



Designation: B 851 – 04

Standard Specification for Automated Controlled Shot Peening of Metallic Articles Prior to Nickel, Autocatalytic Nickel, or Chromium Plating, or as Final Finish¹

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1. Scope

1.1 This specification covers the requirements for automated, controlled shot peening of metallic articles prior to electrolytic or autocatalytic deposition of nickel or chromium, or as a final finish, using shot made of cast steel, conditioned cut wire, or ceramic media. The process is applicable to those materials on which test work has shown it to be beneficial within given intensity ranges. It is not suitable for brittle materials. Hand peening and rotary flap peening are excluded specifically.

¹ This specification is under the jurisdiction of ASTM Committee B08 on Metallic and Inorganic Coatings and is the direct responsibility of Subcommittee B08.02 on Pre Treatment.

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Formerly under

1.2 Shot peening induces residual compressive stresses in the jurisdiction surface and near-surface layers of metallic articles, controlling or limiting the reduction in fatigue properties that occurs from nickel or chromium plating of the article, or the fatigue properties of unplated articles.

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

B0 183 Practice for Preparation of Low-Carbon Steel for Electroplating

B 242 Guide for Preparation of High-Carbon Steel For Electroplating

B 320 Practice for Preparation of Iron Castings for Electroplating

B 322 Practice for Cleaning Metals Prior to Electroplating

B 607 Specification for Autocatalytic Nickel Boron Coatings for Engineering Use

B 650 Specification for Electrodeposited Engineering Chromium Coatings on Ferrous Substrates

B 656 Guide for Autocatalytic (Electroless) Nickel-Phosphorus Deposition on Metals for Engineering Use³

B 689 Specification for Electroplated Engineering Nickel Coatings

B 733 Specification for Autocatalytic (Electroless) Nickel-Phosphorus Coatings on Metal

E 11 Specification for Wire Cloth and Sieves for Testing Purposes

E 165 Test Method for Liquid Penetrant Examination

E 709 Guide for Magnetic Particle Examination

2.2 Federal Standards:⁴

QQ-N-290 Nickel Plating (Electrodeposited)

QQ-C-320 Chromium Plating (Electrodeposited)

2.3 Military Standards:⁴

MIL-S-851 Steel Grit, Shot, and Cut Wire Shot, and Iron Grit and Shot Blast Cleaning and Peening

MIL-S-13165 Shot Peening of Metal Parts

MIL-C-26074 Coating, Electroless Nickel

MIL-STD-45662 Calibration System Requirements