

## UNPACKING



Verification Guide



Quick Start Guide



Certificate of Compliance

## CARE



Avoid direct impact to indicator

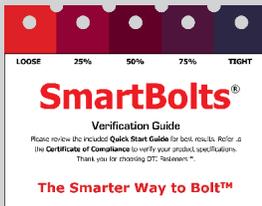


Avoid using harsh solvents to clean window



Avoid drops directly on head

## INSTALLATION

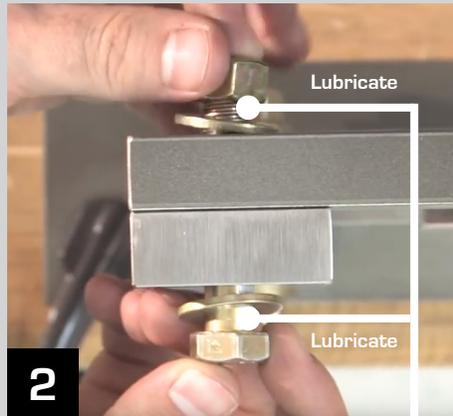


**FRONT**

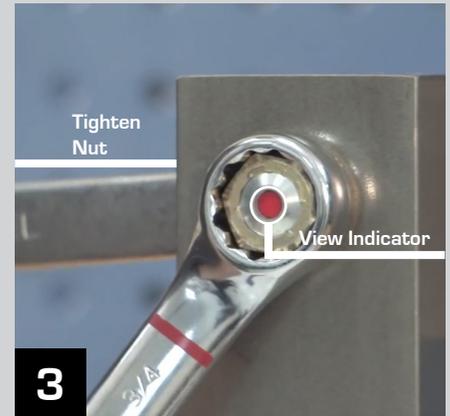
**BACK**

**1**

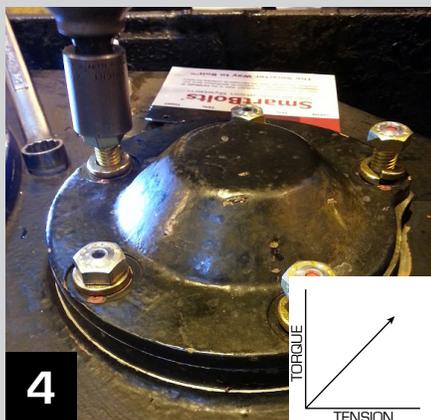
Familiarize yourself with the color blocks and viewing windows on the Verification Guide. Also see light source considerations on back.



**2** Lubricating the washer faces and threads can help ease installation.



**3** We recommend preloading by visual indication. Tighten the nut while constraining the head and viewing the indicator.



**4** If direct viewing is not possible while tightening, apply torque in increasing steps until "Tight."



**5** Compare the color blocks with the indicator. Always confirm tightness by indicator color and adjust torque as necessary.



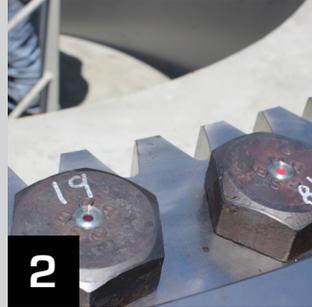
**6** Once the color of the indicator matches the "Tight" color block, installation is complete!

## MONITORING



1

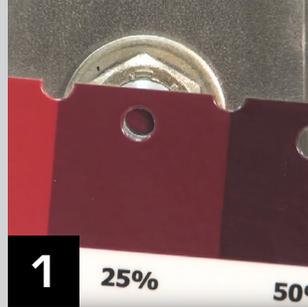
Monitor for any insufficiently tightened bolts by matching the Verification Guide color blocks to the indicator.



2

Identify insufficiently tightened bolts. If all bolts are still "Tight" maintenance is unnecessary.

## MAINTENANCE



1

Locate the previously identified bolts in need of necessary maintenance.



2

Maintain joint by retightening using the appropriate method as described in Installation.

## TROUBLESHOOTING

Issue	Possible Cause	Solution
The indicator window is a little hazy or dirty, making it difficult to read.	The window has a minor variation in smoothness or is dirty.	Wipe away any grease or debris.
		Apply a thin coating of light oil to the indicator.
It is difficult to read the indicator in my environment.	There is not enough light to see the indicator clearly.	Use an LED flashlight.
	There isn't enough space to clearly view the indicator.	Use an inspection mirror with flashlight.
I have applied my torque value but the bolt is not indicating fully "Tight."	Excess friction in the bolted joint has caused the torque-tension relationship to vary.	Increase applied torque or consider introducing a thread lubricant.
		Use hardened washers to reduce friction.
A small/medium bubble has formed during tightening, or shortly thereafter.	The bolt is not able to be properly tensioned due to an error in the bolted joint setup.	Remove the bolt and inspect the bolted joint setup for possible causes or interferences.
A small/medium bubble has formed during tightening, or shortly thereafter.	A bubble was formed in the indicator as the bolt was tightened due to fluid cavitation.	Loosen and re-tighten the bolt slowly.
		Ignore the bubble. Use the area around the bubble which is still accurate. This issue will resolve itself permanently in most cases.
		Contact us for additional support.

## ADDITIONAL SUPPORT

Please contact us for customer support: (240) 631-7246 or [support@smartbolts.com](mailto:support@smartbolts.com). Additional resources are available at [www.smartbolts.com/support](http://www.smartbolts.com/support).

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