SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

AS4724

Issued 2007-07

Studs and Inserts, Locked In, Self-Broaching Keys - Hole Dimensions and Installation Requirements

RATIONALE

There is a need for an installation specification to accompany the standard part hardware. It can also be used for non standard parts when referenced

1. SCOPE

1.1 Type

This specification establishes the procedure for installing hardened key types studs and inserts, eliminating the need for broaching key slots. It also defines the hole preparation necessary to install the studs and inserts.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AS3543	Stud, Locked In, Key Locked, UNS S66286, 140 ksi/1200°F, Lightweight, Self-Broaching Keys
AS3544	Stud, Locked In, Key Locked, UNS S66286, 140 ksi/1200°F, Heavy-Duty, Self-Broaching Keys
AS3545	Insert, Screw Thread, Self-Locking, Locked In, Key Locked, Heavy-Duty, Self-Broaching Keys, UNS S66286
AS3546	Insert, Screw Thread, Self-Locking, Locked In, Key Locked, Extra Heavy-Duty, Self-Broaching Keys, UNS S66286
AS3572	Insert, Screw Thread, Non-Locking, Locked In, Key Locked, Heavy-Duty, Self-Broaching Keys, UNS S66286
AS3573	Insert, Screw Thread, Non-Locking, Locked In, Key Locked, Extra Heavy-Duty, Self-Broaching Keys, UNS S66286

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

2.2 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, http://assist.daps.dla.mil/quicksearch/.

FED-STD-H28/2 Screw Thread Standard for Federal Services, Section 2, Unified Inch Screw Threads

3. REQUIREMENTS

3.1 Hole Preparation

Holes shall be drilled and tapped to the dimensions shown in Figure 1 and Tables 1, 2, and 3, as applicable.

3.1.1 Applications

The dimensions in Figure 1 shall be used to prepare holes for self-broaching key type studs and inserts conforming AS3502, AS3503, ASs3543, AS3544, AS3546, AS3572, and AS3573. These dimensions shall also be used for other inserts or studs that have the same overall length and thread size.

3.2 Installation Procedure

3.2.1 Hole Preparation

Prepare the hole in accordance with Figure 1 and Tables 1, 2, or 3 for the applicable thread size of the part and dash numbers.

3.2.2 Installation:

Install the stud end or insert to depth of 0.010 to 0.030 inches below the surface of the parent material. Drive the keys to complete installation to a depth of 0.005 minimum inches below surface. Keys may be driven in any manner that will avoid damage to the parent material. No portion of the keys shall protrude beyond bottom of stud or insert when installed in a thru hole.

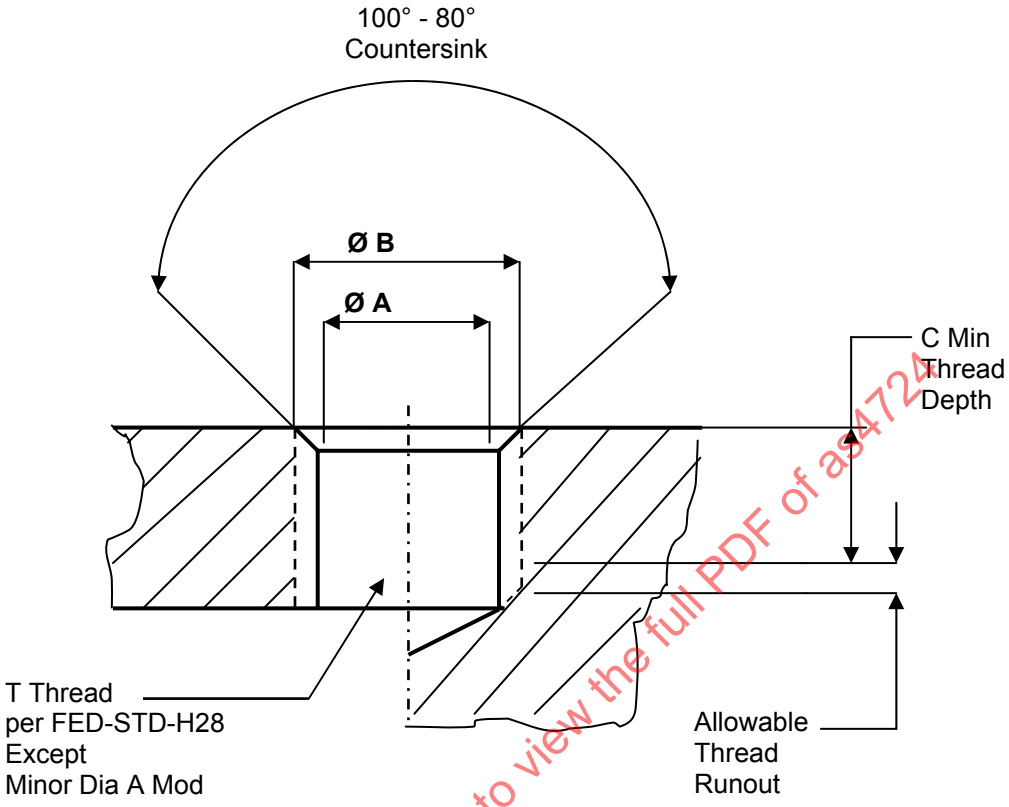

FIGURE 1

TABLE 1 - INSERTS AS3502 AND AS3503

T Thread Class-2B	AS3502 Dash Number Ref.	AS3503 Dash Number Ref.	Ø A	Ø B +0.010 –0.000	C AS3502	C AS3503
0.3125-18 UNC	01	—	0.271 - 0.276	0.323	0.24	—
0.3750-16 UNC	02	01	0.331 - 0.336	0.385	0.32	0.24
0.4375-14 UNC	03	02	0.396 - 0.401	0.447	0.36	0.32
0.5000-13 UNC	04	03	0.452 - 0.457	0.510	0.42	0.33
0.5625-12 UNC	05	04	0.515 - 0.521	0.572	0.46	0.39
0.6250-11 UNC	06	05	0.577 - 0.583	0.635	0.51	0.45
0.6875-11 UNS	07	06	0.640 - 0.646	0.700	0.65	0.51
0.8125-16 UN	—	07	0.765 - 0.771	0.822	—	0.58

1 - Surface roughness shall be no greater than 63 microinches in accordance with ASME B46.1.
2 - Break sharp edges 0.003 to 0.015 unless otherwise specified.
3 - Remove all burrs and sharp edges.

TABLE 2 - STUDS AS3543 AND AS3544

T Thread Class-2B	AS3543 Dash Number Ref.	AS3544 Dash Number Ref.	Ø A	Ø B +0.010 –0.000	C AS3543	C AS3544
0.3125-18 UNC	01	01	0.271 - 0.276	0.323	0.37	0.37
0.3750-16 UNC	02	02	0.331 - 0.336	0.385	0.43	0.37
0.4375-14 UNC	03	03	0.396 - 0.401	0.447	0.50	0.43
0.5000-13 UNC	04	04	0.452 - 0.457	0.510	0.56	0.50
0.5625-12 UNC	05	05	0.515 - 0.521	0.572	0.62	0.56
0.6250-11 UNC	06	06	0.577 - 0.583	0.635	0.68	0.68
0.6875-11 UNS	—	07	0.640 - 0.646	0.700	—	0.75
0.8125-16 UN	—	08	0.765 - 0.771	0.822	—	0.94
0.8750-14 UNF	—	09	0.827 - 0.833	0.865	—	1.00

1 - Surface roughness shall be no greater than 63 microinches in accordance with ASME B46.1.
2 - Break sharp edges 0.003 to 0.015 unless otherwise specified.
3 - Remove all burrs and sharp edges.