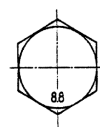


### GRADE MARKING REQUIREMENTS

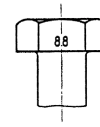
Metric Bolts, Screws, Studs and Nuts  
Steel - Ref: ISO 898/1-1988

#### HEXAGON BOLTS AND SCREWS

Hexagon bolts and screws should be marked with the designation symbol of the property class. The marking is obligatory for all property classes, preferably on the top of the head by indenting or embossing or on the side of the head by indenting. Marking is required for hexagon bolts and screws with the nominal thread diameters 5 mm and larger.



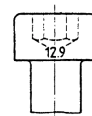
Preferable



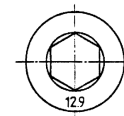
Acceptable

#### SOCKET HEAD CAP SCREWS

Socket head cap screws should be marked with the designation symbol of the property class. The marking is obligatory for property classes equal to or higher than 8.8, preferably on the side of the head by indenting or on the top of the head by indenting or embossing. Marking is required for socket head cap screws with nominal thread diameters 5 mm and larger.



Preferable



Acceptable

#### MARKING SYMBOLS

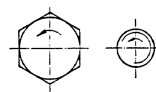
Property Class	3.6	4.6	4.8	5.6	5.8	6.8	8.8	9.8	10.9	12.9
Marking Symbol*	3.6	4.6	4.8	5.6	5.8	6.8	8.8	9.8	10.9	12.9

\*The period in the marking symbol may be omitted.

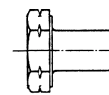
When low carbon martensitic steel is used for property class 10.9, the symbol shall be underlined. Trade (identification) marking of the manufacturer is mandatory on all products which are marked with property classes.

#### LEFT HAND THREAD BOLTS AND SCREWS

Bolts and screws with left-hand thread shall be marked with symbols shown either on the top of the head or on the point. Marking is required for bolts and screws with nominal thread diameter 5 mm and larger.



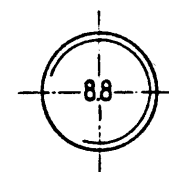
Left-hand thread marking



Alternative left-hand thread marking

#### STUDS

Studs shall be marked with the designation symbol of the property class. Marking is obligatory for property classes equal to or higher than 8.8, preferably on the extreme end of the threaded portion by indenting. For studs with interference fit, the marking shall be at the nut end. Marking is required for studs with nominal thread diameter equal to or greater than 5 mm.



Property Class	8.8	9.8	10.9	12.9
Identification Mark	F	+	G	△

Permissible as an alternative stud identification method

#### Metric Nuts

Steel - Ref: ISO 898/2-1980

Hexagon nuts of thread diameters 5 mm and larger and property class 8 or higher and property class 05 shall be marked with symbol of the property class, by indenting on the side or bearing surface, or by embossing on the chamfer. Alternative marking with code symbols (clock-face system) as shown is permissible. Nuts with left-hand thread shall be marked as shown on one bearing surface of the nut by indenting.

Trade (identification) marking of the manufacturer is mandatory on all products covered by the obligatory marking requirements for the property classes. Packages must be marked in any case.



Left-hand thread marking



Alternative left-hand thread marking