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Standard Guide for Security Fasteners¹

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1. Scope

1.1 The purpose of this guide is to provide technical information related to understanding the features, types of materials, and benefits of various types of security fasteners and provide guidance in the selection and application of security fasteners in detention and corrections facilities.

1.2 *Units*—The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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, health and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASME Standard:*

ASME B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)²

2.2 *British Standard:*

BS 1580–1 Unified Screw Threads. Screw Threads with Diameters 1/4 in. and Larger. Requirements³

3. Terminology

3.1 Definitions:

¹ This guide is under the jurisdiction of ASTM Committee F33 on Detention and Correctional Facilities and is the direct responsibility of Subcommittee F33.04 on Detention Hardware.

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² Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY 10016-5990, <http://www.asme.org>.

³ Available from British Standards Institution (BSI), 389 Chiswick High Rd., London W4 4AL, U.K., <http://www.bsigroup.com>.

⁴ See thread terminology, types of bolt and screw heads, and types of screw points for visual reference.

3.1.1 *bearing surface, n*—area that carries load across the face of the material.

3.1.2 *blind fastener, n*—fastener that can be placed with access to only one side of an application (for example, cage nuts, pop rivet[®]).

3.1.3 *blind side, n*—side of the joint that cannot be accessed (for example, the inside surface of a tubular or box section).

3.1.4 *body, n*—in blind fasteners, the portion of the rivet that expands into the parent material and in threaded fasteners, the unthreaded portion of the fastener under the head.

3.1.5 *bolt, n*—externally threaded fastener that requires a nut to secure the fastened joint.

3.1.6 *break stem, n*—fastener that is installed by gripping and pulling the end of the mandrel/stem; see Fig. 1.

3.1.6.1 *Discussion*—As installation is completed, the end of the stem fractures at the breaker groove and is discarded, leaving the head of the stem in the fastener body.

3.1.7 *breaker groove, n*—weakened groove in the stem or pin of a fastener allowing breakage at a predetermined load and length; see Fig. 2.

3.1.8 *bulbing, v*—physical action of the fastener body swelling (expanding radially) against the rear face of the joint when placed.

3.1.8.1 *Discussion*—Generally found in break stem fasteners and threaded inserts.

3.1.9 *case hardened, adv*—heat-treated fastener in which the surface is harder than the core.

3.1.10 *chemical-set anchor, n*—anchor designed for blind-hole installations that use a two-component structural grade catalyzing resin (usually epoxy) to bind the bolt securely in the substrate material.

3.1.11 *drive-pin expansion anchor, n*—blind-hole expansion anchor usually manufactured from a relatively soft alloy metal or plastic, but can also be of steel; see Fig. 3.

3.1.11.1 *Discussion*—The anchor is expanded into the blind hole by hammering in a supplied pin or nail into the center of the anchor.

3.1.12 *drive type, n*—the features of a fastener head that allows the fastener to be driven (installed or removed).

3.1.12.1 *Allen head, n*—hexagonal hollow socket drive design.