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"excellence in fasteners"

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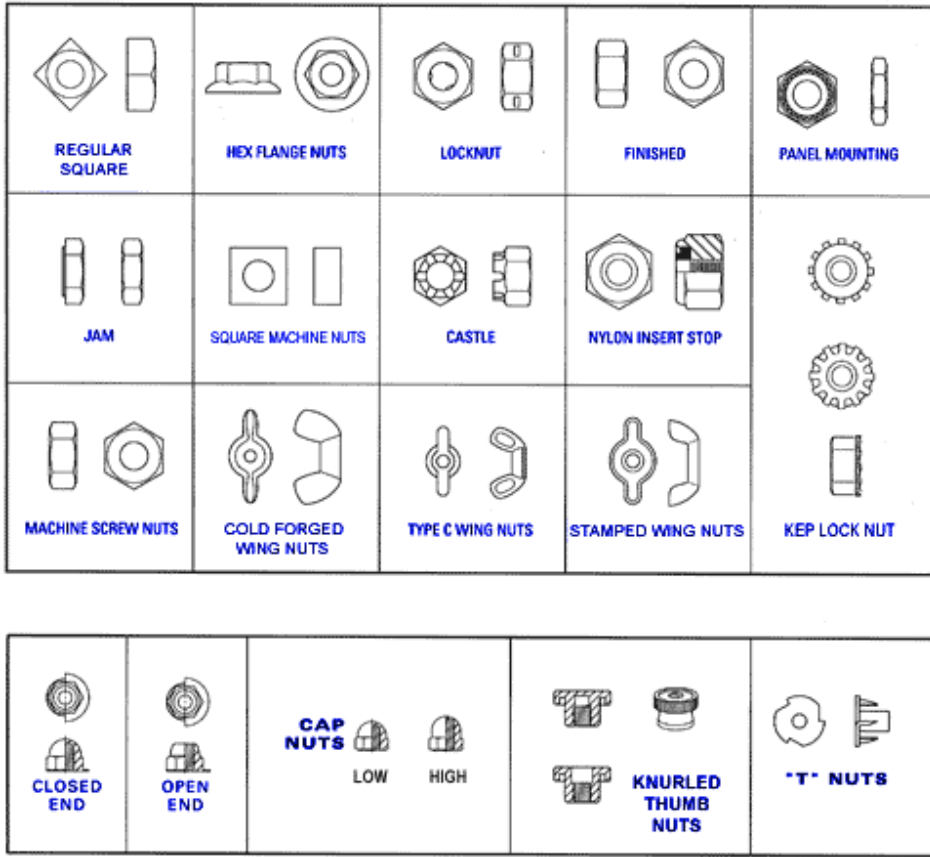
ELECTRONIC
FASTENERS
INCORPORATED

Fastener Reference Guide

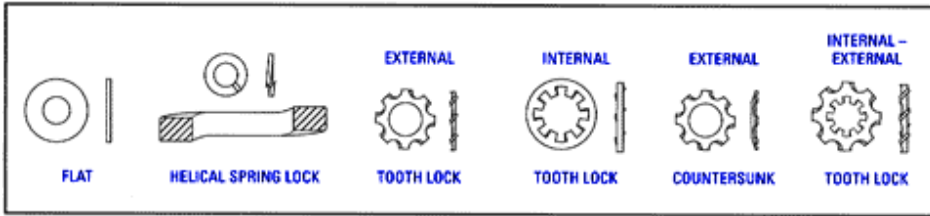
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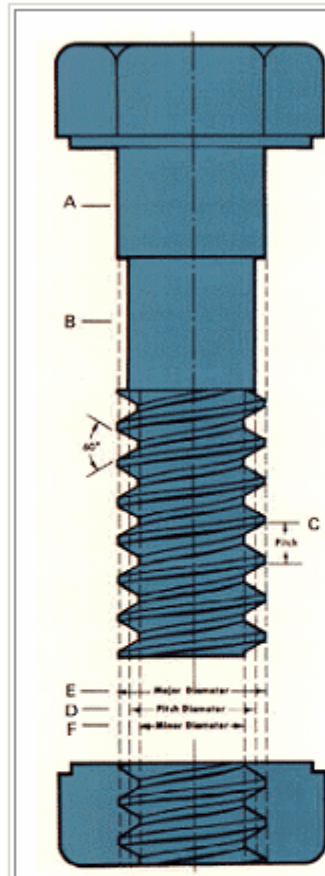
Nuts



Washers



Thread Terminology



A. FULL DIAMETER SHANK: Equal to major diameter of thread. Produced by cut thread or by roll thread on extruded blank. Characteristic of machine bolts and cap screws.

B. UNDERSIZED SHANK: Equal approximately to pitch diameter of thread. Produced by roll threading a non-extruded blank. Characteristic of machine screws.

C. PITCH: The distance from a point on the screw thread to a corresponding point on the next thread measured parallel to the axis.

D. PITCH DIAMETER: The simple, effective diameter of screw thread. Approximately half way between the major and minor diameters.

E. MAJOR DIAMETER: The largest diameter of a screw thread.

F. MINOR DIAMETER: The smallest diameter of a screw thread.

LEAD: The distance a screw thread advances axially in one turn.

CUT THREAD: Threads are cut or chased; the unthreaded portion of shank will be equal to major diameter of thread.

ROLLED THREAD: Threads are cold formed by squeezing the blank between reciprocating serrated dies. This acts to increase the major diameter of the thread over and above the diameter of unthreaded shank (if any), unless an extruded blank is used.

Classes of thread are distinguished from each other by the amounts of tolerance and allowance specified. External threads or bolts are designated with the suffix "A"; internal or nut threads with "B".

CLASSES 1A and 1B: For work of rough commercial quality where loose fit for spin-on-assembly is desirable.

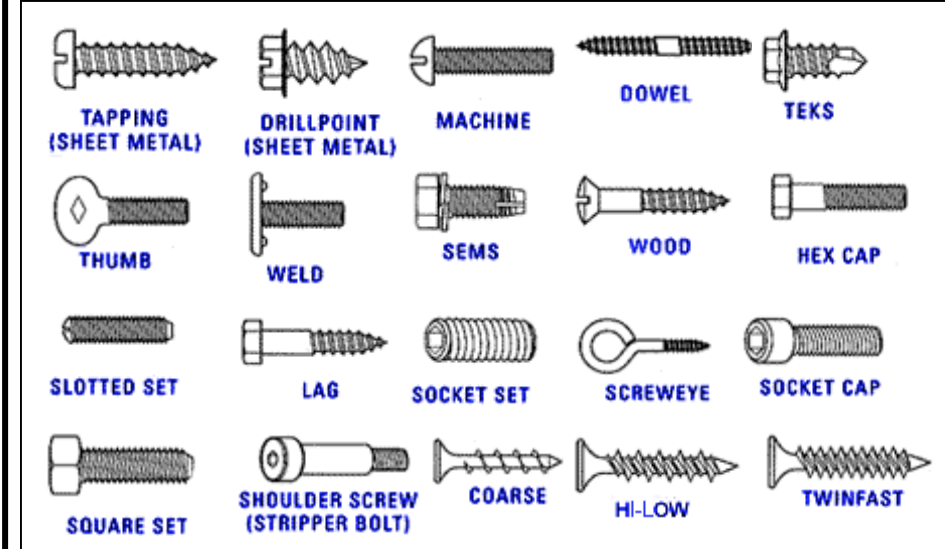
CLASSES 2A and 2B: The recognized standard for normal production of the great bulk of commercial bolts, nuts and screws.

CLASSES 3A and 3B: Used where a closed fit between mating parts for high quality work is required.

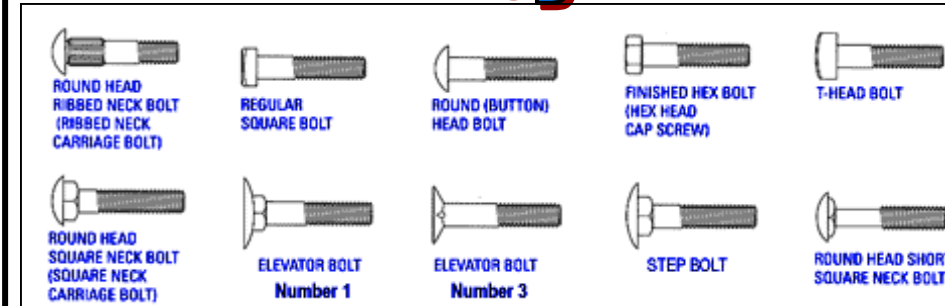
CLASS 4: A theoretical rather than practical class, now obsolete.

CLASS 5: For a wrench fit. Used principally for studs and their mating tapped holes. A force fit requiring the application of high torque for semi-permanent assembly.

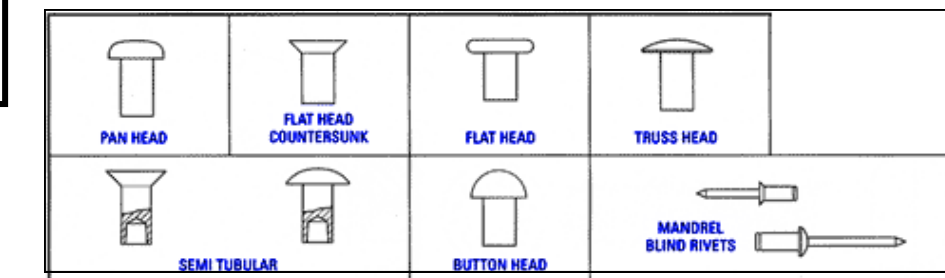
Screws



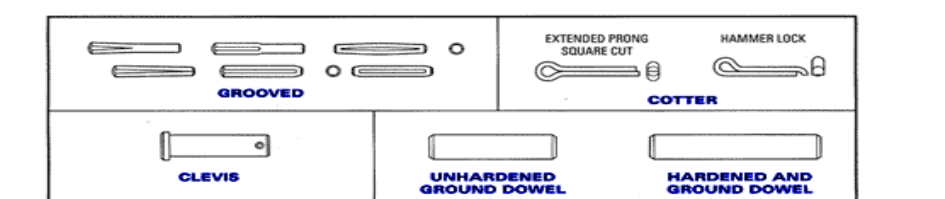
Bolt Styles



Rivets



Pins



Common Screw Points

Tapping Screws (Type A, AB, B)

Type A point: A thread forming screw for use in thin metal .015 to .050 thick. Used with drilled, punched or nested holes in sheet metal, resin impregnated plywood, asbestos combinations, among others. Not recommended for new design.

Type AB point: A thread forming screw combining locating point of Type A with thread size and pitch of Type B. Normal limitations of type B apply.

Type B point: A thread forming screw for use in heavier metal .050 to .200 thick. Larger root diameter with finer thread pitch for light and heavy sheet metal non-ferrous castings, plastics, impregnated plywoods, asbestos combinations, and other materials.

Thread Cutting Screws (Type 1, 17, 23, 25, F)

Type 1 point: A thread cutting screw with single flute for general use. Produces a fine standard machine screw thread for field replacement.

Type 17 point: A thread cutting screw for wood with a coarse tapping screw thread and a special long sharp point fluted to capture chips.

Type 23 point: A thread cutting screw in the fine thread series offering maximum thread cutting area and excellent chip clearing, with minimum tightening torques.

Type 25 point: A thread cutting screw similar to type 23 point except with coarse Type B thread. For plastics and other soft materials with large chip clearing and cutting edges.

Type F point: A thread cutting screw with machine screw thread with blunt tapered point, having multi-cutting edges and chip cavities. For heavy gauge sheet metal, aluminum, zinc and lead die castings, cast iron, brass and plastic.

Thread Forming Screws (Type C, CA, Tri-Round, Lo-Driv)
Screws for Plastic (Tri-Round, Round)

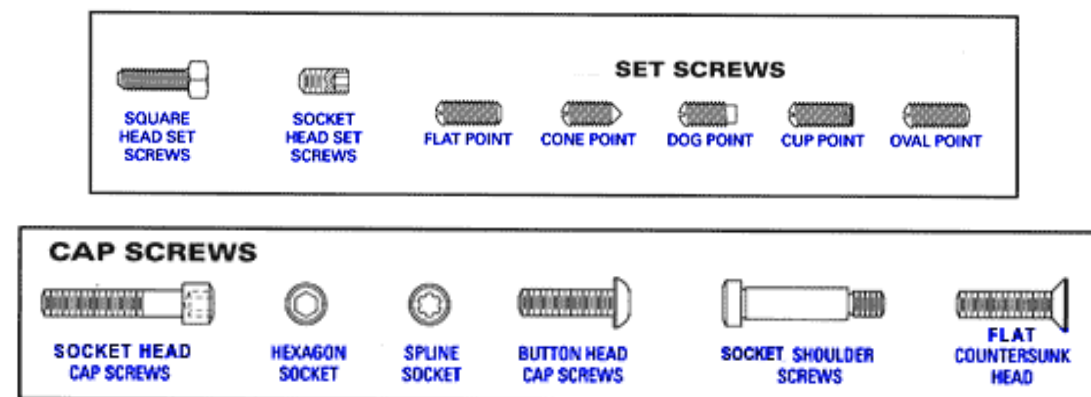
Type C point: A thread forming screw with either coarse or fine pitch machine screw thread and blunt tapered point. Eliminates chips and permits replacement with standard screw in the field. Higher driving torque required. Usable in heavy sheet metal and diecastings.

Type CA point: A thread forming screw with either coarse or fine pitch machine screw thread. Same as Type C except with a Gimlet point. The locating point works better than Type C where holes between two adjoining pieces of sheet metal may be somewhat misaligned.

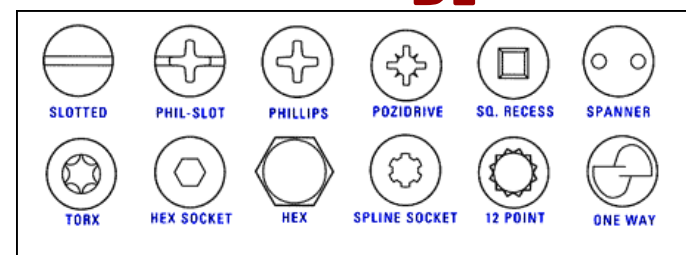
Tri-Round: A thread forming screw in mostly coarse machine screw threads. Three vertices perform a roll-forming process to form mating threads. Much better thread forming than Type C or CA, and drives with less torque.

Lo-Driv: A thread forming screw in mostly coarse machine screw threads. The point and body design requires low end-load for starting and low drive torque for seating. The full 360 degree body above the point provides excellent strip-to-drive ratios.

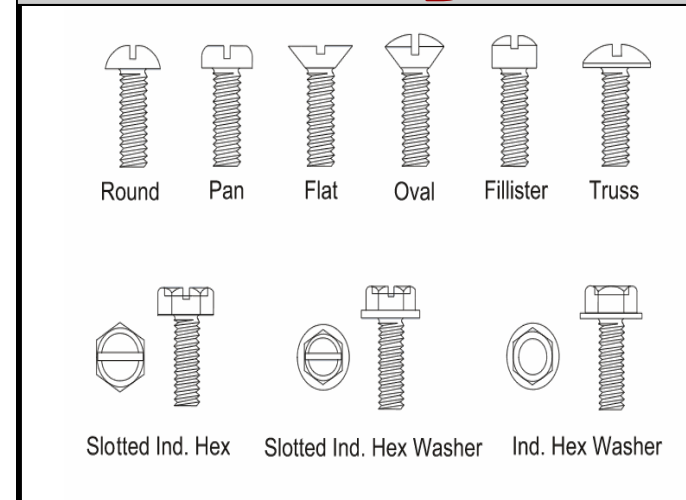
Socket Products



Drive Types



Common Head Styles



Decimal Equivalents

| Fraction | Decimal | Metric | Fraction | Decimal | Metric | Frac. | Decimal | Metric |
|----------|---------|--------|----------|---------|--------|-------|---------|--------|
| 1/64 | .015625 | .397 | 21/64 | .328125 | 8.334 | 41/64 | .640625 | 16.272 |
| 1/32 | .031250 | .794 | 11/32 | .343750 | 8.731 | 21/32 | .656250 | 16.669 |
| 1/16 | .062500 | 1.191 | 23/64 | .359375 | 9.128 | 43/64 | .671875 | 17.066 |
| 3/64 | .046875 | 1.588 | 3/8 | .375000 | 9.525 | 11/16 | .687500 | 17.463 |
| 5/64 | .078125 | 1.984 | 25/64 | .390625 | 9.922 | 45/64 | .703125 | 17.859 |
| 3/32 | .093750 | 2.381 | 13/32 | .406250 | 10.319 | 23/32 | .718750 | 18.256 |
| 7/64 | .109375 | 2.778 | 27/64 | .421875 | 10.716 | 47/64 | .734375 | 18.653 |
| 1/8 | .125000 | 3.175 | 7/16 | .437500 | 11.113 | 3/4 | .750000 | 19.050 |
| 9/64 | .140625 | 3.572 | 29/64 | .453125 | 11.509 | 49/64 | .765625 | 19.447 |
| 5/32 | .156250 | 3.969 | 15/32 | .468750 | 11.906 | 25/32 | .781250 | 19.844 |
| 11/64 | .171875 | 4.366 | 31/64 | .484375 | 12.303 | 51/64 | .796875 | 20.241 |
| 3/16 | .187500 | 4.763 | 1/2 | .500000 | 12.700 | 13/16 | .812500 | 20.638 |
| 13/64 | .203125 | 5.159 | 33/64 | .515625 | 13.097 | 53/64 | .828125 | 21.034 |
| 7/32 | .218750 | 5.556 | 17/32 | .531250 | 13.494 | 27/32 | .843750 | 21.431 |
| 15/64 | .234375 | 5.953 | 35/64 | .546875 | 13.891 | 55/64 | .859375 | 21.828 |
| 1/4 | .250000 | 6.350 | 9/16 | .562500 | 14.288 | 7/8 | .875000 | 22.225 |
| 17/64 | .265625 | 6.747 | 37/64 | .578125 | 14.684 | 57/64 | .890625 | 22.622 |
| 9/32 | .281250 | 7.144 | 19/32 | .593750 | 15.081 | 15/16 | .937500 | 23.813 |
| 19/64 | .296875 | 7.541 | 39/64 | .609375 | 15.478 | 1 | 1.00 | 25.400 |
| 5/16 | .312500 | 7.938 | 5/8 | .625000 | 15.875 | | | |