

Selecting the Right High Tensile Fastener

Eclipse Fasteners have been major suppliers of high tensile fasteners in Australia for over 30 years. In this time, the industry has grown and the demand for precision fasteners has become the norm. With today's modern bolt making machinery, quality steels and controlled tempering, we often take for granted precision bolts and nuts. However, it is important that you carefully consider the most appropriate fastener for the application prior to purchasing your high tensile fasteners.

Grades and Applications

In Australia, imperial high tensile bolts stocked under $\frac{1}{2}$ " diameter are generally Grade 5 (UNC/UNF) with bolts over $\frac{1}{2}$ " typically being Grade 8 (UNC/UNF). In metric, the preferred 'Grade' of bolt is Class 8.8. We are now seeing more demand for Grade 8 for bolts under $\frac{1}{2}$ ", so it seems that the standard of bolt ordered is becoming either Grade 8 or Class 8.8. However, these two grades may not necessarily be the best selection as Grade 5 is more suitable for many applications.

Grade 5, Grade 8 and Class 8.8 all have their own qualities. At the same torque, Grade 5 will stretch a little more under load than Grade 8. While Grade 8 is very hard it is also more brittle when subject to impact. Class 8.8 is a similar 'Grade' in hardness to Grade 5.

In many cases we have found a Grade 5 or Class 8.8 bolt will solve a problem that a harder Grade 8 would not be suitable for. One such example was in rock crushing machinery that was subject to high impact and Grade 8 bolts failed when the machine was in operation. Grade 5 is now the specified product as it was found to be more impact resistant.

Hydrogen Embrittlement

Care should also be taken when specifying Grade 8 zinc plated product as the extra plating process can have an affect on the brittleness of a bolt, called hydrogen embrittlement. Unless the bolts are normalised (hydrogen removed with heat over time) before zinc plating, the bolts can become extremely brittle and possibly fracture under load. Further information regarding this issue is available from your Coventry Fastener representative or branch.

Eclipse's 30 years of experience in supplying high tensile fasteners is just one of the reasons we recommend and stock Eclipse high tensile fasteners.

