



## **Standard Specification for Steel Forging Stock<sup>1</sup>**

This standard is issued under the fixed designation A 711; 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 (€) indicates an editorial change since the last revision or reapproval.

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

€<sup>1</sup> NOTE—Keywords were added editorially in July 1997.

### **1. Scope**

1.1 This specification covers cast carbon and alloy steel ingots and strand castings, semi-wrought ingots and strand castings and rolled or forged blooms, billets, and slabs for forging.

1.2 Blooms, billets, and slabs are semi-finished steel products, hot rolled or forged to approximate cross-sectional dimensions. Blooms and billets may be square, round, octagonal, or rectangular in section; slabs are rectangular. Although no invariable rule prevails between the terms blooms and billets, and they are frequently used interchangeably, the following size distinctions are in general use.

1.2.1 *Blooms*—Cross-sectional area greater than 36 in.<sup>2</sup> (232 cm<sup>2</sup>).

1.2.2 *Billets*—Maximum cross-sectional area 36 in.<sup>2</sup> (232 cm<sup>2</sup>).

1.2.3 *Slabs*—Minimum thickness, 1½ in. (38.0 mm); width, more than twice the thickness; and generally a cross-sectional area of not less than 16 in.<sup>2</sup> (103 cm<sup>2</sup>).

1.2.4 Ingots either top or bottom poured or secondary remelted are covered.

1.2.5 Strand castings with or without additional reduction are covered.

1.3 Supplementary requirements (S1 to S19) of an optional nature are provided. They shall apply only when specified by the purchaser.

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

### **2. Referenced Documents**

#### **2.1 ASTM Standards:**

A 29/A 29M Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold Finished, General Requirements for<sup>2</sup>

A 275/A 275M Test Method for Magnetic Particle Examination of Steel Forgings<sup>2</sup>

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.06 on Steel Forgings and Billets.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 01.05.

A 388/A 388M Practice for Ultrasonic Examination of Heavy Steel Forgings<sup>2</sup>

A 788 Specification for Steel Forgings, General Requirements<sup>2</sup>

E 45 Test Methods for Determining the Inclusion Content of Steel<sup>3</sup>

E 112 Test Methods for Determining the Average Grain Size<sup>3</sup>

E 381 Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings<sup>3</sup>

### **3. Ordering Information**

3.1 When this specification is to be applied to an inquiry, contract, or order, the purchaser shall furnish the following information:

3.1.1 The grade of material desired.

3.1.2 Product form restrictions (for example, ingots, strand castings, billets) if any, and

3.1.3 Applicable supplementary requirements.

### **4. Materials and Manufacture**

4.1 Steel production shall be in accordance with Specification A 788.

4.2 *Discard*—Sufficient discard shall be made to secure freedom from piping and undue segregation.

4.3 *Reduction from Ingot*—Except as otherwise agreed in accordance with Supplementary Requirement S3.2, the material shall be made from product having at least two times the cross-sectional area of the material.

4.4 *Stability*—Material shall be furnished in a condition to withstand, for an indefinite time, exposure to all climatic conditions without developing any external or internal cracks. The method of cooling or of treatment before shipment shall be optional with the manufacturer, but he shall be responsible (in the same manner as for defects disclosed after delivery) for cracks that may develop before material is subjected to reheating. When specific stability treatment of material is specified by the purchaser, the manufacturer shall be responsible only for carrying out those specific operations but shall not be responsible for cracks that may develop before material

<sup>3</sup> Annual Book of ASTM Standards, Vol 03.01.