



Designation: ~~D2050~~—~~19~~ D2050 – 23

Standard Terminology Relating to Fastener Subassemblies Used in the Manufacture of 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This standard identifies terminology related to subassemblies ~~used in the construction of textiles both general and specific and can be which are categorized as any component or structure that is used in the construction or assembly of a textile product. Subassemblies can be in the form of components used as closures (for example, slide fasteners, buttons, snap fasteners, hook and loop (touch) fasteners) or methods of joining fasteners) or methods used to join textile sections (for example, stitches and seams).~~

1.2 ~~The subassembly terms~~ Terms relating to Buttons are found in ~~Terminology~~ Section 3.

1.3 ~~The subassembly terms~~ Terms relating to Hook and Loop (Touch) fasteners are in ~~Terminology~~ Section 4.

1.4 ~~The subassembly terms~~ Terms relating to Snap Fasteners are found in ~~Terminology~~ Section 5.

1.5 ~~The subassembly terms~~ Terms relating to Slide Fasteners are found in ~~Terminology~~ Section 6.

1.6 For other terms ~~associated with~~ related to textiles, refer to Terminology D123.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D123 Terminology Relating to Textiles

~~D1230 Test Method for Flammability of Apparel Textiles~~

D2060 Test Methods for Measuring Zipper Dimensions

D2061 Test Methods for Strength Tests for Zippers

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.

- D3657 Specification for Zipper Dimensions
- 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

3.1 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.

3.1 The principal types of button defined in this terminology document are illustrated. Terminology relating to buttons covers a variety of terms having special meanings used in Figs. 1-8. These figures are descriptive only and are not intended to be restrictive as to design the button industry. These apply only to sew-through flange and shank buttons.

3.1.1 The principal types of button defined in this terminology are illustrated in Figs. 1-8. These figures are descriptive only and are not intended to be restrictive as to design.

assembled button, n—a decorative button consisting of disc made from a 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 varying dimensions are determined by design and end use.

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

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

compression molded button, molding, n—a button or button blank as related to button manufacturing which is produced by

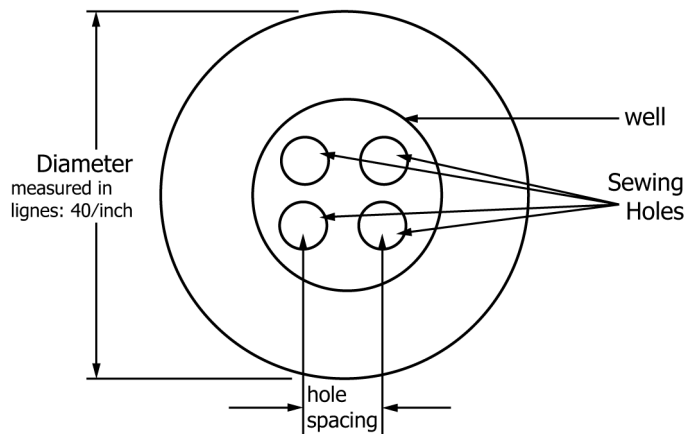


FIG. 1 Sew-Through Flange Button

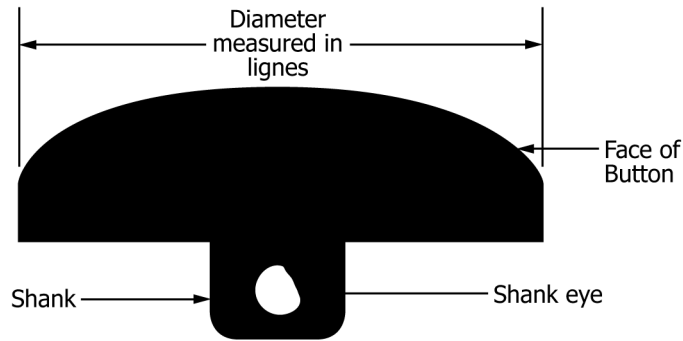


FIG. 2 Sew-Through Shank



FIG. 3 Pin Shank



FIG. 4 "U" Shank



FIG. 5 Stab or Screw Shank Staple Buttons



FIG. 6 Bell Shank Staple Buttons

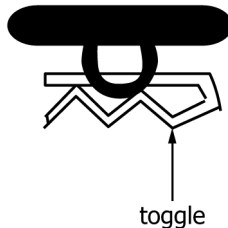


FIG. 7 Toggle Staple Attached Buttons

compression molding thermoset 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 which are oriented in the molding process, form a button or button blank which resembles natural shell.) a process that forms a button using material placed in a confined cavity, and by application of pressure and heat.

DISCUSSION—

this type of button is produced by compression molding any of the following thermoset molding compounds: (1) urea-formaldehyde; (2) melamine formaldehyde; (3) styrene-modified polyester; or any combination thereof.

DISCUSSION—

Specific—When using styrene modified polyester resin, which has pearlescent pigments in its formulation and which are oriented in the molding process, the resultant button or button blank can resemble a natural pearl shell button.

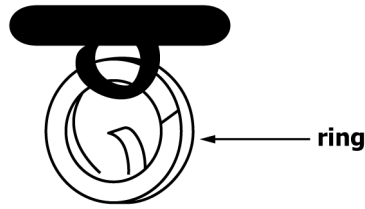


FIG. 8 Ring Staple Attached Buttons

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

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

DISCUSSION—

~~In buttons;~~ Buttons made plastics of plastics, such as polyester, acetate, ABS, melamine, and urea formaldehyde are the materials usually electroplated.

fabricate, *v*—~~in buttons;(as related to button manufacturing), the conversion of to convert~~ in buttons;(as related to button manufacturing), to convert a blank into a completed button.

DISCUSSION—

~~Fabricating~~ Fabrication 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 as related to~~ in as related to buttons, that portion of the disc 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. <https://standards.iteh.ai/11784/astm-d2050-23> **D1230**

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.~~

injection molding, *n*—~~the process of forming a material by forcing it, in a fluid state that forms a button using liquefied polymer that is forced,~~ the process of forming a material by forcing it, in a fluid state that forms a button using liquefied polymer that is forced, under pressure, through a runner system (sprue, runner, gate(s)) into the cavity of a closed mold.

injection molded buttons, *n*—~~a disc which is formed when a liquid polymer used to fill a cavity is exposed to pressure cavity under pressure with polymer that will take the form of the mold when cooled.~~

laundering, *n*—~~(as related to care and maintenance)~~ (as related to care and maintenance) 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.

laundering, *n*—~~in textile product care, a process intended to remove soils by treatment (washing) with an aqueous detergent solution (and possibly bleach) and nominally including subsequent rinsing, extraction, and drying.~~ **D1230**

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 disc produced by the casting of~~ placing molten metals and metal alloys into either a 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*; *(as related to buttons)*, the addition of synthetic or natural pearlescent pigments to the button resin formulation or to the formulation used for coating.

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.

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

rod cast button, *n*—~~a button fabricated from a disk sliced or sawed from a cast rod of fastener fabricated by cutting or sewing a disc from a rod made from~~ formulated styrene-modified polyester resin.

DISCUSSION—

~~Formulated~~ *(as related to manufacturing)* a formulated styrene-modified polyester resin is ~~cast~~ placed 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 disc fabricated from a disk blanked from a partially polymerized sheet formed in a rotating cylinder (also [known-Synonyms~~ centrifugal casting and cast button; wheel casting; cast button]

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. 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.

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

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

sew-through shank button, *n*—~~a button disc~~ 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**

shank, *n*—*in buttons*, ~~that part~~, the extension positioned perpendicular to ~~and~~ the surface of disc, designed as either a ring or a toggle 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 using a needle and thread.~~ (See **Figs. 3-6**.)

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.~~ perpendicular positioned shank that permits the button to be joined to one part of a flexible substrate using a staple.

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

DISCUSSION—

~~The~~ The formulated polyester resin mix (~~see rotation cast buttons~~) is poured into gasketed open molds or between gasketed sheets of glass. After ~~gelation~~ stiffening 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. (See rotation cast button.)

staple, *n*—*in buttons*, a looped metal shank fastener securely positioned perpendicular to and at center back of the button flange for use in attaching ~~used to attach~~ 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 using a~~ 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 and thread. Fig. 7 and Fig. 8.)

DISCUSSION—

The staple button passes through an eyelet in the flexible substrate and is secured by the toggle that passes through the staple eye. (See Fig. 7 and Fig. 8.)

two-front button, *n*—a ~~button disc~~ in which the shape of both 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~~ side-selection

vacuum plated button, *n*—a ~~button disc~~ that is flash metal coated in vacuum chambers made with a flash metal, coated in a vacuum chamber and subsequently colored to simulate other metal finishes. metallic finish appearances.

DISCUSSION—

This is the least durable of metallized finishes.

well, *n*—*in as related to 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**.

4. Terminology

RELATING TO HOOK AND LOOP FASTENERS Related to Hook and Loop (Touch) 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 the tapes apart. Hook and loop fastening systems ~~shall be construed to include~~ can have other types of touch fasteners in which the hook tape component designs which demonstrates a higher 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). direction. **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**

DISCUSSION—

Shear strength can be tested in the lengthwise direction or in the lateral direction on the two contiguous parts. **D5169**

5. Terminology

RELATING TO SNAP FASTENERSRelated to Snap Fasteners

5.1 Terminology relating specifically to snap fasteners includes illustration of prong-ring attached fastener parts in Fig. 9. These figures are descriptive only and are not intended to be restrictive as to design.

force, *n*—~~a physical influence exerted by (as related to snap fasteners) one body on another which produces acceleration of bodies that are free to move and deformation of bodies that are not free to move.~~The measured upward and diagonal peel strength exerted on the interconnection between a socket and a stud that results in the disconnection and separation of both elements. **D7142**

holding strength, *n*—~~(in snap fasteners, as related to snap fasteners), the measured force required to separate the prong-ring from and its attached mating part (socket or stud) element (socket or stud) from the substrate to which the prong-ring is attached.~~

DISCUSSION—

~~In (this test method, as related to the separation of elements) a diametric force is applied which simulates the diametric biting or pinching of a child; however, in practice, along the edge of the fastener so that the disengaging force used to unsnap a snap fastener is usually applied at the edge of the fastener.~~ **D7142**

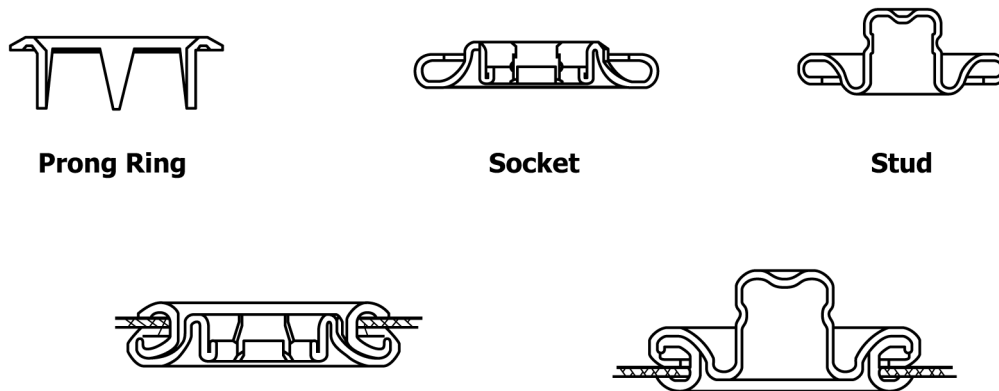
lateral holding strength, *n*—~~the measured force required to disengage the stud and socket of a snap fastener resulting that results from a pull in the plane parallel to the material to which the snap fastener is attached.~~ **D4846**

prong-ring type fastener, *n*—~~generic name for snap fasteners which use a multi-pronged ring to penetrate the element used in conjunction with either a socket or a stud of a snap fastener that penetrates through fabric to mechanically set a matching socket on one side of a closure and to set closure, a matching stud on the facing closure allowing which allow the outer and inner closure facings to be snapped together. (See Fig. 9.)~~ **D7142**

snap action, *n*—~~the force required to disengage a snap fastener resulting from a pull exerted perpendicular to the plane of material to which the snap fastener is attached. (See force.)~~ **D4846**

snap fastener, *n*—~~a device for attaching one material to another consisting of matching male and female parts, each of which is attached to a separate material so that the parts can be joined by a low compressive force and separated by a low perpendicular tensile force.~~ **D4846**

socket, *n*—~~in snap fasteners, the female functional part of the fastener which engages with the stud part of the fastener to form the closure of two parts of the item on which the fastener is used. (See Fig. 9.)~~ **D7142**



Prong Ring Attached to socket or stud

FIG. 9 Prong-ring Attached Fastener Parts