

ENGLISH/ METRIC BOLT SUBSTITUTION TABLE

EQUIVALENT BOLT SIZES		HOLE DIAM (MM)	METRIC BOLT SUBSTITUTION – ASTM GRADE							
			F - 568 CLASS 4.6	F - 568 CLASS 8.8	F - 588 CLASS 8.8.3	F - 568 CLASS 9.8	F - 568 CLASS 10.9	A - 325M TYPE 1 OR 2	A - 325M TYPE 3	
METRIC (MM)	ENGLISH (INCHES)		ENGLISH - ASTM GRADE SPECIFIED							
M6	1/4	7	A - 307 GRADE A	NOT REQ'D	NOT REQ'D	A - 449 TYPE 1	A - 354 GRADE BD	NOT REQ'D	NOT REQ'D	
M8	5/16	9		A - 325 TYPE 1 OR 3	OR A - 449 TYPE 1	A - 325 TYPE 3	A - 325 TYPE 1,3	A - 354 GRADE BD	A - 325 TYPE 1 OR 3	OR A - 449 TYPE 1
M10	7/16	12					N O T R E Q U I R E D	A - 354 GRADE BD		
M12	1/2	14		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M14	9/16	16					N O T R E Q U I R E D	A - 354 GRADE BD		
M16	5/8	18		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M20	3/4	22					N O T R E Q U I R E D	A - 354 GRADE BD		
M22	7/8	24		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M24	1	27					N O T R E Q U I R E D	A - 354 GRADE BD		
M27	1 1/8	30		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M30	1 1/4	34					N O T R E Q U I R E D	A - 354 GRADE BD		
M36	1 1/2	40		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M42	1 3/4	46					N O T R E Q U I R E D	A - 354 GRADE BD		
M48	2	53		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M56	2 1/4	62	N O T R E Q U I R E D				A - 354 GRADE BD	A - 325 TYPE 1 OR 3		
M64	2 1/2	70		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M72	2 3/4	76	N O T R E Q U I R E D				A - 354 GRADE BD	A - 325 TYPE 1 OR 3		
M80	3 1/4	86		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3
M90	3 1/2	95	N O T R E Q U I R E D				A - 354 GRADE BD	A - 325 TYPE 1 OR 3		
M100	4	107		N O T R E Q U I R E D	A - 354 GRADE BD	A - 325 TYPE 1 OR 3			OR A - 449 TYPE 1	A - 325 TYPE 3

ENGLISH BOLT	APPROPRIATE NUTS
A-307 GRADE A DIAM < 1.5" DIAM > 1.5"	A 563 GRADE A** HEX A 563 GRADE A** HEAVY HEX
A-325 TYPE 1	A 563 - C, C3, D, DH*, DH3 A 194-2, 2H*
A-325 TYPE 3	A 563-C, DH3
A-449 TYPE 1 DIAM < 1.5" DIAM > 1.5"	A 563 GRADE DH* HEAVY HEX A 563 GRADE B HEX A 563 GRADE A HEAVY HEX
A-354 GRADE BD	A 563 GRADE DH** HEAVY HEX
A-490 TYPE 1	A 563 GRADE DH or DH3 or A194 GRADE 2H

Unless otherwise shown in the contract documents, appropriate Metric (millimeter) bolt and nut substitutions will be allowed in accordance with these tables.

No substitution will be allowed for any A325 bolts supplied under §715-14 and used for structural connections on bridges, unless approved by the DCES.

*ZINC COATED AS PER ASTM A153

**PLAIN OR ZINC COATED

WASHERS SHALL BE F-436 WITH SAME FINISH (PLAIN OR ZINC COATED) AS THE BOLT.