

# MARYLAND METRICS

P.O.Box 261 Owings Mills, MD 21117 USA

(410)358-3130 (800)638-1830 Faxes: (410)358-3142 (800)872-9329

<http://mdmetric.com>

[techinfo@mdmetric.com](mailto:techinfo@mdmetric.com)

## TECHNICAL INFORMATION and DATA

### Property classes

The symbol for the property classes of bolts, screws and studs consists of two numbers separated by a point. The first number, when multiplied by one hundred, indicates the nominal tensile strength in newtons per square millimeter. The second figure, multiplied by ten, states the ratio between the lower yield stress and the nominal tensile strength (yield stress ratio) as a percentage. The multiplication of these two figures will give one tenth of the yield stress in newtons per square millimeter.

Example of a screw in property class 5.8

Nominal tensile strength

$$5 \text{ } \nabla \text{ } 100 = 500 \text{ N/mm}^2 \text{ (MPa)}$$

Yield stress ratio

$$8 \text{ } \nabla \text{ } 10 = 80\%$$

Yield stress

$$80\% \text{ of } 500 = 400 \text{ N/mm}^2 \text{ (MPa)}$$

For nuts, the main characteristic property is the thread stripping strength (proof stress).

The property classes of nuts are designated by a figure to indicate the maximum appropriate property class of bolts with which they may be mated. Thus, nut property class is the same as the first figure of the bolt designation.

Internationally, mechanical stress is expressed in newtons per square area, in bolting  $\text{N/mm}^2$ . US practice is to use the term megapascal (MPa), which correspond to  $\text{N/mm}^2$ .

$$\text{Ex. } 500 \text{ /mm}^2 = 500 \text{ MPa}$$


In this catalogue the term  $\text{N/mm}^2$  is used only.

### Mating screws and nuts

Property classes bolts, screws, studs	3.6	4.6	4.8	5.6	5.8	6.8	8.8	9.8	10.9	12.9	14.9
Property classes nuts	5					6	8	9	10	12	14

Nuts of a higher property class can normally be used in the place of nuts of a lower property class.

\* Property classes 14.9 are not ISO or ANSI standard

 = quenched and tempered