



HEAVY VEHICLE BOLTS – QUICK REFERENCE GUIDE

This document acts as a quick reference guide for the installation of bolts on heavy vehicles

The following items should be read in conjunction with these guidelines:

- Vehicle Manufacturer (OEM) Modification Guidelines
- VSB-6

All modifications must be carried out by suitably qualified tradespeople in accordance with the relevant Australian Design Rules, Australian Standards and National Codes of Practice. Any uncertainties should be discussed with TCS prior to commencing the modification. These guidelines are not intended to be used as the sole instructional tool for vehicle modifiers; modifiers must be suitably qualified tradespeople who are experienced in modifying heavy vehicles.

MANDATORY BOLT INSTALLATION REQUIREMENTS

- ✓ All bolts must be high tensile
- ✓ Hardened washers must be installed under both the bolt head and under the nut (Figure 1)
- ✓ All nuts need to be high tensile and self locking (Nyloc, Conelock or other suitable self-locking variation)
- ✓ At least two bolt threads must protrude from all nuts
- ✓ Any suspension component bolts must be ISO Class 10.9 or SAE Grade 8
- ✓ All bolts that have been installed to replace OEM bolts must be at least an equivalent class/grade.

8.8

Typically ISO Class 8.8 (SAE Grade 5) bolts are acceptable for body and towbar installations. Depending on the application a higher class/grade bolt may be required.



Fine thread is generally preferable – UNF is classified as fine thread (Imperial measure) – UNC is classified as coarse (Imperial measure)

When mounting tow couplings (towbars, fifth wheels etc.) the bolt shank needs to protrude through the entire interface of the material. This avoids stress concentration on the threaded portion and maximises the available bolt cross-section that is subject to shearing forces.

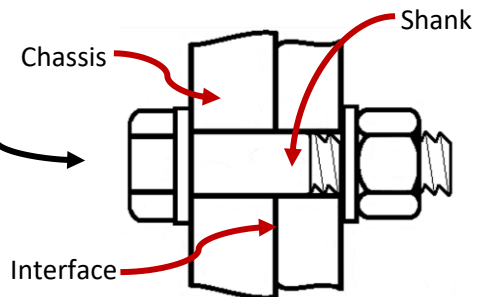


Figure 1

SAE Grade 8
ISO Class 10.9



Figure 2

ISO Class 8.8 bolts should not be confused with SAE Grade 8 bolts.

- ISO Class 10.9 bolts are equivalent to SAE Grade 8 bolts (6 radial embossed on the bolt head – Figure 2).
- ISO Class 8.8 bolts are equivalent to SAE Grade 5 bolts (3 radial embossed on the bolt head).



Figure 3

Figure 3 shows an ISO Class 10.9 bolt head and a Nylock nut securing a separate bolt. Notice that both the bolt head and nut are installed with hardened washers and there are more than two threads protruding from the nut.