is that the most common thread gaging system, System 21 (Go - No Go gaging), will NOT assure thread dimensional conformance. This has been proven by the National Institute of Standards and Technology and they have gone on record to this fact in writing. Non-conforming threaded products caused loss of weapon systems and life within the Department of Defense and resulted in the DoD revising their procurement procedures to eliminate use of System 21 gaging.

The NRC has initiated a study on this issue and will be releasing a Bulletin or an Informational Notice within the next few months. The seminar addresses this issue and graphically demonstrates the problem. The seminar is approximately 1 1/4 hours long, depending on the number of questions, then is followed by a 15 minute equipment demo.

Johnson Gage would like to present at your facility 8:00 AM on 8 March 1994. People from the following organizations, as a minimum, should attend this seminar: Quality Control (Incoming Inspection), Maintenance, Procurement, and (Procurement)Engineering. Others are welcome.

To date, 36 nuclear facilities have received this presentation. You will find this seminar WELL worth you time. Please call so that we may make arrangements for this seminar.

Jim Harrington
Director of Tech Services & Operations

**THREADED COMPONENT
DIMENSIONAL CONFORMANCE
&
THE NUCLEAR POWER INDUSTRY**

- The Problem

- The Impact of Thread Dimensional Non-conformance
- Why are Non-conforming Products Being Accepted & Used?

- Basic Threaded Component:

- Requirements, Geometry, Standards, & Nomenclature
- Key Characteristics
- Importance of Size, Position, and Form
- Failure Modes
- Nuclear Power Industry Problems (Plant X +)

- Pending NRC Actions

- Current Study
- Informational Notice or Bulletin Release
- The NRC Traveling Quality Van

- The Solution

- Educate, Mandate, Incorporate, & Verify
- The Impact on the Bottom Line — The **COST EFFECTIVE** answer!

This presentation is approximately 1 1/4 hours long depending on the number of questions. This is an **EDUCATIONAL** presentation thus questions are encouraged. A short (15 minute) hardware demonstration follows the presentation that highlights current industry thread gaging problems that allows non-conformance and a cost effective solution.

The Johnson Gage Company
534 Cottage Grove Road - Bloomfield, CT 06002

To arrange a presentation at your facility call James H. Harrington. (719) 481-9661/9661

RAYMOND ENGINEERING

217 Smith Street, Middletown, Ct. 06457-9990
203-632-1000 EASY LINK 62030205 FAX (203)632-4737

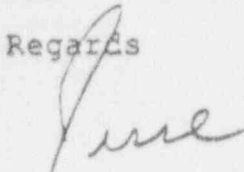
FACSIMILE TRANSMISSION

KAMAN

TO: Mr. Jim Davis, NRC Washington, DC FAX: 301-504-2444
FROM: Jesse Meisterling PHONE: 203-632-4708
SUBJECT: System 21/23: dimensional vs variables measurement
DATE: March 7, 1994 20 Page(s) to follow.

Joe Greenslade may not be the counterpoint individual I had in mind. Gerald A. Flannery looks like the gentleman you should talk to for the other side of the story. I have attached two small editorials he authored and his phone number. I am also enclosing an IFI document on the topic. This information has come to me from the Bolting Technology Council, Wayne Wallace, Chairman. He can be contacted at Applied Bolting Technology; 802-228-7390.

Regards



JESSE
Chief Engineer

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cess of steel material in Mexico will result in the steel materials being considered a foreign material and subject to the requirement of Title 23 CFR 635.410.

These international trade agreements may however, have an impact on direct federal procurement actions taken pursuant to the Federal Acquisition Regulations (FAR) (Title 48 CFR).

Don White
Fraud Investigation Training Center
31109 Via Gilberto
Temecula, CA 92592

Minor Non-Conformances

Mr. David Edgerly provided the language for the proposed amendments. It is said, that he said it at the NFDA Convention, yet transcripts of NIST/FAC showed NIST themselves could not consider minor non-conformances.

...It is being said by the fastener industry that the politicians will shut American Industry down if they hold firm not allowing minor non-conformances. With % of total fastener consumption which is proven non-conforming, let it be said with foresight that the fastener industry has chosen to shut industry down, not the politicians.

Our moral and ethical commitment as a nation must stand for quality and safety. Standards and law are critical.

The proposed Solution is, as simply explained, when minor non-conformances had been titled "regulation C" alternative," when addressed to NIST, Oct. 26, 1992, which follows. The fastener industry has not demonstrated knowledge of sound scientific data and fact or has chosen to ignore it based on simple logic. This logic is, it costs more than they currently expend to make fasteners right in the first place but making fasteners to minimum specifications and standards costs more than the way they are made now, with few exceptions.

These are regulatory matters of prudence, not legislative in nature. It is not the politicians but rather the fastener industry who has not worked on quality improvement for the past 3 years. They have concentrated on internal costs. The ANSI/ASQC standards approved with ISO already provide methodology and criteria for all the issues they have thrown back to the legislature.

After correction to OMB's, \$65.00 information on chemistry costs to \$10.00 and Cpk/Sigma formula to PPB from

PPM, these matters should be returned to NIST for correction to regulations based on sound technical analysis, consistent with P.L. 101-592 and P.L. 92-573.

John Cole
Product Risk Reduction Inc.
20525 Center Ridge Rd.
Rocky River, OH 44116-3424

System 21 vs System 22

I recently read a published article presenting a biased attack on GO/NO-GO thread gaging in an effort to promote variables gaging. Try as they might, variables gaging continues to prove itself not to be a replacement for fixed limit gages.

The prevarications that these people constantly put forth amaze the real thread experts in the industry and make us all wonder what they are trying to achieve. In the particular article, they cite the notorious square screws in the round hole demonstration which is nothing more than smoke and mirrors.

Thread manufacturers in the industry would be hard pressed to duplicate that famous assembly. That demo is used to baffle the innocent and unaware victims of the variables parade. They say don't trust GO/NO GO thread gaging. I say don't trust those people. Variables measurement can cause as many or more problems than fixed limit gages. The variation in measurement results between two different instruments set on the same thread master (a fixed limit gage) can, in some instances, equal or exceed the part tolerance.

Now let's talk about trusting gages. It's just more snake oil. Variables gaging can be a very effective gaging system when carefully used in conjunction with fixed limited gages. By themselves, variables can contribute to as many or more product problems as the GO/NO GO gages they condemn. Ironically, the fixed gaging they condemn are the very masters used to set these variable thread gages.

I wish these people would start telling the truth. Variables and fixed limit gaging have both existed for over 40 years. They are nothing new. Please, gentlemen, sell gages, not snake oil.

Gerald Flannery
Mercury Gage Co.
Detroit, MI

Nylok Reply

Oakland Corp. (ND Industries) recently announced that it was successful in obtaining a "partial summary judgment" in its opposition to Nylok Fastener Corporation's ("Nylok") federal registration of its color Blue trademarks. The ND announcement might be interpreted as an indication that Nylok's trademark rights in the color Blue have been undermined. That is not the case at all. In fact, Nylok voluntarily limited the scope of its trademarks to the way they are actually used by Nylok—that is, on prevailing torque-type fasteners with nylon locking elements. Nylok voluntarily agreed to the entry of "partial" judgment on the broader definition because it covered blue chemical adhesive and free-running-type fasteners, not sold by Nylok.

The Oakland/ND announcement failed to mention that ND also moved for summary judgment in its favor on the actual use of the Nylok color Blue trademark on prevailing torque-type fasteners. ND did not prevail on that motion. The Patent and Trademark Office Trial and Appeal Board denied Oakland's motion and set a trial. It is expected that the case will actually be tried November 1993. Thus, ND Industries has not prevailed on the real issue, which is Nylok's right to federally register its Blue trademarks for prevailing torque-type fasteners having nylon locking elements.

The Patent and Trademark Office Examiner has previously ruled Nylok's color Blue marks should be granted Federal Registrations. Since that time, Oakland/ND has unsuccessfully attempted to promote the idea that color is irrelevant, even though the United States Government and others in the private sector have for many years specified and acknowledged that the color Blue can only be used to identify nylon locking element prevailing torque-type fasteners manufactured by Nylok.

Submitted by Michael Isser on behalf of:

Nylok Corp.
800 W. University Dr., Ste E
Rochester, MI 48308-4364

(This letter came in response to an Industry News item appearing in the April, 1993, edition of Fastener Technology International, pg. 11.)

...Continued

equivalents that are dimensionally the same is the fact that almost every procurement spec calls for some form of testing and/or certification. A certificate of conformance or compliance is only satisfactory if you are certain that the manufacturer or supplier has done the testing and does in fact have the test reports on file for your review if you request them. In closing, when ordering AN, MS, NAS, or any military specification material, it should always be supplied to the latest revision unless otherwise specified by the purchaser.

F A Moebing
Mar-Lin Sales
208 North 8th St
Brooklyn, NY 11211-2008

Update on Specifications

For the record, I am submitting the revised specification numbers in the event than any of your readers are interested. The specifications that have been revised are: ASTM A574-89, ASTM F835-89 and ASTM F912-89. The current specifications are: ASTM A574-90, ASTM F835-90 and ASTM F912-90. These specifications are referred to in my paper "Questions and Answers on Hex Socket Screws," on both page 20 and page 22 of the April 1991 edition of Fastener Technology International.

R W Kerr
President
Kerr Lakeside Inc
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PO Box 32220
Euclid, OH 44132-2680

Japan Absolved

Our Congressman Edward Feighan's essay in the April, 1991 issue of your magazine was interesting and thought provoking. I agree that there are many problems facing not just American Fastener Manufacturers, but all American Manufacturers. What worries me is that the Congressman seems to feel that Japan is the root cause for these problems. The reasons American manufacturing companies have difficulties being

competitive and profitable at the same time come not from Japan, but Washington.

I keep a file of news clippings that chronicle the various ways our Federal Government has added to the costs and risks of manufacturing in America. The 1991 file as of today is already 3/4" thick. It would take an entire issue of Fastener Technology International to make an irrefutable argument that Washington and, to a lesser but still significant extent, state capitals are the cause not the solution to the problem of American Manufacturing competitiveness.

The prevailing mentality among government officials, elected or appointed is that successful people or those who aspire to be successful are the cause of American ills. I'm sure that Congressman Feighan would take exception to this contention, but look at what he and his colleagues have legislated or are attempting to legislate. Laws on the books today creating Federal agencies such as the EPA, IRS, OSHA, and EEOC, all have the power to literally confiscate the assets of a business owner for no other reason than somebody making an honest mistake. The four agencies just identified have added immensely to the risk and cost of doing business. This situation of increasing risk coupled with reduced returns is why investment in the American Manufacturing sector is falling.

A significant portion, if not a majority of American government officials are Socialists. I don't think this is news to anybody, especially those who think of themselves as Capitalists. As the Federal Government becomes more deeply involved in the day to day life of America, the standard of living in America is going to continue degenerating. Public Schools are a good example of this contention. Good government is less government.

America is a nation built by Capitalist people. As long as Socialist influence is allowed to govern our country, "Capital" will continue to go elsewhere. Capitalists create wealth and prosperity. This is not done at anyone's expense but to everybody's benefit. Congress-

man Feighan and his colleagues need to reach this conclusion and then find the courage to tell their special interest constituents that persecuting the American Capitalist is the cause, not solution to the multitude of problems facing the country.

Sincerely,

Charlie Kerr
Vice President, Mfg & Sales
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Euclid, OH 44132-2680

SPC Versus Gage R&R

Many screw thread measuring instruments in use today lack sufficient precision and accuracy to meet SPC objectives. Specifically, segment indicating (variable) screw thread gages fall short of acceptable norms.

The state-of-the-art in variable thread measurement is not where it needs to be to satisfy minimum SPC requirements. Typical gage R&Rs (measurement error) are in the range of 40 - 60% depending on narrowness of tolerance. These high ranges must be driven to 10% or lower, although in certain cases up to 20% can be tolerated. Otherwise, the measurement error confounds the data to the point that true process capability is difficult if not impossible to assess.

Fastener-making processes often look worse (less capable) than they really are because of the adverse influence of measurement error in the distribution of process dispersion.

Be cautious and make certain before committing large capital expenditures that you purchase measuring instruments having capability to meet today's/tomorrow's quality needs...in spite of what a certain vendor might promise.

Gerald Flannery
President
Mercury Gage Co
Detroit, MI