

# WINK'S WORDS

NEWS & VIEWS ABOUT NUTS AND BOLTS

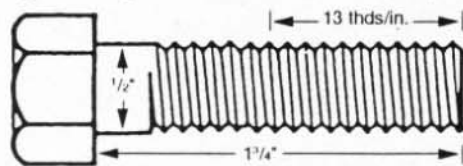
## Let's Go METRICS!

Can you believe that we're the only country in the world that has not adopted the metric system as standard. Even Mexico and Canada have jumped on the bandwagon. Like it or not, if we're going to participate in this global market, we are going to have to do the same—and soon.

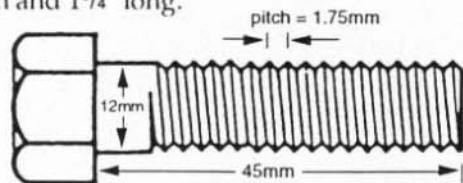
Actually the metric system makes a lot more sense than our present inch/pound system under which we now operate. In the metric system a meter is divided into units called centimeters, which are  $\frac{1}{100}$ th of a meter, then further into millimeters which are  $\frac{1}{10}$ th of a centimeter or  $\frac{1}{1000}$ th of a meter, hence the "milli". If you can make change of a hundred dollar bill, you'll soon get used to the metric system and such things as 40 meter field goals and 100 meter home runs and 3 centimeter putts.

### U.S. vs. Metric

Let's see how the metric system is applied in the threaded fastener business by the following example, using the familiar hex head cap screw.



The parameters we use to define this product, whether in U.S. standard or metric system, are its diameter, thread designation and length—and of course, material. Let's just stick to the geometric parameters for the moment. In standard, good old American language we'll call it a  $\frac{1}{2}$  — 13 x  $1\frac{3}{4}$  hex head cap screw. The numbers meaning  $\frac{1}{2}$ " diameter, 13 threads/inch and  $1\frac{3}{4}$ " long.



A metric cap screw would have its diameter and length expressed in millimeters instead of inches and its thread expressed in terms of pitch, or the distance between crests of adjacent threads. In addition, to signify that it is a metric fastener the letter M precedes the size designation. For example the metric equivalent of the

above would be M12 x 1.75 x 45 hex head cap screw, where 12 is the diameter, 1.75 the pitch and 45 the length—all in millimeters. Actually metric coarse threaded fasteners, which are the most widely used, do not require the pitch designation, so we can describe this fastener simply as M12 x 45 hex head cap screw. **Short and Sweet.** In defining a fine threaded metric fastener the pitch would be included.

### The Right Stuff

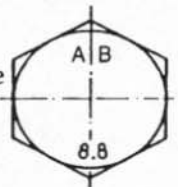
A threaded fastener is not fully described unless we include the stuff it's made of—or the material designation. For example, a complete description of the Unified coarse fastener might be:

$\frac{1}{2}$  — 13 x  $1\frac{3}{4}$  hex head cap screw  
Grade 5 steel.

The equivalent Metric fastener would be:

M12 x 45 hex head cap screw 8.8.  
Where did we get the 8.8 from? That's the metric system equivalent of Grade 5 steel. Complete metric material or property designation will be covered in the next newsletter.

One other important point—all metric cap screws and bolts above M5 must bear the manufacturer's identification code and material property code.



### FOR CONVERTS ONLY

A rough rule of thumb for converting millimeters to inches so you can approximate equivalent U.S. standard sizes is to divide millimeters by 25 to get equivalent inches. In the above metric example the 12mm dia. =  $\frac{12}{25}$  which is roughly  $\frac{1}{2}$ " and the 45mm length =  $\frac{45}{25}$  = 1.8 or roughly  $1\frac{3}{4}$ ".

To convert pitch in millimeters to approximate threads/inch just divide the pitch (1.75) by 25 to get the equivalent inches (.07); then divide 1.00" by .07" to get 14 threads per inch, slightly finer than unified coarse.



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