

Mechanical properties of nuts and bolts are dependent on the chemical composition, machining and heat treatment of the material. The various mechanical properties are assigned to property classes (e.g. bolts 8.8, 10.9, 12.9 etc. and for nuts 8, 10, 12 etc.).

The designer determines what bolts to use and which bolts and nuts to match so that they safely withstand the loads occurring. Upon replacement, it is therefore necessary to use approved nuts and bolts only.

The part numbers can be taken from the parts documentation. If other material with unknown strength values is used, the screw connection is not safe.

Nuts and bolts must be stored clean and coated with a thin film of oil, unless otherwise specified. The parts must have all surfaces and edges intact and be without burrs. Galvanic protective coatings must not be damaged.

Clean used nuts and bolts prior to reuse and check. Nuts and bolts with damaged thread, rounded heads (wrench flats) or corrosion must be replaced. Always replace self-locking nuts and bolts, also tensile bolts if the maximum length or the necked-down minimum diameter has been reached. The zinc layer on the spherical collar of wheel bolts must not be worn. Tight threads should be re-cut.

Tightening torques apply to oiled threads and contact surfaces (except coated self-locking threads). Exceptions to this are stated. For instance no oil or grease must be present on the spherical collar of the wheel bolts and the spherical surfaces of the rims, otherwise the thread will be over stressed.

Select torque wrench so that the utilization is 50-70%; e.g. for 40 Nm select a 0-60 Nm torque wrench.