

Threaded Fastener Notes

Drive Types



The **slot**-drive screw has a single slot in the fastener head and is driven by a flat-bladed screwdriver. The slotted screw is common in woodworking applications, but is not often seen in applications where a power tool would be used, due to the tendency of a power driver to slip out of the head and potentially damage the surrounding material. The tool used to drive a slot is called a *slot-head*, *flat-tip*, or *flat head*.



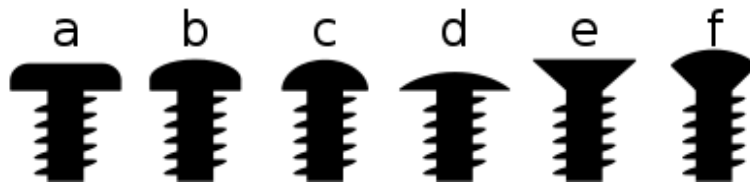
The chief advantage of the **Phillips** screw drive over the Slot was that the driver did not slip out as easily, especially when using a power tool to drive them, however they were designed to purposely cam-out when the screw stalled, to prevent the fastener damaging the work or the head, instead damaging the driver.



Commonly known as the **square**-drive screw, it has a square-shaped socket in the screw head and a square protrusion on the tool. Both the tool and the socket have a taper to make inserting the tool easier. Square screwdrivers are easy to use one-handed, since the tapered socket retains the screw, even if it is shaken. They also allow for the use of angled screw drivers and trim head screws. The socket-headed Square screws are self-centering, reduce cam out, stop a power tool when set, and can be removed if painted-over or old and rusty.



Commonly known as the **TORX**-drive screw, it uses a star shaped recess in the fastener with six rounded points. It was designed to permit increased torque transfer from the driver to the bit compared to other drive systems. Torx is very popular in the automotive and electronics industries due to resistance to cam out and extended bit life, as well as reduced operator fatigue by minimizing the need to bear down on the drive tool to prevent cam out.



A: Pan Head

D: Truss Head

B: Button Head

E: Flat Head (countersunk)

C: Round Head

F: Oval

Wood screw

Generally has an unthreaded shank below the head. It is designed to attach two pieces of wood together.



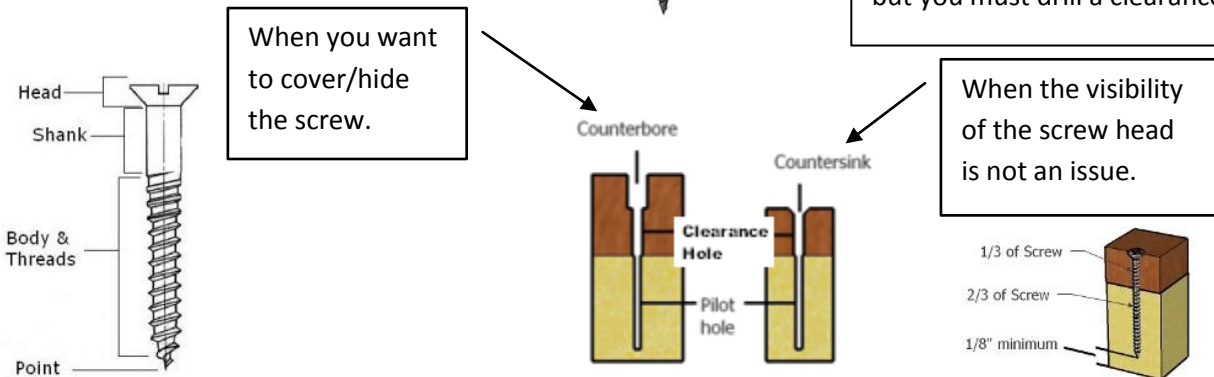
Notice the lack of threads on the top portion. This is so you can drill a smaller clearance hole or eliminate it altogether.

Drywall screw

Specialized screw with a bugle head that is designed to attach drywall to wood or metal studs, however it is a versatile construction fastener with many uses. The diameter of drywall screw threads is larger than the shaft diameter.



Has threads all the way to the top. Often used in woodworking applications because it is cheap, but you must drill a clearance hole.



Counterbore: Use when you want to cover the head of the screw with a plug or button. Drilled slightly larger than the screw head and about $\frac{1}{4}$ "- $\frac{3}{8}$ " deep.

Countersink: Use when the appearance of the screw head is not an issue. Generally drilled deep enough so the top of the screw head is even with the surface of the material or slightly below..

Clearance Hole (Shank Hole): Drilled so that the threads of the screw do not touch the piece of material that the screw is inserted through first. If no clearance hole is drilled the screw threads can actually hold the pieces of material apart. Also used so that the material will not split. Correct size: Outer diameter of screw threads.

Pilot Hole: Guides the screw in the correct direction AND makes room for the shank of the screw so that it does not split the material. Correct size? Inner diameter of screw threads.