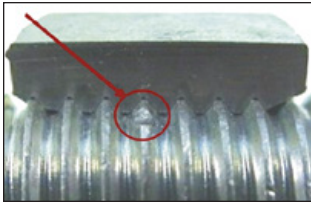


Product Information Report

Nicked Threads



Nicked thread on cap screw interfering with hex nut.



Overview

All standard threaded fasteners may have nicks and imperfections that can make the nut difficult to thread on by hand. This occurs regardless of the manufacturer or supplier and is not a sole indicator of quality issues. Because of this, questions often arise as to acceptance criteria for nicked threads on externally threaded fasteners.

The fastener industry recognizes that although the amount of torque required to turn a nut on may be greater than what can be achieved by hand, it is minimal and insignificant when compared to the recommended seating torque and resulting clamp load of the assembly.

To address this recurring concern, the fastener industry has added torque evaluation procedures into several internationally-accepted standards. These procedures are used to determine the maximum allowable amount of torque when inserting a fastener into a GO Ring-Gage, which is an inspection tool used for measuring threads that has a tighter fit than the threads of a standard nut.

The maximum allowable torque to overcome nicked threads is shown in the table.

Maximum Allowable Torque Values

Nominal Thread Size	Maximum Inch-Pounds	Maximum Newton-Meters
M6	1.9	.22
M8	4.3	.51
M10	8.9	1.00
M12	15.3	1.72
M14	24.3	2.74
M16	36.3	4.10
M20	70.7	7.99
1/4"	2.3	.26
5/16"	4.4	.50
3/8"	7.6	.86
7/16"	12.1	1.37
1/2"	18.1	2.05
9/16"	25.7	2.91
5/8"	35.4	4.00
3/4"	61.2	6.91

What are Nicked Threads?



Thread-rolling machine dropping screws into hopper

Nicked threads are localized indentations or misalignments of the threads on a fastener. Nicks can occur anywhere on a fastener, from the first thread where it may cause difficulty in starting the nut, to the end of the thread. They are a result from the normal handling of the fasteners during the manufacturing process.

The occurrence of nicked threads increases as the fastener diameter and length increases, and coarse threads are less affected by nicked threads than fine threads.

Causes of Nicked Threads

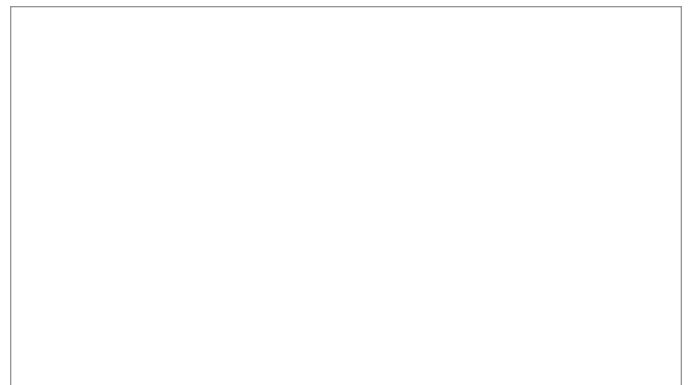


Transfer of screws to new hopper

Fastener manufacturing is an automated process. The threads are rolled in a soft state then fall into a hopper on top of other threaded parts. They continue to be transferred via hoppers to subsequent operations. Threads are susceptible to damage caused by impact due to their relatively sharp crests. This is how nicks often form, especially on larger, heavier parts.

During the heat-treatment process the soft fasteners are hardened, causing any nicks to become permanent. In the final plating process, any nicks present will be exaggerated.

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Solution



The only way to eliminate nicks on fasteners would involve making the manufacturing process much more labor intensive. Every fastener would have to be caught or protected and set into a rack throughout each stage. This would add significant cost and is not feasible due to the number of fasteners manufactured during a production run.

The easiest way to restore threads of a damaged fastener is by threading a nut onto the fastener using a wrench or socket. Threading by hand may not be possible, especially for larger diameters. A wrench will provide ample leverage to correct any nicked threads and make the fastener ready to install.