



Standard Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection¹

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INTRODUCTION

Throughout this guide the terms *detection* and *prevention* apply to quality control systems. A brief description of both is provided to assist the purchaser in the application of this guide.

The *detection system* relies on inspection as the primary means of controlling the quality of furnished material. Methods include in-process and final inspection. In-process inspection is typically performed by the individual performing the process and generally includes a first-piece inspection by someone other than the operator. Quality-control inspection may perform audit inspections on the process output during the course of the production run. In addition, a final inspection is performed by quality control inspectors according to a prescribed sample plan. The other sample plans utilize zero defects as their acceptance criteria.

The *prevention system* uses advanced quality planning in addition to many of the techniques used in the detection system. Quality planning incorporates a systems approach to quality control that focuses on defect prevention and continual improvement. In addition, Statistical Process Control (SPC) is usually applied to control the process, thereby reducing the variability of the output.

The ISO 9000, QS 9000, and the ASQ Q9000, quality system standards, or a combination thereof, are models that may be used in establishing a prevention-based quality system.

1. Scope

1.1 This guide provides sampling methods for determining how many fasteners to include in a random sample in order to determine the acceptability or disposition of a given lot of fasteners.

1.2 This guide is for mechanical properties, physical properties, coating requirements, and other quality requirements specified in the standards of ASTM Committee F16. Dimensional and thread criteria sampling plans are the responsibility of ASME Committee B18.

1.3 This guide provides for two sampling plans: one designated the “detection process,” as described in Terminology F 1789, and one designated the “prevention process,” as described in Terminology F 1789.

2. Referenced Documents

2.1 ASTM Standards:

F 1789 Terminology for F16 Mechanical Fasteners²

2.2 ASME Standards:

ASME B18.18.2M Inspection and Quality Assurance for High-Volume Machine Assembly Fasteners

ASME B18.18.3M Inspection and Quality Assurance for Special Purpose Fasteners³

ASME B18.18.5M Inspection and Quality Assurance Plan Requiring In-Process Inspection and Controls³

ASME B18.18.6M Quality Assurance Plan for Fasteners Produced in Third Party Accreditation System³

2.3 ASQ Standards:

ASQ Q9000 Quality Management and Quality Assurance Standards—Guidelines for Selection and Use³

ASQ Q9001 Quality Management Systems³

ASQ Q9002 Quality Systems—Model for Quality Assurance in Production and Installation³

ASQ Q9004 Quality Management and Quality System Elements—Guidelines for Quality Improvement³

2.4 AIAG Standards:

QS 9000 Quality System Requirements⁴

2.5 ISO Standards:

¹ This guide is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.93 on Quality Assurance Provisions for Fasteners.

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² *Annual Book of ASTM Standards*, Vol 01.08.

³ Available from the American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁴ Available from Automotive Industry Action Group (AIAG), 26200 Lahser Rd., Ste. 2000, Southfield, MI 48034–9738.