



Designation: D2050 – 11

Standard Terminology Relating to Fasteners and Closures Used with Textiles¹

This standard is issued under the fixed designation D2050; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This terminology document covers terminology pertaining to items that are considered fasteners and closures such as buttons, hook and loop touch fasteners, snap fasteners and slide fasteners used in the manufacture of textile products, except for seams and stitches.

1.2 Section 3, Terminology, is categorized into four subsections, specific to the four areas of specialization under this document:

- 1.2.1 Relating to Buttons
- 1.2.2 Relating Hook and Loop Touch Fasteners
- 1.2.3 Relating to Snap Fasteners
- 1.2.4 Relating to Slide Fasteners

1.3 Terminology relating specifically to buttons covers special terms or special meanings used in the button industry. These apply only to sew-through flange and shank buttons.

1.3.1 The principal types of buttons defined in this terminology document are illustrated in Figs. 1-8.

1.3.2 These figures are descriptive only and are not intended to be restrictive as to design.

1.4 Terminology relating specifically to snap fasteners includes illustration of prong-ring attached fastener parts in Fig. 9.

1.4.1 These figures are descriptive only and are not intended to be restrictive as to design.

1.5 Terminology relating specifically to the principle parts of slide fasteners defined in this terminology are illustrated in Figs. 10-19.

1.5.1 These figures are descriptive only and are not intended to be restrictive as to design.

1.6 Terminology relating specifically to the textile joining structures (seams and stitches) are discussed in detail in Terminology D5646.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the*

responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:²

- D123 Terminology Relating to Textiles
- D2061 Test Methods for Strength Tests for Zippers
- D4846 Test Method for Resistance to Unsnapping of Snap Fasteners
- D5169 Test Method for Shear Strength (Dynamic Method) of Hook and Loop Touch Fasteners
- D5171 Test Method for Impact Resistance of Plastic Sew-Through Buttons
- D5646 Terminology Relating to Seams and Stitches Used in Home Sewing
- D7142 Test Method for Holding Strength of Prong-Ring Attached Snap Fasteners

3. Terminology

RELATING TO BUTTONS

assembled button, *n*—a decorative button consisting of combinations of similar or dissimilar materials, such as plastic and metal or metal and metal, which have been joined together by such processes as gluing, swedging or metal stamping.

bridge, *n*—the area of a button between the holes partially covered by the sewing threads with dimensions varying upon design and end use.

button, *n*—a knot, disc, or similar object which when forced through a narrow opening or buttonhole, fastens one part of a garment or other flexible substrate to another. **D5171**

DISCUSSION—Although the primary purpose of buttons is to serve as fasteners, buttons can also be used as decoration. **D5171**

centrifugal cast button, *n*—see **rotation cast button**.

¹ This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.54 on Subassemblies. These definitions were developed in cooperation with the American Fastener and Closure Assn. Inc.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

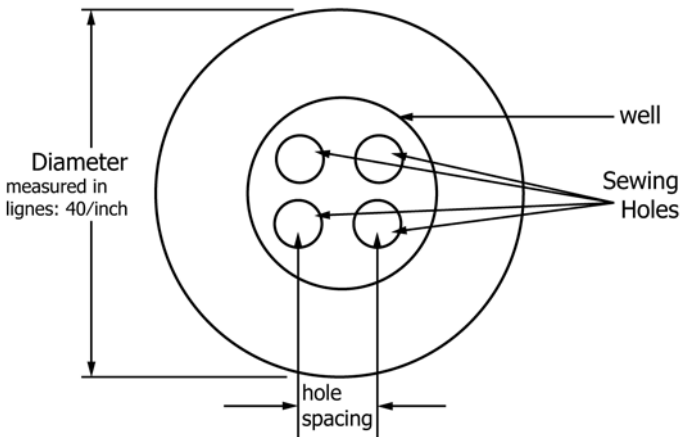


FIG. 1 Sew-Through Flange Button

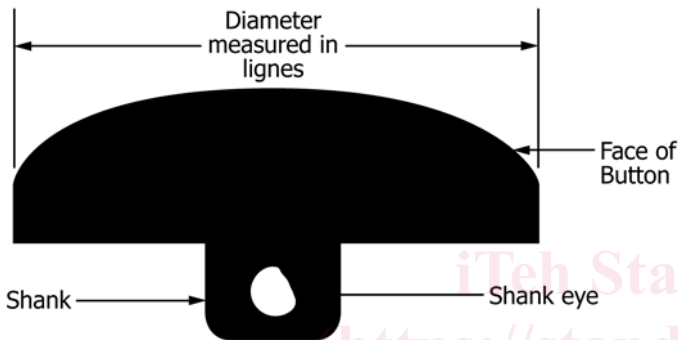


FIG. 2 Sew-Through Shank



FIG. 3 Pin Shank



FIG. 4 "U" Shank



FIG. 5 Stab or Screw Shank Staple Buttons

compression molding, *n*—the method of molding a material already in a confined cavity by applying pressure and usually heat.

compression molded button, *n*—a button or button blank which is produced by compression molding thermosetting molding compounds such as urea-formaldehyde, melamine-formaldehyde, styrene-modified polyester, or any combination thereof. This method using styrene modified polyester resin, and having in its formulation pearlescent pigments



FIG. 6 Bell Shank Staple Buttons

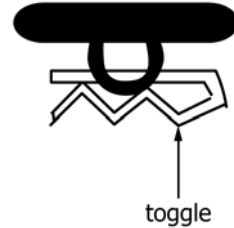


FIG. 7 Toggle Staple Attached Buttons

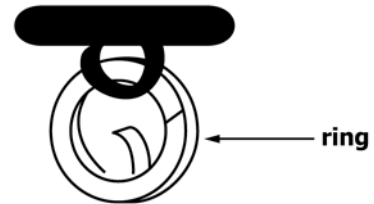


FIG. 8 Ring Staple Attached Buttons

which are oriented in the molding process, form a button or button blank which resembles natural shell.

drycleanable button, *n*—a button that can be solvent-cleaned without damage such as dissolving or loss of finish.

electroplated button, *n*—plastic buttons which have been made conductive by chemical treatment followed by the electroplating of metallic coatings.

DISCUSSION—In buttons, plastics such as polyester, acetate, ABS, melamine, and urea formaldehyde are the materials usually electroplated.

fabricate, *v*—in buttons, the conversion of a blank into a completed button.

DISCUSSION—Fabricating may require the turning of the face or back of the button with shaping tools, the drilling of sewing holes, and if required the grinding, slotting and any other decorative tooling or shank insertion which may be required.

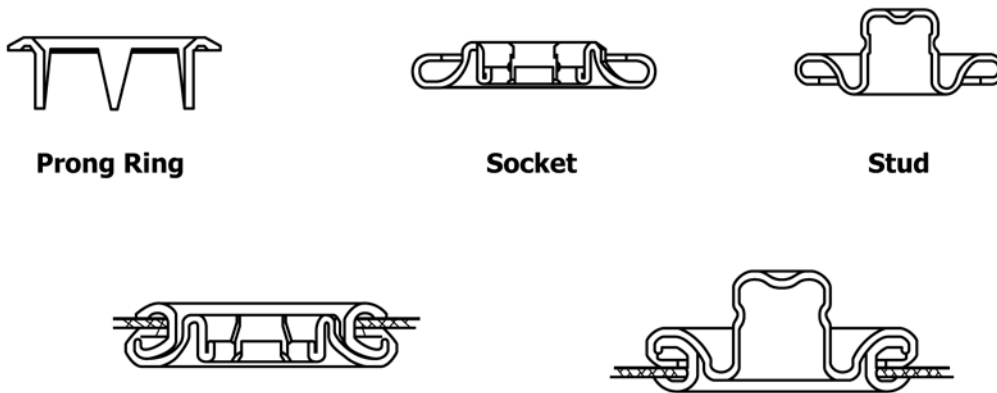
face, *n*—in buttons, that portion which will be exposed after attachment to the substrate.

finish, *n*—in buttons, the surface condition or texture.

hole spacing, *n*—on a button, the distance from the center of one hole to another.

impact resistance, *n*—resistance to fracture under the sudden application of an external force. **D5171**

injection molded button, *n*—a method of forming which requires the filling of a cavity under pressure with polymer that will take the form of the mold when cooled.



Prong Ring Attached to socket or stud

FIG. 9 Prong-ring Attached Fastener Parts

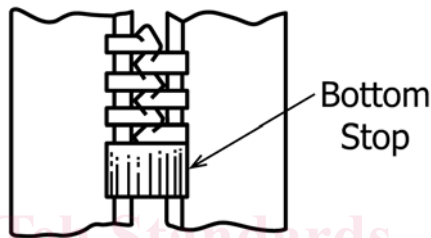


FIG. 10 Bottom Stop



FIG. 11 Bridge Stop



FIG. 12 Top Stop

injection molding, *n*—the process of forming a material by forcing it, in a fluid state under pressure, through a runner system (sprue, runner, gate(s)) into the cavity of a closed mold.

laundering, *n*—a process used to refurbish a textile product or parts thereof by (1) cleaning it in water containing a cleaning agent, and possibly bleach, (2) drying it, and (3) usually ironing or pressing it.

launderability, *n*—the ability of a button to undergo multiple cycles of laundering without damage such as cracks or loss of finish.

ligne, *n*—a unit of measure for button; one ligne equals 0.635 mm (0.025 in.).

luster, *n*—*in buttons*, the degree of brilliance exhibited in pearlized or pearl buttons.

metal cast button, *n*—a button produced by the casting of molten metals and metal alloys into single-cavity or multiple-cavity molds.

DISCUSSION—Cast metal buttons can be electroplated and treated to produce other finishes.

orientation, *n*—*in buttons*, the degree of order and spatial alignment of pearlescent pigment crystals internally or in a coating.

pearlized, *n*—*in buttons*, the addition of synthetic or natural pearlescent pigments to the button resin formulation or to the formulation used for coating.

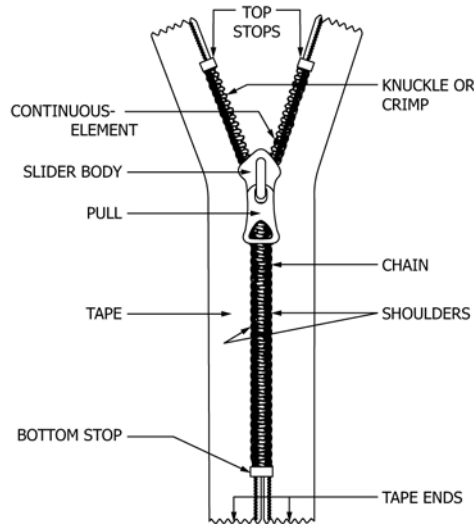


FIG. 13 Principle Parts of Slide Fasteners—Continuous Element Slide Fastener

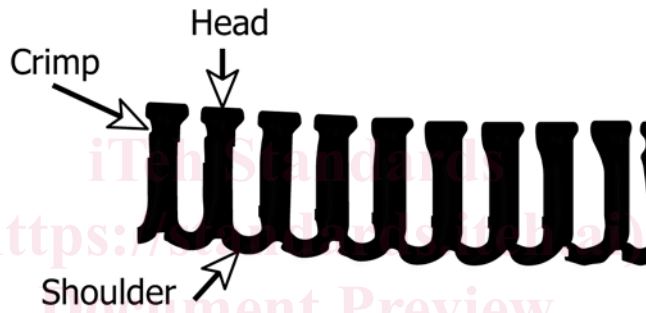


FIG. 14 Element (one side of element on sewn type CE fastener)

DISCUSSION—Buttons exhibiting a pearl-like luster are made in either of two ways: (1) by incorporating pearlescent pigments into the resin formulation prior to casting or molding the button, or (2) by applying to the button an external coating containing pearlescent pigments either by spraying or dipping.

The blanks are then cured, usually in hot brine solutions, and fabricated into buttons. This method is best for buttons produced with oriented pearlescent pigments, opaque white pigments, and multilayer combination of colors and mottles.

ring, *n*—in buttons, a split ring used to fasten a staple attached button to the substrate.

sewing hole, *n*—a hole in either the flange or shank of a button used to attach the button to the substrate by means of a needle and thread.

rod cast button, *n*—a button fabricated from a disk sliced or sawed from a cast rod of formulated styrene-modified polyester resin.

sew-through flange button, *n*—a button attached to one part of a flexible substrate by means of needle and thread passed through two or more holes in its flange and through the substrate. (Compare **sew-through flange button**.) (See Fig. 1.) **D5171**

DISCUSSION—Formulated styrene-modified polyester resin is cast into aluminum or glass tubes which are sealed at one end. The flaccid or rigid rod formed after gelation is removed from the tube and sliced or sawed into button blanks. The blanks are then fully polymerized (cured) in hot brine solution and fabricated into buttons. This method is used for buttons which are mottled, and multicolored.

rotation cast button, *n*—a button fabricated from a disk blanked from a partially polymerized sheet formed in a rotating cylinder (also known as centrifugal casting and wheel casting).

sew-through shank button, *n*—a button attached to one part of a flexible substrate by means of needle and thread passed through a hole or loop in the integral shank and through the substrate. (Compare **sew-through flange button**.) (See Fig. 2.) **D5171**

DISCUSSION—A resin mix prepared with catalyzed, promoted, and pigmented styrene-modified polyester resin is poured into a rotating cylinder to form a sheet of uniform layer. When gelled (polymerized) the flexible sheet is sliced in the cylinder for removal from the cylinder. The flaccid sheet is dye cut, with a multi-cutter tool, into button blanks.

shank, *n*—in buttons, that part positioned perpendicular to and at the center back of the flange, and having a hole or loop for use in attaching the button to one part of a flexible substrate by means of a needle or thread, a ring, or a toggle. (See Figs. 3-6.)

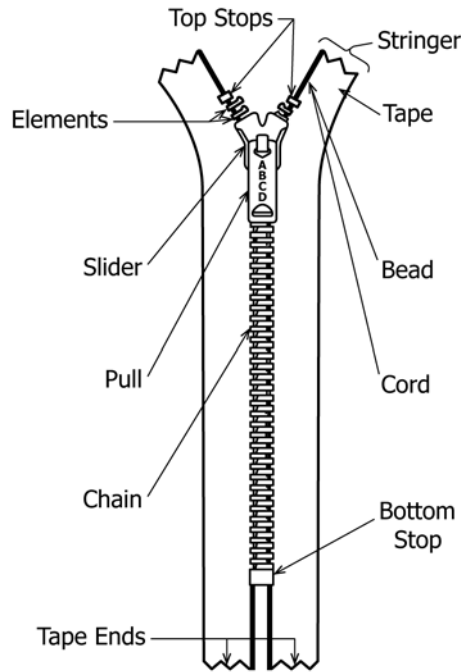


FIG. 15 Principal Parts of Slide Fasteners—Individual Element Slide Fasteners

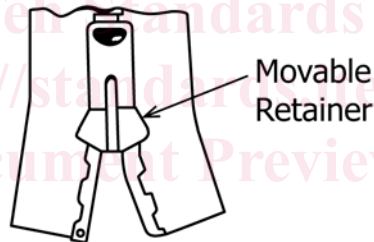


FIG. 16 Movable Retainer

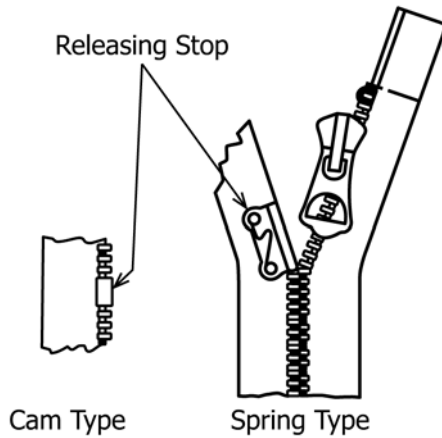


FIG. 17 Releasing Stops

shank eye, *n*—*in buttons*, the hole or loop in the shank of a sew-through shank button or the hole in the loop of the staple of a staple button.

sheet cast button, *n*—a button fabricated from a disk blanked from a cast sheet of formulated styrene-modified polyester resin.

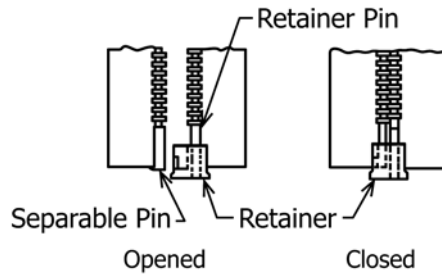


FIG. 18 Separating Parts

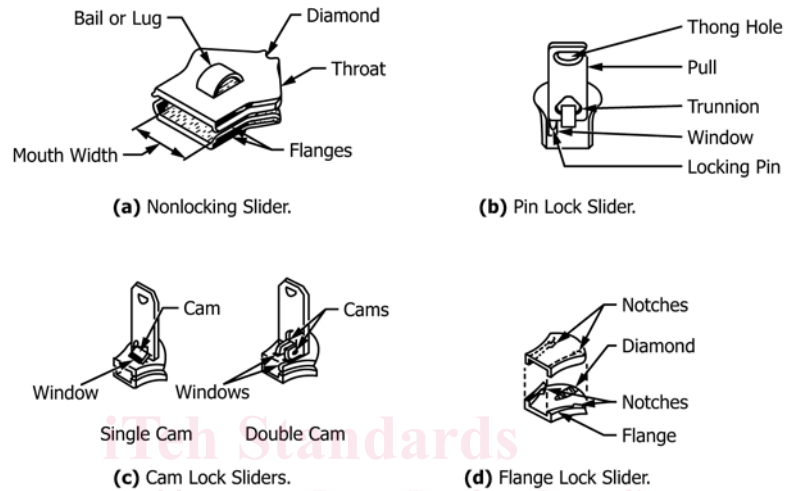


FIG. 19 Sliders

DISCUSSION—The formulated polyester resin mix (see **rotation cast buttons**) is poured into gasketed open molds or between gasketed sheets of glass. After gelation the sheet is stripped from the mold and die cut into multiple button blanks. The blanks are then cured (fully polymerized) and fabricated into buttons. This method is best for buttons produced with oriented pearlescent pigments or opaque white pigments.

staple, n—in buttons, a looped metal shank securely positioned perpendicular to and at center back of the button flange for use in attaching the button to one part of a flexible substrate by means of a needle and thread, a ring, or a toggle.

toggle, n—in buttons, a clip used to fasten a staple button to the flexible substrate.

ring or toggle attached staple button, n—a button attached to one part of a flexible substrate by means of a ring or toggle rather than a needle or thread. The staple passes through an eyelet in the flexible substrate and is secured by the ring or toggle that passes through the staple eye. (See Fig. 7 and Fig. 8.)

two-front button, n—a button in which the face and back shape are identical.

DISCUSSION—Identical faces allow for easier feeding of buttons in automatic sewing machines without the use of a well for side-selection.

vacuum plated button, n—a button that is flash metal coated in vacuum chambers and subsequently colored to simulate other metal finishes.

DISCUSSION—This is the least durable of metallized finishes.

well, n—in buttons, a recess in center of sew-through flange button that give aesthetics and identifies the face side.

wheel cast button, n—see rotation cast button.

RELATING TO HOOK AND LOOP FASTENERS

hook and loop fasteners, n—a touch fastener, comprised of two flexible mating strips, the surface of one mating strip being covered with tiny, stiff protrusions shaped liked hooks which engage the other mating strip which is covered with pliable loops. **D5169**

DISCUSSION—This fastener comprises a non-adhesive method of joining two materials where ready adjustment and removal is desirable and fastening is accomplished by pressing the mating strips together and separation is accomplished by simply peeling apart. Terms herein referring to hook and loop fastening systems shall be construed to include other types of touch fasteners in which the fastening strength in the shear mode (that is, against forces applied in the plane of the fastener) substantially exceeds the fastening strength in the peel mode (that is, against forces applied perpendicular to the planes of the two components of the fastener). **D5169**

shear strength, n—the resistance to forces that cause, or tend to cause, two contiguous parts of a body to slide relatively to each other in a direction parallel to their plane of contact. **D5169**