

UNBRAKO Metric Fasteners

UNBRAKO Metric Fasteners are the strongest off-the-shelf threaded fasteners you can buy. Their exclusive design features and closely controlled manufacturing processes insure the dimensional accuracy, strength and fatigue resistance needed for reliability in today's advanced technology. They are manufactured with the same methods and features as their inch-series counterpart.

Strength

UNBRAKO metric socket head cap screws are made into property class 12.9 with a minimum ultimate tensile strength of 1300 or 1250 MPa depending on screw diameter. Precision in manufacturing and careful control in stress areas insure strength in such critical areas as heads, sockets, threads, fillets, and bearing areas.

When you purchase UNBRAKO metric socket screw products, you can be sure that they meet or exceed the strength levels of all current standards, including the three most common-ANSI, ISO and DIN. Unbrako is represented on several ASME, ANSI, ASTM and ISO committees.

- ANSI (American National Standards Institute) documents are published by ASME (The American Society of Mechanical Engineers) and are familiar to almost all users of socket screw products in the U.S.A.
- ASTM (American Society for Testing and Materials). Many ANSI documents list dimensional information but refer to ASTM specifications for materials, mechanical properties, and test criteria.

- ISO (International Standards Organization) is a standards group comprising 70 member nations. Its objective is to provide standards that will be completely universal and common to all countries subscribing.

- DIN (Deutsche Industries Normen) is the German standards group.

NOTE: The proper tightening of threaded fasteners can have a significant effect on their performance.

A WARNING TO METRIC FASTENER USERS

Metric socket cap screws are NOT sold in a single strength level like U.S. inch socket screws.

Property Class	General Material	Strength Level, UTS min. MPa (KSI)
	International Standards Organization, ISO	
Property Class 8.8	Carbon Steel	800 (116) < M16 830 (120) ≥ M16
Property Class 10.9	Alloy Steel	1040 (151)
Property Class 12.9	Alloy Steel	1220 (177)
USA Standards ASTM A574M	Alloy Steel	1220 (177)
Unbrako Standards ASTM A574M	Alloy Steel	1300 (189) ≤ M16 1250 (181) > M16

STANDARDS

The use of metric fasteners in the worldwide market has led to the creation of many standards. These standards specify the fastener requirements: dimensions, material, strength levels, inspection, etc. Different standards are the responsibility of various organizations and are not always identical. Unbrako supplies metric fasteners for maximum interchangeability with all standards. This Engineering Guide was published with the most current values, which are however subject to change by any standards organization at any time.