



AEROSPACE STANDARD

AS1495™**REV. B**

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Superseding AS1495A

(R) Shaft Nut and Keywasher
Installation Dimensions for

RATIONALE

Reference documents added, figures redrawn for clarity and to remove metric dimensions, tables retyped for clarity, and metric dimensions removed.

AS1495B has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

The purpose of this Standard is to provide installation dimensions for shaft nuts and their companion keywasher. The Standard type typically shown on MS9951 and MS9952, but is also suitable for parts which are dimensionally equivalent.

2. APPLICABLE DOCUMENTS

There are no referenced publications specified herein.

3. DESCRIPTION

3.1 Retaining Nuts

Retaining nuts are usually used to retain and secure a part of parts, such as a bearing or seal, to a shaft or housing.

3.2 Keywashers (Cup Washers)

Keywashers are used to lock the retaining nut to the shaft or housing. Such washers incorporate an integral key (tang or tab) which is held in a keyway on the shaft or housing. The washer's external cylindrical shell shrouding the nut is, after torquing, indented locally into the spherical scallops on the periphery of the nut; refer to AS567 for installation.

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4. INSTALLATION DIMENSIONS

The installation dimensions for the nut and keywasher in Table 1 are based on the following:

4.1 Keyway

4.1.1 Width and Depth of Keyway

Minimum width and depth of keyway is based on the formulas below; tolerance should be selected to suit design.

$$A_{\min} = G_{\max} + \text{True Position Tolerance of Key} + \text{True Position Tolerance of Slot}$$

$$B_{\max} = \frac{1}{2} \sqrt{H_{\min}^2 - G_{\max}^2} - D + \frac{L}{2} \text{ (applicable to sizes -02 and -03)}$$

$$B_{\max} = \sqrt{H_{\min}^2 - G_{\max}^2} - 2D \text{ (applicable to sizes -04 thru -41)}$$

$$C_{\min} = \frac{1}{2} [\sqrt{L^2 - A_{\max}^2} - \sqrt{H_{\min}^2 - G_{\max}^2} + 2D] \text{ (applicable to sizes -02 and -03)}$$

$$C_{\min} = \frac{1}{2} [\sqrt{L^2 - A_{\max}^2} - B_{\max}] \text{ (applicable to sizes -04 thru -41)}$$

where:

A = keyway width in shaft - see Figure 1

B = height to bottom of keyway - see Figure 1

C = shoulder height of keyway - see Figure 1

D = max. keyway radial clearance - see Figure 1 - 0.010 inch (0.25 mm) applied

G = key width on washer

H = diameter between keys on the washer

L = thread minimum major diameter of external thread

4.1.2 Keyway Length

The length of keyway shall be sufficient to accommodate the key on the washer under adverse tolerance conditions.

4.2 Thread Engagement

To ensure adequate radial bearing surface of the keywasher with the key groove the length of the screw thread should satisfy the requirement in view "B," see Figure 1.

4.3 Screw Threads

Screw thread requirements are shown in Figure 1 and Table 1; dimensions for screw threads not included in AS8879 are shown in Table 2.