



Standard Specification for Inserted and Noninserted Surgical Scissors¹

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This standard has been approved for use by agencies of the Department of Defense.

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

2. Referenced Documents

2.1 ASTM Standards:

- A 380 Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems²
- E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials³
- E 92 Test Method for Vickers Hardness of Metallic Materials³
- E 140 Hardness Conversion Tables for Metals³
- F 899 Specification for Stainless Steels for Surgical Instruments⁴
- F 1078 Terminology for Surgical Scissors—Inserted and Non-Inserted Blades⁴
- F 1089 Test Method for Corrosion of Surgical Instruments⁴

3. Terminology

3.1 Definitions applicable to surgical scissors shall be in accordance with Terminology F 1078.

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 of Specification F 899. 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). Opposite halves and inserts shall not vary in hardness by more than 4 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 A 380.

5.3 *Heat Treatment*—The component parts of the instruments shall be heat treated under conditions recommended for the material used. Typical heat treating guidelines and hardness values are shown in Specification F 899.

6. Performance Requirements

6.1 *Corrosion Resistance*—Instruments or instrument components shall be subject to corrosion tests specified in Test Method F 1089.

6.2 *Cutting Ability*—The test material shall comply with the material specified in Table 1, Table 2, or Table 3. Clean scissors

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 (Kilner)
Synthetic (65 % polyester, 35 % cotton)	0.006/0.007	Potts-DeMartell Joseph
Latex rubber sheet	0.009/0.0115	
Latex rubber sheet	0.004/0.008	
Wet facial tissue paper ^A (2 layers)	N/A	
Silicone tubing ^A	0.030 ID, 0.065 OD	
Suture—twist polyester fiber ^A	0.025 (G-207)	

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

to be tested prior to test. Perform three separate, consecutive tests with each scissor. 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

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 03.01.

⁴ Annual Book of ASTM Standards, Vol 13.01.

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	

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	

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

7. Workmanship, Finish, and Appearance

7.1 *Finger Rings*—Inside surfaces 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 F 1078 or as specified by the purchaser.

8. Keywords

8.1 instruments; stainless steel—surgical applications

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