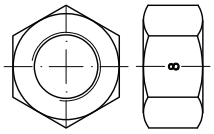
Mechanical properties: Steel nuts

The DIN product and function standards for nuts are being converted to ISO standards. Accordingly, during the transition period standards for previous DIN and new ISO nut designs shall be on the market together.

Information about standards conversion, “Standards conversion DIN ➔ ISO”, see TI-7:

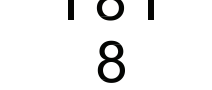
The properties of nuts with coarse threads is specified in ISO 898-2 (EN 20898-2/DIN 267-4) and for nuts with fine threads in ISO 898-6.
The loadability of a nut is set by the hardness & nut height and defined by the proof load.
It is vegulated that specific nut types must be marked with the property class.
The type of marking as well as the place where it needs to appear is prescribed in the standards ISO 898-2, DIN 267-24 and DIN 267-13, among others.
The key number specifies a direct assignment of property classes of the screws, bolts and studs (➔ Table 2).

Nuts with nominal height ≥ 0.8 D



The first number of the property class of the screw/bolt/stud is the assignment of the property class of the nut.
For nuts with a nominal height of ~0.8 D, e.g. nuts according to DIN 555 and DIN 934, the marking is a number, for instance (8 = 1/100 of the proof stress in N/mm²). The marking of two vertical bars (| |) refers to the applicable proof loads according to DIN 267-4.

For nuts with a nominal height of ≥ 0.8 D, e.g. nuts according to ISO 4032, ISO 8673, the marking is a number, for instance (8 = 1/100 of the proof stress in N/mm²), without marking of two vertical bars (| |), here the proof loads apply according to ISO 898-2.



Marking: Hexagon head nuts of this group are to be marked from a thread diameter of ≥ M5 with the manufacturer's identification mark and the property class in accordance with Table 2 or Table 3.

Table 2: Assignment of the nut property classes to the screw property classes

Property class of the nut	Associated screw/bolt/stud		Nut - Thread range	
	Property class	Thread range	Type 1[1)]	Type 2[1)]
4	3.6 4.6 4.8	> M16	> M16	
5	3.6 4.6 4.8 5.6 5.8	≤ M16 ≤ M39	≤ M39	
6	6.8	≤ M39	≤ M39	
8	8.8	≤ M39	≤ M39	> M16 ≤ M39
10	10.9	≤ M39	≤ M39	
12	12.9	≤ M39	≤ M16	≤ M39

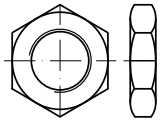
1) The type determines the necessary proof loads in ISO 898-2.
Note in accordance with ISO 898-2: In general, nuts from the higher property class can be used instead of nuts from the lower property class. This is recommended for a screw-nut fastening with loads above the yield stress or above the proof stress.

Table 3: Alternative marking of the property class with symbols (clock system)

Property class	4	5	6	8	10	12 [2)]
Marking						

2) The marking placement cannot be replaced by the manufacturer's identification mark

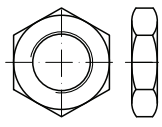
Nuts with nominal height ≥ 0.5 D < 0.8 D



For nuts with a nominal height of ≥ 0.5 D < 0.8 D, e.g. nuts according to ISO 4035, ISO 8675 and DIN 439-2 the marking is a number prefixed with "0", e.g. (05 = 1/100 of the proof stress in N/mm²).
The prefixed 0 shows that nuts from this group cannot or can only limitedly take on the loads of a screw due to the low nut height.

Marking: Hexagon head nuts of this group are to be marked from a thread diameter of ≥ M5 with the manufacturer's identification mark and the property class.

Nuts with nominal height < 0.5 D



For nuts with nominal height < 0.5 D, for example, nuts according to DIN 936, there is a marking of 1/10 of the minimum hardness according to Vickers, e.g. 22 H (= 220 HV).
Nuts for easy fastenings without specified proof load values are included in this group.
The hardness classes for these nuts are specified in DIN 267-24.

Marking: Nuts of the hardness class 22 H are to be marked with a hardness class if the thread diameter ≥ M5.