

Sure Drive USA®  
General Fastener Information  
Fastener Terms and Definitions

<u><b>BUGLE FINE:</b></u>	<b>DRYWALL OR WOOD (1/2" OR LESS) TO 20 GA OR LESS.</b>
<u><b>PAN FRAMER:</b></u>	<b>FRAMING STUD TO TRACK OR STUD TO STUD, 25 GA TO 25 GA OR LESS.</b>
<u><b>TRIM (#1 SQUARE):</b></u>	<b>BASE BOARDS AND TRIM TO 20 GA OR LESS OR TO WOOD.</b>
<u><b>LAMINATING:</b></u>	<b>DRYWALL TO DRYWALL (FIREWALLS AND SOUND-PROOF). A TEMPORARY FASTENER.</b>
<u><b>BUGLE COARSE:</b></u>	<b>DRYWALL TO WOOD.</b>
<u><b>BUGLE COARSE YZ:</b></u>	<b>WOOD TO WOOD. CABINET AND GENERAL WOOD WORKING. NOT RECOMMENDED FOR DECKING (OUTDOOR).</b>

**TERMS CONCERNING THE HEAD OF THE SCREW**

**BEARING SURFACE:**

The bearing surface is the supporting or locating surface of a fastener with respect to the part which it fastens (mates). The loading of a fastener is usually through the bearing surface, (i.e. the bearing surface of the Hex Washer Head style is under the washer of the head, the part that touches the top material being fastened.).

**COUNTERSUNK:**

Any head style that has the bearing surface flush with the top material being attached, (i.e. a flat head used in wood applications, or bugle head used to attach drywall.).

**HEAD:**

The head of a fastener is the enlarged shape preformed on one end of a headed fastener to provide a bearing surface.

**NIBS:**

Located under the head if the headset has the bearing surface under the head or on the angled sides of a countersunk type of head. Normally the nibs aid in cutting the top material to allow a flush or countersink connection.

**RECESSED DRIVE:**

A drive system indented or recessed in the top surface of the head of the screw. (i.e. Phillips, square, Recex® (Square-Phillips combo).

**RECESSED HEAD:**

A recessed head is a head having a specially formed indentation or recess centered in its top surface. Common forms of recessed head styles are Phillips or square.

**SERRATIONS:**

Reverse locking serrations are normally found under the head of the screw to aid in slowing down the final set of the screw to assist in possible stripping. The serrations also aid in locking the screw in the material providing protection from vibration.

**SLOTTED HEAD:**

A slotted head is a head having a slot centered across its top surface.

**TERMS CONCERNING THE THREADS OF THE SCREW**

**COARSE THREAD:**

Tapping screws have separate specifications, one for sharp point screws and one for self-drilling screws. Examples of the sharp point coarse thread are 6-15, 8-15, 10-12, 12-10, 1/4-10. The first number is the body diameter and the second shows the number of threads per inch. Examples of the self-drilling coarse threads are 6-20, 8-18, 10-16, 12-14.

**CREST:**

The highest point of the thread. (Maximum diameter)

**EXTERNAL THREAD:**

A thread is a portion of a screw encompassed by one pitch. On a single-start thread it is equal to one turn of the screw. Typically, all fasteners used in construction are externally threaded.

**FINE THREAD:**

Tapping screws have separate specifications, one for sharp point screws and one for self-drilling screws. Examples of the sharp point fine and extra-fine threads are 6-20 and 6-32, 8-18 and 8-32, 10-16, 10-24 and 10-32, 12-14 and 12-24. The first number is the body diameter and the second shows the number of threads per inch. Examples of the self-drilling fine and extra-fine threads are 6-32, 8-32, 10-24 and 10-32, 12-24.

**HIGH & LOW THREAD:**

Also called alternating threads. The threads alternate with one high thread and then one lower thread. Originally designed for connections in plastic material to prevent cracking, somewhat effective in wood or thin metal. Normally, the coarse thread would be recommended in wood applications.

**ROOT:**

The lowest point of the thread. (Minor diameter)

**THREAD - CUTTING:**

A thread that cuts its mating threads, which includes some type of chip cavity to collect the material removed by the tapping operation. A type of tapping screw.

**THREAD - FORMING:**

A thread that displaces material to form a mating thread. A type of tapping screw.

**THREAD PITCH:**

Thread pitch is the distance between the threads.

**THREAD - TAPPING:**

A thread that taps a mating internal thread.

**T.P.I.:**

T.P.I. Is the number of threads per inch on any screw.

**TWINFAST:**

Also called double lead, twin lead or multi-lead thread. A screw thread with two or more lead threads. Lead threads are the starting threads at the tip of the sharp point screw.

**TERMS CONCERNING POINTS OF THE SCREW****1,2,3,4,5 POINTS:**

When referencing self-drilling screws, the number of the point determines the drilling capacity of the fastener. The higher the number the thicker material can be drilled. Minimum drill capacities for 2 & 3 points are found in SAE J78 specification.

**FORGED POINT (TYPE "SD"):**

When referenced to a self-drilling screw it is the method used to form the drill point by a forging process. Sometimes referred to as a pinch point.

**MILLED POINT (TYPE "SD"):**

When referenced to a self-drilling screw, it is the method used to form the drill point by a milling (cutting) process.

**PINCH POINT:**

See Forged Point.

**REAMER:**

See "winged".

**SELF-DRILLING (DARTS(r) BRAND TYPE "SD"):**

Self-drilling tapping screws are externally threaded fasteners with the ability to drill their own hole and form or cut their own internal mating threads into which they are driven without deforming their own thread and without breaking during assembly.

**SELF-PIERCING (MARKER(r) BRAND TYPE "S"):**

Self-piercing tapping screws are externally threaded fasteners with the ability to self-pierce metallic material form a sleeve by extruding metallic material and tap their own mating threads when driven. Self-piercing screws are high-strength, one-piece, one-side-installation fasteners, with sharp point angles of 25 to 30 degrees.

#### TAPPING SCREWS:

Tapping screws are threaded fasteners with the ability to tap their own internal mating threads when driven into preformed or no preformed holes in metallic and nonmetallic materials. Tapping screws are high-strength, one-piece, one-side-installation fasteners.

#### WINGED:

Term normally used when referring to a self-drilling screw with reaming type wings attached after the threads and before the drill point to ream out the top material, eliminating any jacking action.

### **TERMS CONCERNING PERFORMANCE OF TAPPING SCREWS**

#### BURN-OUT:

Term used when describing what happens to the self-drilling point when it is drilled with a tool using too much speed. The speed burns out the drill point and the basic function of the fastener is nullified.

#### CAM-OUT:

The drive of a fastener is rounded out or deformed not allowing fastener to completely set.

#### CORROSION RESISTANCE:

The amount of time before white or red rust appears on the surface. Test procedure ASTM B117 is used to measure corrosion in hours of salt fog.

#### HEAD 'POPS':

One mode of failure when fastener has pull-over, pull-through failure.

#### JACKING ACTION:

Jacking action occurs when the top piece of material pulls away from the base material by engaging threads into the top material forcing it up the body of the screw. Using the correct fastener will stop this problem.

#### PULL-OUT (TENSION):

The amount of force required to pull the fastener out of the base material.

#### PULL-OVER (PULL-THROUGH):

The amount of force required to pull the material over the head of the fastener. Example - 1/2" plywood is attached to thin metal. The metal is secured on a bottom fixture and the plywood is pulled upward until the wood pulls over the head (pull over) or the fastener pulls out of the base material (pull-through).

#### SHEAR STRENGTH:

Shear strength of a connection is the force required to pull the base material in one direction and the top material in the other direction until failure. Modes of failure include deformation of the base material to allow the fastener to pull out of the base material and fastener fracture.

#### STRIP-OUT (SPIN-OUT):

Fastener spins freely in connection.

#### TENSILE STRENGTH:

The amount of force required to pull a fastener apart by securing one end and pulling up on the other end. Tensile, or pull value may be different when comparing the tensile strength of the screw with the tensile strength of a connection.

#### THREAD ENGAGEMENT:

The point at which the threads of the screw engage the base material. Proper thread engagement ensures a good connection. Improper thread engagement can cause "Jacking Action" to occur.

#### TORSIONAL STRENGTH:

The twisting strength of a fastener, measured in foot pounds. The screw is secured in a fixture and torque (twisting action) is added until screw twists apart. Minimum standards are noted in the Industrial Fastener Standards publication.

#### WALKING:

Term used to describe what happens to the screw if the point is not sharp enough, or if the operator does not hold the screw gun perpendicular to the connection.

#### WOBBLE:

Normally refers to the wobble of the recess drive such as Phillips. Wobble is the back and forth motion of a bit tip in a recessed drive. A 5 degree wobble is within most tolerances.

### **TERMS CONCERNING MATERIAL AND HEAT TREATMENT**

**ALLOY:**

A homogeneous mixture or solid solution of two or more metals, the atoms of one replacing or occupying interstitial positions between the atoms of the other. Brass is an alloy of copper and zinc.

**ALLOY STEEL:**

Steel containing elements other than carbon which have been added to obtain definite mechanical or physical properties, such as higher strength at elevated temperatures, toughness, etc.

**ANNEALED:**

A fastener is considered in the annealed state when it has been heated and cooled to make it soft - that is, free of hardness caused by working or previous heat treatment. To subject glass or metal to a process of heating and slow cooling in order to toughen and reduce brittleness.

**CARBON STEEL:**

Carbon steel is a steel which does not contain any substantial amounts of alloying materials other than carbon. There are three broad categories of carbon steel. Low carbon steel, medium carbon steel and alloy steel.

**CARBON STEEL - LOW:**

Low carbon steels that are used for fasteners, are defined as those with insufficient carbon content to permit a predictable response to a strengthening heat treatment process. The most commonly used analyses are AISI 1006, 1008, 1016, 1018, 1021 and 1022. These steels have good workability; they can be case hardened and are weldable. They have good strength properties which can be substantially improved through cold working.

**CARBON STEEL - MEDIUM:**

Medium carbon steels are heat treatable, which mean that through metallurgical treatments the tensile strength of the fastener after processing can be significantly higher than that of its original raw material. Popular analyses are AISI 1030, 1035, 1038 and 1541.

**CASE HARDENED:**

A case hardened fastener is a fastener of ferrous material having a surface which has been made harder than the core. All tapping screws are case hardened.

**DECARBURIZED:**

A fastener has a decarburized surface when the carbon content of the surface is lower than the carbon content of the core.

**SOFT:**

Describes the condition of a fastener which can be, and normally is, hardened by heat treatment, is left in the as-fabricated temper. Not case hardened.

**STAINLESS STEEL:**

Stainless steel is a corrosion resistant type of alloy steel which contains a minimum of 12 percent chromium.

**TERMS CONCERNING FINISH OF FASTENERS****ANODIZING:**

Anodizing is the formation of an oxide film on the surface by means of an anodic treatment. This is commonly used on aluminum.

**COATING:**

Coating is the application of some material such as a metal, organic compound, etc., to the surface of a fastener, e.g., PLUS COAT™ ceramic, LIFE COAT(r) dip-spin.

**ELECTRO-GALVANIZING:**

Is the process of coating metal with zinc by electrode position.

**FINISH:**

The term finish is commonly applied to the condition of the surface of a fastener as a result of chemical or organic treatment subsequent to fabrication.

**FLASH FINISH:**

Flash plating is a very thin deposit of metal, usually on the order of 1-4 mils in thickness as an undercoating.

**GALVANIZING:**

Galvanizing is the process of coating iron or steel with zinc - originally by using direct current and a zinc anode. Methods of zinc deposition are: Electro-Galvanizing, Hot Dipped, and Mechanical.

**HOT DIP GALVANIZING:**

Is the process of immersing the parts to be coated in a bath of molten zinc.

**MECHANICAL GALVANIZING:**

Is a process in which powdered zinc is applied to a base metal using the principles of cold welding and barrel finishing techniques.

**OILED:**

Oiled is the term denoting the application of a suitable corrosion retarding oil to a fastener.

**PASSIVATING:**

Passivating is the process of dissolving ferrous particles and surface impurities from stainless steel by chemical means (normally a nitric acid dip) and to produce a passive film on the surface. The purpose is to improve the corrosion resistance of the surface.

**PICKLING:**

Pickling is the process of removing surface oxides or impurities by chemical or electrochemical means.

**PLAIN:**

Plain as applied to finish of fasteners is used to indicate that the fastener has had no supplementary surface treatment, such as plating or coating, other than being oiled.

**SURFACE HEAT TREATMENT:**

Surface heat treatment is a process that improves the hardness or other mechanical property of the fastener in any surface area. One type of surface heat treatment is case hardening.

**SURFACE TREATMENT:**

Surface treatment is any treatment which changes the chemical, physical or mechanical properties of a surface.