



Designation: F1079 – 87 (Reapproved 2022)

# Standard Specification for Inserted and Noninserted Surgical Scissors<sup>1</sup>

This standard is issued under the fixed designation F1079; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This specification covers general workmanship aspects of inserted and noninserted stainless steel scissors fabricated from stainless steel and intended for reuse in surgery.

1.2 The following safety hazards caveat pertains only to the test method described in this specification: *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.*

1.3 *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:*<sup>2</sup>

[A380 Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems](#)

[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](#)

[F1078 Terminology for Surgical Scissors—Inserted and Non-Inserted Blades](#)

[F1089 Test Method for Corrosion of Surgical Instruments](#)

## 3. Terminology

3.1 Definitions applicable to surgical scissors shall be in accordance with Terminology [F1078](#).

## 4. Material

4.1 All the component parts of the instrument shall be made of martensitic stainless steel type 410, 410K, 416, 420, 420A, and 420B in accordance with Specification [F899](#). Inserts shall be made of stellite or tungsten carbide or other suitable material.

## 5. Physical Properties

5.1 *Rockwell Hardness*—The Rockwell hardness of the scissor halves and inserts shall be within the range of 40 HRC and 58 HRC (approximately equivalent to Vickers hardness 530 HV and 670 HV). (See Test Methods [E18](#).) Opposite halves and inserts shall not vary in hardness by more than four points on the Rockwell hardness scale (HRC) or equivalent.

5.2 *Passivation*—Instruments and instrument components shall be passivated after completion of all fabricating and finishing operations as specified in Practice [A380](#).

5.3 *Heat Treatment*—The component parts of the instruments shall be heat treated under conditions recommended for the material used. Typical heat treatment guidelines and hardness values are given in Specification [F899](#).

## 6. Performance Requirements

6.1 *Corrosion Resistance*—Instruments or instrument components shall be subject to corrosion tests specified in Test Method [F1089](#).

6.2 *Cutting Ability*—The test material shall comply with the material specified in [Table 1](#), [Table 2](#), or [Table 3](#). Clean scissors to be tested prior to testing. Perform three separate, consecutive tests with each scissors. Each test shall consist of a nonstop cut along the distal two-thirds of the blade length using the test material at right angles to the threads (if present) of the material. Each cut shall be made using the scissors in the normal manner, that is, with the examiner's fingers in the finger rings of the instrument, except that no lateral pressure shall be

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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.

**TABLE 1 Testing Materials for Lightweight and Micro, Neuro, and Ophthalmologic Scissors**

Example of Acceptable Testing Materials	Thickness, in.	Examples
Synthetic (50 % polyester, 50 % cotton)	0.007 (1 layer)	Iris Scissors Strabismus Scissors Stevens Scissors Dissecting Scissors
Synthetic (65 % polyester, 35 % cotton)	0.006/0.007	(Kilner) Potts-DeMartell Joseph
Latex rubber sheet	0.009/0.0115	
Latex rubber sheet	0.004/0.008	
Wet facial tissue paper <sup>A</sup> (2 layers)	N/A	
Silicone tubing <sup>A</sup>	0.030 ID, 0.065 OD	
Suture—twist polyester fiber <sup>A</sup>	0.025 (G-207)	

<sup>A</sup> This material may also be used with the aforementioned materials to test extra fine micro, neuro, and ophthalmologic scissors.

**TABLE 2 Testing Materials for Medium Weight Scissors**

Example of Acceptable Testing Materials	Thickness, in.	Examples
Coarse flannel cotton	0.025/0.035 (1 layer)	Mayo Scissors Metzenbaum Scissors Nail Scissors
Stockinette (JJ-S-746 Type I)	1 layer	Sims Uterine Scissors Dressing Scissors DAPHINE
Latex rubber sheet	0.009/0.0115	Tonsil Scissors
Latex rubber sheet	0.006/0.010	

exerted. Any bending or snagging of the test material anywhere along the cut, including the distal tips, shall be cause for rejection.

**TABLE 3 Testing Materials for Heavyweight Scissors**

Example of Acceptable Testing Materials	Thickness, in.	Examples
Coarse cotton flannel	0.050/0.070 (2 layers of 0.025/0.035)	Lister Bandage Scissors Smith Bandage Scissors Bowel Scissors Doyen Flesh Scissors
Stockinette (JJ-S-746 Type I)	2 layers	
Latex rubber sheet	0.006/0.010	

## 7. Workmanship, Finish, and Appearance

**7.1 Finger Rings**—The inside surface of the finger rings shall be well rounded and polished and comply with the requirements in **7.5.1**.

**7.2 Joint**—The instrument shall have a smooth moving joint (ride) and shall close and open easily.

**7.3 Cutting Edges**—Inside surfaces of blades and cutting edges shall be ground uniformly to provide a smooth, nongrating action.

**7.4 Pivot Screw**—The pivot screw shall be permanently set, peened, and ground flush or peened over.

### 7.5 Finish:

**7.5.1 Surfaces**—The surfaces of the instrument shall be uniformly finished and free from burrs, sharp edges (except cutting edges), cracks, coarse marks, and processing materials.

**7.5.2 Type**—The finish shall be one of the types specified in Terminology **F1078** or as specified by the purchaser.

## 8. Keywords

8.1 instruments; stainless steel—surgical applications

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