



Designation: F 787 - 82 (Reapproved 1991)

Standard Specification for Metallic Nail-Plate Appliances¹

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1. Scope

1.1 This specification covers functional dimensions, tolerances and materials for nail-plates used in the treatment of fractures.

1.2 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

F 55 Specification for Stainless Steel Bar and Wire for Surgical Implants²

F 56 Specification for Stainless Steel Sheet and Strip for Surgical Implants²

F 67 Specification for Unalloyed Titanium for Surgical Implant Applications²

F 75 Specification for Cast Cobalt-Chromium-Molybdenum Alloy for Surgical Implant Applications²

F 86 Practice for Surface Preparation and Marking of Metallic Surgical Implants²

F 90 Specification for Wrought Cobalt-Chromium-Tungsten-Nickel Alloy for Surgical Implant Applications²

F 136 Specification for Wrought Titanium 6Al-4V ELI Alloy for Surgical Implant Applications²

F 138 Specification for Stainless Steel Bars and Wire for Surgical Implants (Special Quality)²

F 139 Specification for Stainless Steel Sheet and Strip for Surgical Implants (Special Quality)²

F 367 Specification for Holes and Slots for Inch Cortical Bone Screws²

F 384 Practice for Static Bend Testing of Nail Plates²

F 543 Specification for Cortical Bone Screws²

F 565 Practice for Care and Handling of Orthopedic Implants and Instruments²

F 620 Specification for Titanium 6Al-4V ELI Alloy Forgings for Surgical Implants²

F 621 Specification for Stainless Steel Forgings for Surgical Implants²

3. Materials and Manufacture

3.1 Nail plates shall be fabricated from material conforming to one of the following ASTM Specifications: F 55, F 56, F 67, F 75, F 90, F 136, F 138, and F 139.

3.1.1 Nail plates of forged Specification F 136 shall meet the requirements of Specification F 620.

3.1.2 Nail plates of forged Specification F 55 or Specification F 138 shall meet the requirements of Specification F 621.

4. Performance Considerations

4.1 Nail plates may be tested using Practice F 384.

4.2 Factors considered to be important, but for which values and test methods have not been established, are bending strength, fatigue strength, ductility, and bending rigidity.

5. Dimensions, Mass, and Permissible Variations

5.1 Nail plates shall be fabricated in accordance with the dimensions and tolerances shown in Figs. 1, 2, 3, 4, and 5. Notes for Fig. 1 apply to Figs. 3 and 4, also.

5.2 Nail plates shall have no sharp exterior edges, except where a sharp edge provides a functional purpose.

5.3 Nail plates shall have surfaces prepared and shall be marked using a method specified in accordance with Practice F 86.

5.3.1 Markings on the nail plate shall identify the manufacturer or distributor and shall be near the ends of the plate and away from the most highly stressed area, where possible.

5.4 Dimensions and tolerances for screw holes and screw slots in nail plates shall conform to Practice F 367, for use with bone screws conforming to Specification F 543, Table 1.

6. Packaging and Labeling

6.1 Packaging shall be adequate to protect the nail plate during shipment.

6.2 Labeling for nail plates shall include:

6.2.1 Product name,

6.2.2 Size, on the immediate container,

6.2.2.1 Plate length

6.2.2.2 Plate width,

6.2.2.3 Plate thickness,

6.2.2.4 Nail length,

6.2.2.5 Number of screw holes,

6.2.2.6 Size of screw holes, and

6.2.3 ASTM Material Specification Designation Number.

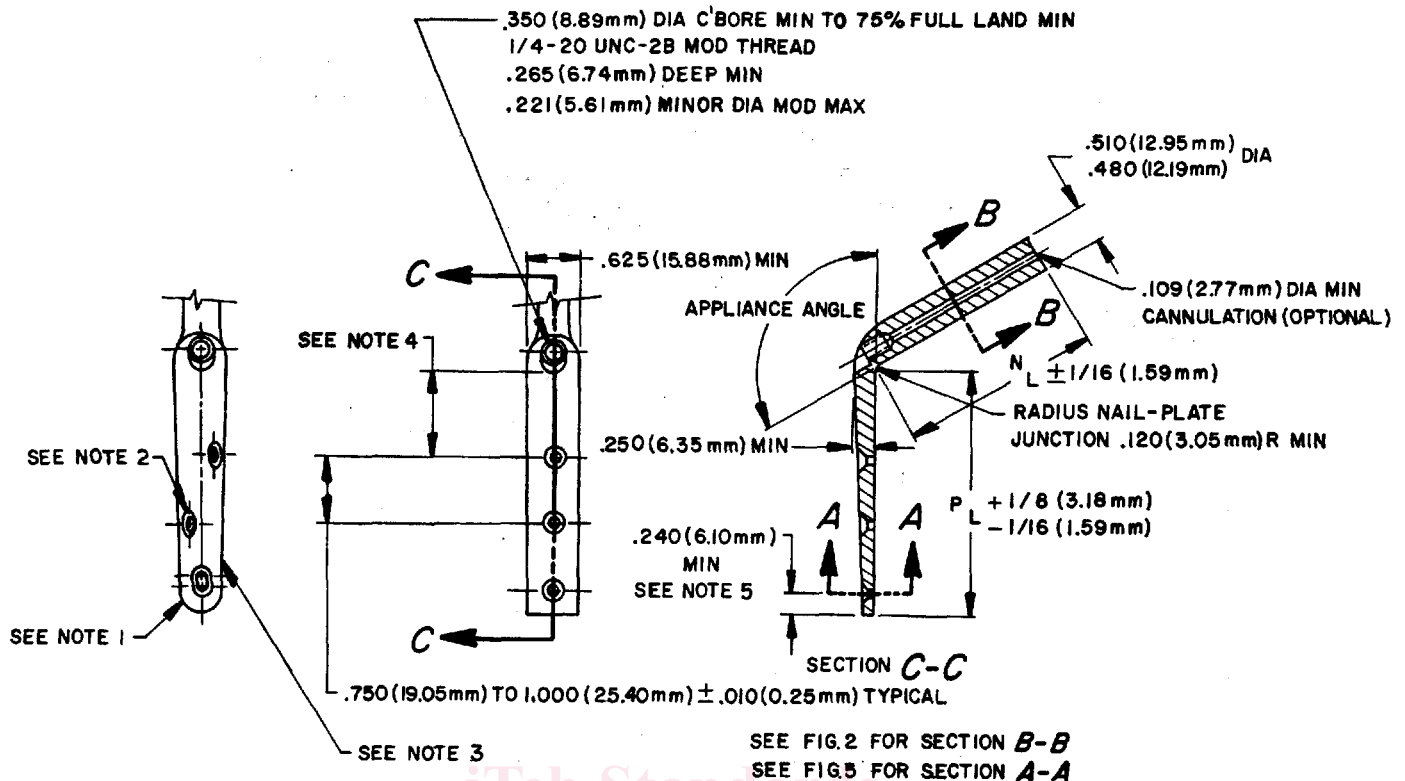
6.3 Nail plates shall be cared for and handled in accordance with Practice F 565.

¹ This specification is under the jurisdiction of ASTM Committee F-4 on Medical and Surgical Materials and Devices and is the direct responsibility of Subcommittee F04.03 on Orthopaedics.

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² Annual Book of ASTM Standards, Vol 13.01.

F 787



- NOTE 1—End of plate may optionally have a full radius or radiused corners.
- NOTE 2—Location of all screw holes or slots from centerline of plate is optional. Screw hole or slot centerline location shall be no less than one hole diameter from edge of plate. Staggered holes or slots must lie on radial centerline from underside of plate.
- NOTE 3—Plate may taper in width or thickness, or both.
- NOTE 4—Distance to first screw hole shall be 3/8 in. (9.5 mm) minimum, for plate angles greater than 140°; 5/8 in. (15.9 mm) minimum, for plate angles less than or equal to 140°.
- NOTE 5—Measured from end of plate to centerline of last countersunk hole.

Abbreviations Used in Figures

- N_L —Nail Length
 P_L —Plate Length
 C_L —Collapsed Length
 E_L —Extended Length
 B_L —Barrel Length
 W —Width
 T —Thickness

FIG. 1 Nail-Plate Appliance—One Piece Designs