



Designation: A427/A427M – 10

Standard Specification for Wrought Alloy Steel Rolls for Cold and Hot Reduction¹

This standard is issued under the fixed designation A427/A427M; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This specification covers homogeneous wrought hardened alloy steel rolls for use in cold or hot reduction of flat rolled ferrous and nonferrous products.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.3 *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*:²

[A788/A788M Specification for Steel Forgings, General Requirements](#)

[A956 Test Method for Leeb Hardness Testing of Steel Products](#)

[E18 Test Methods for Rockwell Hardness of Metallic Materials](#)

[E92 Test Method for Vickers Hardness of Metallic Materials \(Withdrawn 2010\)](#)³

[E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness](#)

[E448 Practice for Scleroscope Hardness Testing of Metallic Materials](#)

¹ This specification is under the jurisdiction of ASTM Committee A01 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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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

3. Ordering Information

3.1 The purchaser shall specify in the inquiry, contract, or order the complete dimensions, hardness range, surface finish, and use. Any other requirements shall also be specified.

3.2 Material supplied to this specification shall conform to the requirements of Specification [A788/A788M](#), which outlines additional ordering information, manufacturing requirements, testing and retesting methods and procedures, marking, certification, product analysis variations, and additional supplementary requirements.

4. Process

4.1 The steel shall be made by the electric-furnace process. Additional refining by vacuum arc remelt or electroslag is permitted.

5. Manufacture

5.1 The forged rolls shall receive their hot mechanical work under a press or hammer of ample capacity to work the metal throughout its section. However, 6-in. [150-mm] diameter or less rolls may be produced from rolled bars.

6. Discard

6.1 Sufficient discard shall be made from each ingot to secure freedom from piping and undue segregation.

7. Chemical Requirements

7.1 Unless specified by the purchaser, the chemical requirements shall be at the discretion of the manufacturer.

8. Heat Treatment

8.1 The method of heat treatment and hardening shall be at the option of the manufacturer.

9. Hardness Requirements

9.1 The manufacturer shall supply rolls to the hardness ranges agreed upon by the purchaser and the manufacturer.

9.2 A hardness range of either 5 points Shore scleroscope or 100 numbers Vickers hardness is permissible.

10. Hardness Testing

10.1 Each roll shall be tested for hardness and shall be within limits specified on the order. The Shore forged roll

*A Summary of Changes section appears at the end of this standard