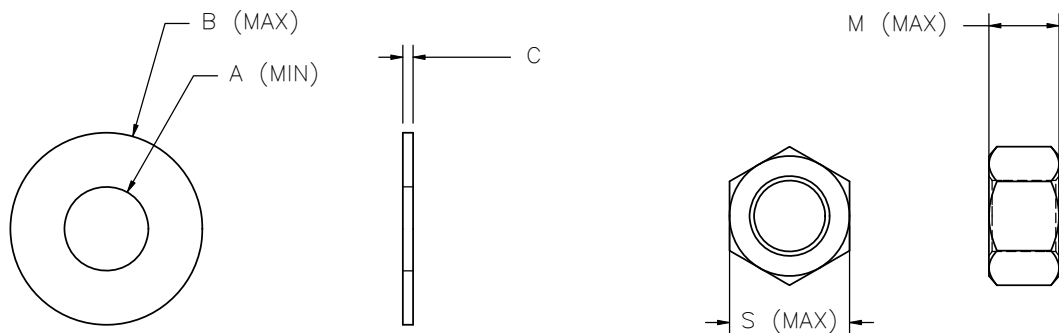


BOLT DIMENSIONS ENGLISH[METRIC]

DESIGNATOR	D	F	H	T (MIN)	A (MIN)	B (MAX)	C	M (MAX)	S (MAX)
FBB08	0.75[19]	2.25[57]	0.375[9.5]	2.0[51]	0.812[21]	2.0[51]	0.148[3.6]	0.665[17]	1.125[29]
FBB09	1.25[32]	2.875[73]	0.5[13]	3.0[76]	1.375[35]	3.0[76]	0.165[4.2]	1.094[28]	1.875[48]



- NOTES: (1) FBB08_a – NO LUGS, NIBBS, OR FINS. DOME HEAD BOLTS MAY HAVE A FLAT HEAD KEY IN CENTER REGION, KEY SHAPES IN THE HEADS, OR FLATTENED SIDES SUFFICIENT FOR AN OPEN-END WRENCH. TIGHTEN THE BOLTS SUFFICIENTLY TO REDUCE SNAGGING ON THE HEADS.
- (2) FBB09_a – NO LUGS, NIBBS, OR FINS.
- (3) FBB09_b – HAS LUGS, NIBBS, OR FINS.

TIMBER DOME HEAD BOLT WITH WASHER AND HEX NUT



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SPECIFICATIONS

The geometry and material specifications for this timber dome head bolt and hex nut are found in AASHTO M180. Bolt material shall conform to ASTM A307 Grade A [ASTM F568M Class 4.6], with a tensile strength of 60 ksi [400 MPa] and yield strength of 36 ksi [240 MPa]. Material for corrosion-resistant bolts shall conform to ASTM A325 Type 3 [ASTM F 568M Class 8.8.3], with tensile strength of 120 ksi [830 MPa] and yield strength of 92 ksi [660 MPa]. This bolt material has corrosion resistance comparable to ASTM A588 steels. Metric zinc-coated bolt heads shall be marked as specified in ASTM F 568 Section 9 with the symbol "4.6".

Nuts shall have ANSI B1.1 Class 2B [ANSI B1.13M Class 6h] 5/8–11 [M16x2] threads. The geometry of the nuts, with the exception of the recess shown in the drawing, shall conform to ANSI B18.2.2 [ANSI B18.2.4.1M Style 1] for zinc-coated hex nuts (shown in drawing) and ANSI B18.2.2 [ANSI B18.2.4.6M] for heavy hex corrosion-resistant nuts (not shown in drawing). Material for zinc-coated nuts shall conform to the requirements of AASHTO M291 (ASTM A 563) Grade A [AASHTO M 291M (ASTM A 563M) Class 5], and material for corrosion-resistant nuts shall conform to the requirements of AASHTO M 291 (ASTM A 563) Grade C3 [AASHTO M 291M (ASTM A 563M) Class 8S3].

When zinc-coated bolts and nuts are required, the coating shall conform to either AASHTO M 232 (ASTM A 153/A 153M) for Class C or AASHTO M 298 (ASTM B 695) for Class 50. Zinc-coated nuts shall be tapped over-size as specified in AASHTO M 291 (ASTM A 563) [AASHTO M 291M (ASTM A 563M)], except that a diametrical allowance of 0.020 inch [0.510 mm] shall be used instead of 0.016 inches [0.420 mm].

Plain round steel washers shall be manufactured according to the dimensions and tolerances in ANSI B18.22M [B18.22M] for regular (Type A) series washers. Unless corrosion resistant steel is used, washers shall be zinc-coated according to AASHTO M232 (ASTM A153) for Class D or AASHTO M298 (ASTM B695) for Class 50.

Designator	Stress Area of Threaded Bolt Shank in ² (mm ²)	Minimum Bolt Strength kips(kN)
FBB09	0.375 (241.6)	21.7 (96.6)
FBB09a-b	1.1 (707.0)	63.5 (282.8)

Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including appearance and accepted manufacturing practices.

INTENDED USE

These bolts, nuts, and washers are used in the timber guardrail system for attachment to noise wall (SGR30).

TIMBER DOME HEAD BOLT WITH WASHER AND HEX NUT

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