

### [3] TIGHTENING TORQUES

Screws, bolts and nuts must be tightened to the specified torque using a torque wrench, Several screws, bolts and nuts such as those used on the cylinder head must be tightened in proper sequence and at the proper torque.

#### (1) Tightening torques for special use screws, bolts and nuts




##### ■ NOTE

- For "\*" marked screws, bolts and nuts on the table, apply engine oil to their threads and seats before tightening.

Item	Size x Pitch	N·m	kgf·m	ft-lbs
* Head cover cap nuts	M7 x 1.0	6.9 to 8.8	0.7 to 0.9	5.1 to 6.5
* Head screws and nuts (Z500-B only)	M8 x 1.25	39.2 to 44.1	4.0 to 4.5	28.9 to 32.5
(Others)	M9 x 1.25	64.7 to 69.6	6.6 to 7.1	47.7 to 51.4
* Bearing case screws 1				
(Flange bolts)	M7 x 1.0	26.5 to 30.4	2.7 to 3.1	19.5 to 22.4
(Non-flange bolt)	M7 x 1.0	19.6 to 23.5	2.0 to 2.4	14.5 to 17.4
* Bearing case screws 2	M8 x 1.25	29.4 to 34.3	3.0 to 3.5	21.7 to 25.3
* Flywheel screws				
(Flange bolts)	M10 x 1.25	58.8 to 63.7	6.0 to 6.5	43.4 to 47.0
(Non-flange bolts)	M10 x 1.25	53.9 to 58.8	5.5 to 6.0	39.8 to 43.4
* Connecting rod screws	M7 x 0.75	26.5 to 30.4	2.7 to 3.1	19.5 to 22.4
* Rocker arm bracket nuts	M7 x 1.0	16.7 to 20.6	1.7 to 2.1	12.3 to 5.2
* Idle gear shaft screws	M6 x 1.0	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3
Glow plugs	M10 x 1.25	19.6 to 24.5	2.0 to 2.5	14.5 to 18.1
Drain plug	M12 x 1.25	39.2 to 49.0	4.0 to 5.0	28.9 to 36.2
Nozzle holder assembly	M24 x 2.0	29.4 to 49.0	3.0 to 5.0	21.7 to 36.2
Oil switch taper screw	PT 1/8	14.7 to 19.6	1.5 to 2.0	10.8 to 14.5
Fuel limit lock nut	M12 x 1.0	27.5 to 34.3	2.8 to 3.5	20.3 to 25.3
Fuel limit cap nut	M12 x 1.0	24.5 to 29.4	2.5 to 3.0	18.1 to 21.7
Injection pipe retaining nuts	M12 x 1.5	14.7 to 24.5	1.5 to 2.5	10.8 to 8.1
Nozzle holder and nozzle retaining nut		58.8 to 78.5	6.0 to 8.0	43.4 to 57.9
Nozzle holder mounting screw	M24 x 2.0	39.2 to 49.0	4.0 to 5.0	28.9 to 36.2
* Crankshaft nut	M20 x 1.5	137.3 to 156.9	14.0 to 16.0	101.3 to 115.7

#### (2) Tightening torques for general use screws, bolts and nuts

When the tightening torques are not specified, tighten the screws, bolts and nuts according to the table below.

Grade Nominal Diameter Unit	Standard Screw and Bolt  			Special Screw and Bolt 		
	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs
M 6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.9	9.8 to 11.3	1.00 to 1.15	7.23 to 8.32
M 8	17.7 to 20.6	1.8 to 2.1	13.0 to 15.2	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
M10	39.2 to 45.1	4.0 to 4.6	28.9 to 33.3	48.1 to 55.9	4.9 to 5.7	35.4 to 41.2
M12	62.8 to 72.6	6.4 to 7.4	46.3 to 53.5	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5

Screw and bolt material grades are shown by numbers punched on the screw and bolt heads. Prior to tightening, be sure to check out the numbers as shown below.

Punched Number	Screw and Bolt Material Grade
None or 4	Standard Screw and Bolt S41, S20C
7	Special Screw and Bolt S43C, S48C (Refined)