



Torque - ing Wheel nuts/studs



Why do we need to TORQUE the wheels?

- Threaded wheel nuts/bolts are intended to stretch slightly when correctly tightened within specifications. In the case of wheel studs and nuts or wheel bolts, this provides the correct preload required for the wheel and the hub to be safely mated and secured.
- If the wheel nuts/bolts are insufficiently tightened, the nuts/bolts could come loose, causing wheel and vehicle damage.
- If the wheel nuts/bolts are over-tightened, the wheel stud or bolt can be permanently stretched where it will be fatigued beyond the elastic range, or even break during tightening.
- The only way to ensure the correct torque settings, is with the use of a quality and properly calibrated, or pre-set torque wrench and by taking the time to tighten the wheel nuts/bolts correctly.
- Never use an air impact wrench to tighten wheel nuts/bolts. You will not be able to accurately control the torque, and an impact tool can easily damage the wheel nuts/bolts and/or the seat surface area. When working with alloy wheels in particular, such damage, even if cosmetic, is simply not acceptable.

CAUTION:

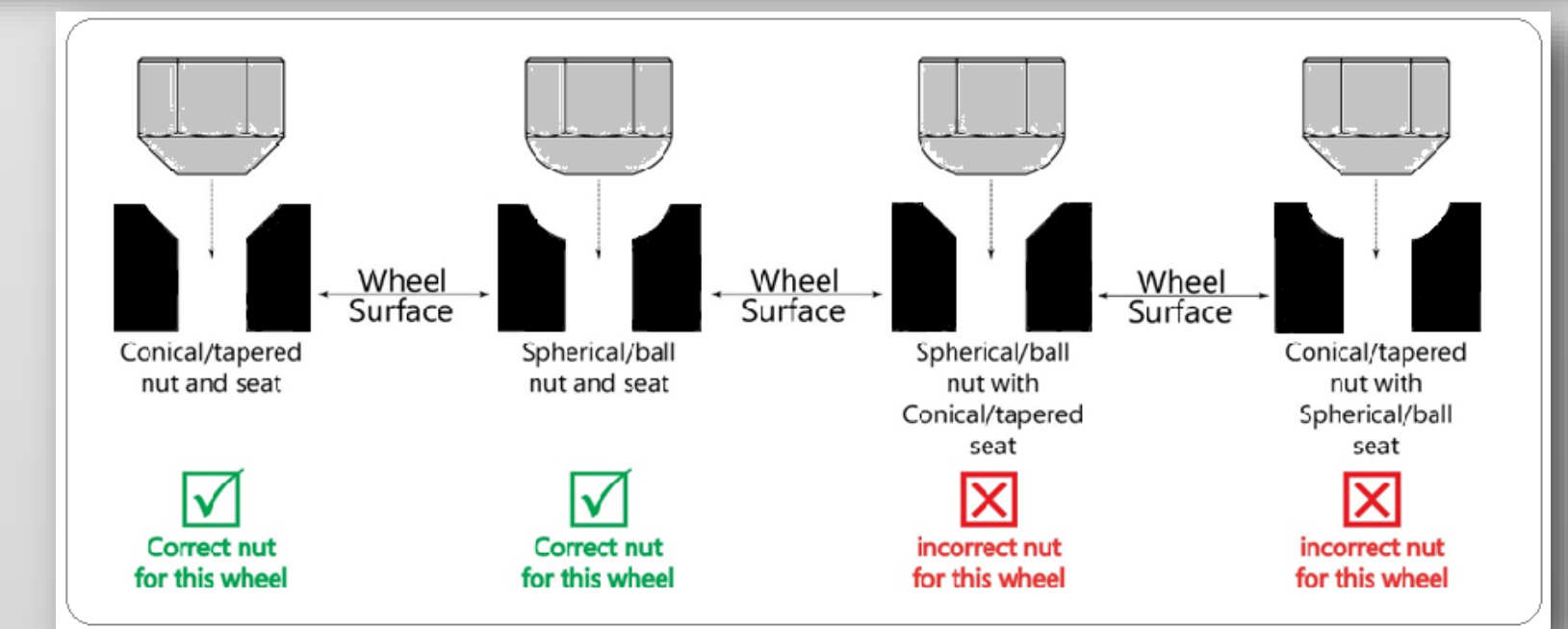
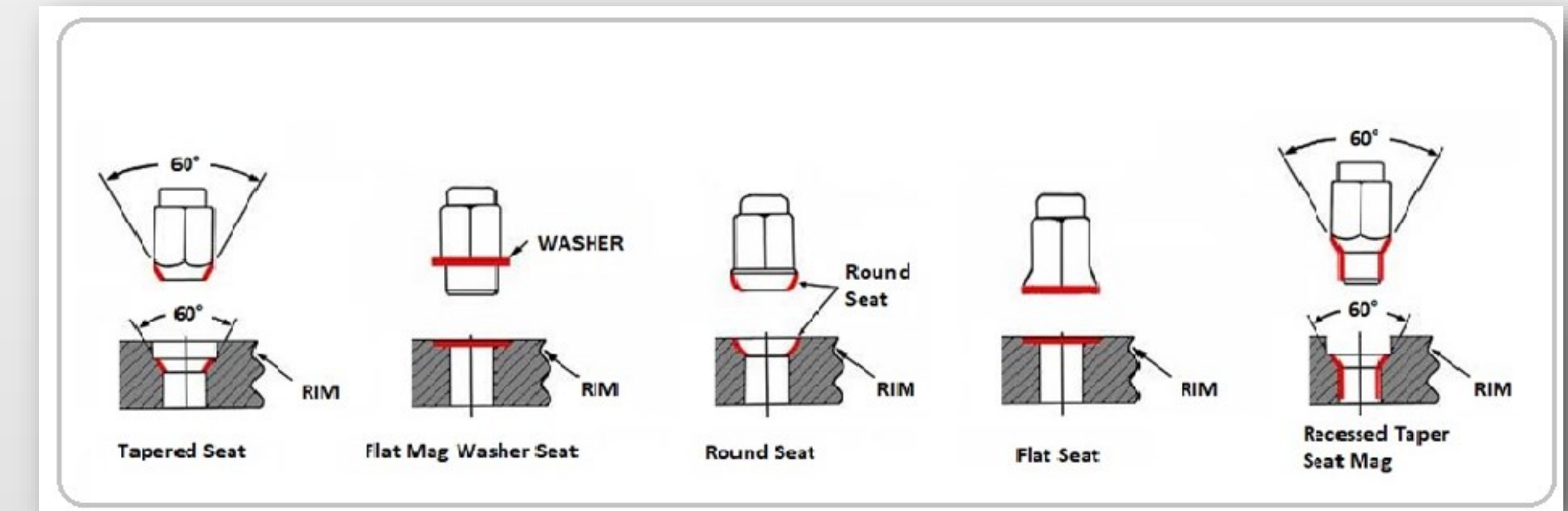
- Best to leave the IMPACT WRENCH on the bench.
- Do not lubricate the THREADS
- Always use sockets that fit the wheel and the nuts or bolts properly.
- When fitting the wheels, don't make the mistake of finger tightening the wheel nuts/bolts and then lowering the vehicle to the ground to finish tightening. It is best to perform your complete fitting procedure while the vehicle is suspended off the ground. If the wheel to hub surfaces are not properly mated, the weight of the vehicle will result in sidewall deflection (due to vehicle weight), which will result in wrong torque settings and wheel damage.
- In order to prevent the wheel from seizing onto the hub (where an alloy wheel is fitted), use of a thin layer of an anti-seize paste on the hub where the wheel will mate, should make removal at a later date easier.
- Never use any form of lubricant (grease or oil) on the threads of the stud, bolts or wheel nuts. Lubrication will have a negative affect on the torque applied to the fasteners, leading to potential failure of the component.
- The Torque guidelines are based on DRY/CLEAN THREADS only.

How to torque the wheel nuts/bolts correctly

- Where possible always refer to the Vehicle Manufacturer's recommended torque settings.
- Finish tightening the wheel nuts/bolts using a calibrated, professional torque wrench correctly adjusted to the required torque settings or a pre-set torque wrench of the correct value.
- Always use a crisscross sequence (see diagrams below).
- Do not over-torque a wheel nut/bolt as it can strip the threads, stretch or break the wheel stud/bolt, and cause distortion of the wheel, brake rotor and/or brake drum.
- After fitting wheels it is advisable to re-torque the wheel nuts/bolts again after the first 80 to 120 kilometres of driving, to ensure that any compression of the wheel material is compensated for, and torque levels are maintained at the safe specifications, especially with new alloy wheels.

What are the various fastener seat styles?

- The "seat" is the contact area between the fastener's head and the wheel.
- The seat style of the fastener must match that of the wheel.
- If the seat style is wrong, the wheel will not be properly fastened to the hub and will damage the wheel.
- The wheel will eventually loosen and wobble as it moves in relation to the hub.
- Any play between the wheel and the nuts/bolts will damage the wheels, which could lead to loss of the tyre/wheel assembly.
- Seat styles that describe the shape of the area, where the fastener meets the hole in the wheel include:
 - Radius
 - Conical
 - Flat ("mag")



SUGGESTED TORQUE WRENCH SETTINGS in Nm

Socket Size	Stud Dia.	Thread Pitch	Torque guide
Metric			
17	M10	1.25	88
19	M10	1.25	88
19	M12	1.25	110
19	M12	1.5	110
19	M12	1.75	110
21	M12	1.25	110
21	M12	1.5	110
21	M12	1.5	110
19	M14	1.5	135
21	M14	1.5	135
21	M14	2	135
22	M14	1.5	135
Imperial			
3/4"	1/2"	20	110
13/16"	1/2"	20	110
3/4"	7/16"	20	88
22	9/16"	18	163

TORQUE SEQUENCE

