



















Bolt tightening torque

unit: N·m {kgf·m}

Bolt head shape Strength class Bolt head Nominal of thread (Diameter × Pitch)	Hexagon head bolts			Hexagon bolt with flange		
	8.8		9.8	8.8		9.8
	Thermal refining	None-thermal refining		Thermal refining	None-thermal refining	
						
						
						
M6 × 1	5.6 to 11.2 {0.6 to 1.1}		—	6.6 to 12.2 {0.7 to 1.2}		—
M8 × 1.25	13.4 to 25.7 {1.4 to 2.6}		16.7 to 30.4 {1.7 to 3.1}	15.3 to 28.4 {1.6 to 2.9}		18.1 to 33.6 {1.8 to 3.4}
M10 × 1.25	31.3 to 52.5 {3.2 to 5.4}		37.3 to 62.8 {3.8 to 6.4}	35.4 to 58.9 {3.6 to 6.0}		42.3 to 70.5 {4.3 to 7.2}
*M10 × 1.5	31.3 to 51.4 {3.2 to 5.2}		36.3 to 59.8 {3.7 to 6.1}	34.5 to 57.5 {3.5 to 5.9}		40.1 to 66.9 {4.1 to 6.8}
M12 × 1.25	69.3 to 104.0 {7.1 to 10.6}		75.5 to 113.8 {7.7 to 11.6}	77.7 to 116.5 {7.9 to 11.9}		85.0 to 127.5 {8.7 to 13.0}
*M12 × 1.75	64.8 to 96.1 {6.6 to 9.8}		71.6 to 106.9 {7.3 to 10.9}	71.4 to 107.2 {7.3 to 10.9}		79.5 to 119.2 {8.1 to 12.2}
M14 × 1.5	106.2 to 158.8 {10.8 to 16.2}		113.8 to 170.6 {11.6 to 17.4}	114.9 to 172.3 {11.7 to 17.6}		123.4 to 185.1 {12.6 to 18.9}
*M14 × 2	100.6 to 149.8 {10.3 to 15.3}		106.9 to 160.0 {10.9 to 16.3}	108.2 to 162.2 {11.0 to 16.5}		115.5 to 173.3 {11.8 to 17.7}
M16 × 1.5	154.3 to 232.5 {15.7 to 23.7}		160.0 to 240.3 {16.3 to 24.5}	171.1 to 256.7 {17.4 to 26.2}		176.9 to 265.3 {18.0 to 27.1}
*M16 × 2	147.6 to 221.4 {15.1 to 22.6}		153.0 to 229.5 {15.6 to 23.4}	162.5 to 243.8 {16.6 to 24.9}		168.5 to 252.7 {17.2 to 25.8}
M18 × 1.5	222.5 to 334.3 {22.7 to 34.1}		229.5 to 345.2 {23.4 to 35.2}	—		—
*M18 × 2.5	223.6 to 335.4 {22.8 to 34.2}		230.5 to 346.2 {23.5 to 35.3}	—		—
M20 × 1.5	307.4 to 461.7 {31.3 to 47.1}		293.2 to 440.3 {29.9 to 44.9}	—		—
*M20 × 2.5	284.0 to 472.1 {29.0 to 48.1}		293.2 to 440.3 {29.9 to 44.9}	—		—
M22 × 1.5	413.6 to 620.5 {42.2 to 63.3}		424.6 to 636.5 {43.3 to 64.9}	—		—
*M22 × 2.5	385.7 to 578.0 {39.3 to 58.9}		394.2 to 592.3 {40.2 to 60.4}	—		—
M24 × 2	490.8 to 810.5 {50.0 to 82.6}		554.1 to 830.6 {56.5 to 84.7}	—		—
*M24 × 3	462.8 to 693.1 {47.2 to 70.7}		520.7 to 781.6 {53.1 to 79.7}	—		—

* Used for internal thread of soft material such as casting.