

When determining the properties required for bolts or fastener coatings, it is important to understand how the bolts function. As the nut is tightened, the bolt becomes stretched.

It is this elastic elongation that provides the clamping force. The bolt will continue to extend elastically until its yield point is reached, at this point it will deform plastically, thus when the clamping load is removed the bolt will no longer return to its original dimensions. This plastic yield point therefore represents the top limit of force that can be applied.

Three key factors that are important when choosing a bolting system are:

- | The grade/type of fastener
- | Installation
- | Coating system

Choosing the grade of material and also the type of fastener is important in order to match the required operating load performance. The installation of the fastener is equally important, as over tightening or under tightening can lead to potential fatigue failure and loosening of the bolt system.

The correct coating system plays a crucial role, as it contributes to many factors affecting the life and performance of the bolt or fastener.

Key considerations are:

- | Consistent torque tension properties (K factor)
- | Corrosion protection
- | Chemical resistance
- | UV stability
- | Colour coding

Torque values are typically calculated using the following formula:

$$T \text{ (Torque)} = K \text{ (nut/friction factor)} \times D \text{ (bolt diameter)} \times P \text{ (bolt tension)}.$$

The K factor can be affected by many variables; however one key variable is the Coefficient of Friction of the coating. Everlube® Products has been working with the Offshore industry for many years and has developed a complete range of



