

APRIL, 1941

EMERGENCY STANDARD  
No. (E) D.2503—1941  
being

British Air Ministry Specifications  
Nos. A.G.S. 764\*  
A.G.S. 765  
with amendments.

STANDARDS ASSOCIATION OF AUSTRALIA.

Headquarters :

Science House, Gloucester and Essex Streets, Sydney.

AUSTRALIAN STANDARD SPECIFICATION FOR AIRCRAFT MATERIAL

(Emergency Series).

HEXAGONAL HEADED BOLTS (Light Alloy)

*This standard forms one of a series prepared by the Standards Association of Australia at the request of Departments of the Commonwealth Government for use in relation to the supply of materials required for defence purposes. In appropriate cases these specifications will be reviewed for inclusion in the normal series of Australian Standards.*

**1. Material.** All bolts shall be manufactured from light alloy bars conforming to British Standard Specification No. L. 1.

**2. Manufacture.**

- (a) The bolts shall be manufactured by an approved process.
- (b) The bolt heads shall be hexagonal and shall be concentric and true with the centre line of the shank.
- (c) The radius under the heads of the bolts shall run smoothly into the faces of the head and shank without any step or discontinuity.
- (d) The threads may be cut or rolled as agreed between the purchaser and manufacturer ; the threaded portion shall be concentric with the shank.

**3. Freedom from Defects.**

- (a) The bolts shall be free from defects.
- (b) Any bolt may be rejected at any time for faults in manufacture notwithstanding that it has been passed previously on analysis and mechanical tests.

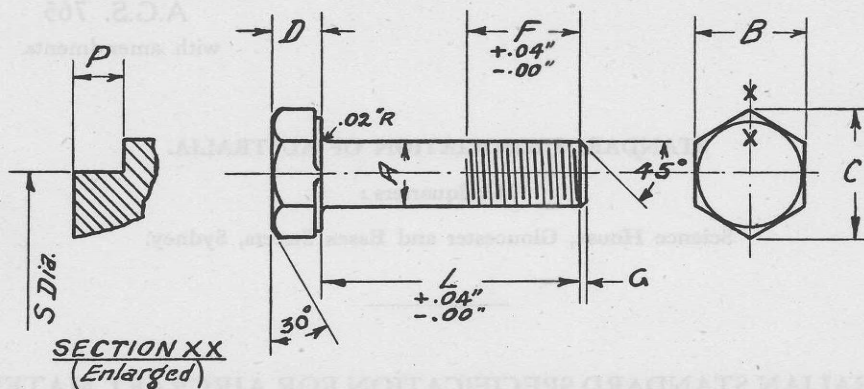
**4. Dimensions.** All bolts shall be in accordance with the dimensions and tolerances given in Table I. The length of the threaded portion shall be such that a standard nut (A.S. No. (E) D.2506—1941) shall be capable of being screwed up by hand so that its leading face is at the distance "F" from the end of the bolt.

**5. Screw Threads.** The screw threads of all light alloy bolts shall conform to the dimensions and tolerances specified in Table II of Australian Standard Specification No. B. 46—1941 (B.S. No. 93—1919 (Corr. Aug. 1940) endorsed without amendment) for B.A. Threads, or Tables 8 and 11 of Australian Standard Specification No. B. 47—1940 (B.S. No. 84—1940 endorsed without amendment) for B.S.F. threads, except that they may have the maximum, effective, and core diameters given in these specifications reduced by 0.001 in. The screw threads of all bolts shall be required to pass approved gauges.

**6. Anti-Corrosion Coating.** All bolts shall be anodically treated.

\*This Australian Standard comprises British Air Ministry specifications A.G.S. 764 and A.G.S. 765 with amendments regarding dimensions. For reference to the specification in its amended form it is essential that the Australian classification number (E) D.2503 be used.

TABLE I.  
HEXAGONAL HEADED BOLTS (LIGHT ALLOY)



Mark	Size	A Dia. in.	Tolerance on Dia. in.	Width across flats B		Approx. width across corners C	Thickness D		Length of Thread F $+0.04$ $-0.00$ in.	P in.	S Dia. in.	Depth of Chamfer G	
				Min. in.	Max. in.		Min. in.	Max. in.				Min. in.	Max. in.
A	6 B.A.	0.11	} $+0.000$ $-0.003$	0.190	0.193	0.22	0.078	0.083	.30	.03	.196	.015	.020
B	4 B.A.	0.142		0.245	0.248	0.29	0.100	0.106	.30	.03	.251	.020	.030
C	2 B.A.	0.185		0.321	0.324	0.37	0.132	0.139	.40	.03	.328	.030	.040
E	$\frac{1}{4}$ in. B.S.F.	0.250	} $+0.000$ $-0.005$	0.440	0.445	0.51	0.18	0.19	.50	.04	.45	.030	.040
G	$\frac{5}{16}$ "	0.3125	} $+0.000$ $-0.006$	0.520	0.525	0.61	0.21	0.22	.55	.05	.53	.030	.040
J	$\frac{3}{8}$ "	0.375		0.595	0.600	0.69	0.26	0.27	.60	.06	.61	.030	.040
L	$\frac{7}{16}$ "	0.4375	} $+0.000$ $-0.007$	0.705	0.710	0.82	0.32	0.33	.70	.06	.72	.040	.050
N	$\frac{1}{2}$ "	0.500		0.815	0.820	0.95	0.37	0.38	.80	.08	.83	.040	.050
P	$\frac{9}{16}$ "	0.5625		0.915	0.920	1.06	0.43	0.44	.90	.08	.94	.040	.050
Q	$\frac{5}{8}$ "	0.625	} $+0.000$ $-0.008$	1.002	1.010	1.17	0.48	0.49	1.00	.08	1.03	.050	.060
R	$\frac{11}{16}$ "	0.6875		1.092	1.100	1.27	0.54	0.55	1.10	.10	1.13	.050	.060
S	$\frac{3}{4}$ "	0.750		1.192	1.200	1.39	0.59	0.60	1.20	.10	1.23	.065	.075
T	$\frac{7}{8}$ "	0.8125	} $+0.000$ $-0.009$	1.192	1.200	1.39	0.62	0.63	1.30	.10	1.23	.065	.075
U	$1 \frac{1}{8}$ "	0.875		1.292	1.300	1.50	0.65	0.66	1.40	.12	1.33	.065	.075
V	$1 \frac{1}{4}$ "	0.9375		1.382	1.390	1.61	0.70	0.71	1.50	.12	1.43	.065	.075
W	1	1.000	} $+0.000$ $-0.009$	1.468	1.480	1.71	0.76	0.77	1.50	.12	1.53	.065	.075

Lengths of bolts (L) shall vary by 0.1 in. and shall be designated by the number of tenths—thus  $\nabla 32$  signifies a  $\frac{3}{8}$  in. B.S.F. bolt  $3.2$  in. long. Where L equals .5 in. or less the length of the plain portion, including imperfect threads, shall not be greater than 0.15 in.

This specification, prepared by the Special Committee on Aircraft Materials and Components, was approved on behalf of the Council of the Association on 16th April, 1941.

NOTE.

In order to keep abreast of progress in the industries concerned, Australian standards are subject to periodical review. Suggestions for improvement, addressed to the Headquarters of the Association, will be welcomed.