



# Standard Specification for Surgical Tissue/Dressing/Pick-Up Forceps (Thumb Type)<sup>1</sup>

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## 1. Scope

1.1 This specification covers general workmanship aspects of spring-action, tissue, dressing, or pick-up forceps (thumb-type) intended for the retraction, grasping, or dissection of tissue during surgical procedures.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

E18 Test Methods for Rockwell Hardness of Metallic Materials

E92 Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials

E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness

F899 Specification for Wrought Stainless Steels for Surgical Instruments

F921 Terminology Relating to Hemostatic Forceps

F1026 Specification for General Workmanship and Performance Measurements of Hemostatic Forceps

F1089 Test Method for Corrosion of Surgical Instruments

F1638 Terminology for Surgical Tissue/Dressing/Pick-Up Forceps (Thumb-Type)

## 3. Terminology

3.1 *Definitions*:

3.1.1 Definitions shall be in accordance with Terminology F1638.

3.1.2 *modified working ends*—working surfaces possessing superior hardness characteristics that are the result of either

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

depositing various materials on the base metal or securing an insert permanently (such as by brazing) to the base metal (see Note 3).

## 4. Material

4.1 All component parts of the instrument shall be fabricated from Class 4 martensitic stainless steel in accordance with Specification F899. The modified working ends may be of stellite, tungsten carbide, or other suitable material.

## 5. Requirements

5.1 *Heat Treatment and Hardness for Component Parts*:

5.1.1 The stainless steel component parts shall be heat treated under conditions recommended for the material used.

5.1.2 The Rockwell hardness (HRC) of the instrument with the working end not modified shall be 40–49 HRC (see Test Methods E18) after appropriate processing. Instruments in which the working end has been modified shall have an HRC of A77.

5.2 *Corrosion Resistance*—Instruments shall be subjected to corrosion tests as specified in Test Method F1089.

5.3 *Finish*:

5.3.1 *Surfaces*—Surfaces of the instruments shall be uniformly finished and free of burrs, sharp edges, cracks, coarse marks, and processing materials.

5.3.2 *Type*—The finish shall be one of the types specified in Terminology F921 or as specified by the purchaser.

5.4 *Workmanship*:

5.4.1 *Symmetry*—Excluding functional differences, both forceps halves shall be symmetrical.

5.4.2 *Teeth*—Teeth shall be well formed, uniform in depth and spacing, and mesh without binding, unless designed otherwise.

5.4.3 *Handle Serrations*—Handle serrations shall be uniform in depth and spacing.

5.5 *Guide Pin and Guide Pin Hole*:

5.5.1 The guide pin shall pass through the guide pin hole without binding.

5.5.2 The guide pin length shall not protrude past the outside surface of the guide pin hole when the forceps' tips come in contact.

NOTE 1—Guide pin/guide pin holes are generally used on forceps 7½ in. (191 mm) or longer.

## 6. Performance

6.1 *Alignment*—Scissoring shall be 0.015 in. (0.38 mm) or less upon closure.

## 7. Marking and Labeling

7.1 All marking and labeling shall be legible.

7.2 The instruments shall bear the following: (1) the manufacturer's (or contractor's) name or registered trademark; (2) the country of origin (when the instrument is not manufactured

in the United States); and (3) other markings, as required, by the purchaser or the manufacturer (contractor).

7.3 The marking shall be located on a suitable surface of the instrument.

NOTE 2—This specification is not intended to cover delicate tissue forceps such as those used in microsurgery or neurosurgery.

NOTE 3—Typical methods of modifying the working end of the forceps is to use jaw inserts or to plasma deposit (flame plate) materials with improved wear characteristics such as tungsten carbide or stellite. For the jaw insert methods, the insert is brazed to the jaw face with a uniform deposit of silver solder that is free of crevices at all interfaces. For the flame plating method, a uniform layer of material that is  $0.004 \pm 0.001$  in. ( $0.1 \pm 0.03$  mm) thick is deposited.

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