

Tightening breakage torque of

Hexagon head screw and Hexagon Socket Cap screw.

Hexagon head screw

	N·m	M2	M3	M4	M5	M6	M8	M10
Alumina Al ₂ O ₃		0.1	0.3	0.8	2.0	5.2	10.2	12<
Zirconia ZrO ₂		0.13	0.7	1.2	4.6	5.6	12<	12<

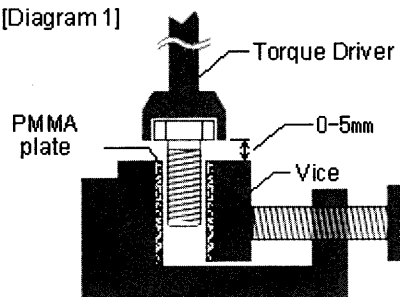
Hexagon Socket Cap screw

	N·m	M2	M3	M4	M5	M6	M8	M10
Alumina Al ₂ O ₃		0.08	0.3	0.7	1.6	2.0	4.3	8.7
Zirconia ZrO ₂		0.13	0.4	0.9	2.1	4.5	10.0	12<

Conditions

Materials	Alumina bolts (Hexagon head) M3, M4, M5, M6, M8, M10 Zirconia bolts (Hexagon head) M3, M4, M5, M6, M8, M10
Method	Refer to Dia.1 below.
Gauge	Round dial gauge torque screw driver / [KANON] 10DPSK / 20DPSK / N50DPSK / N12TOK
Location	In our facility [Temperature 23°C]
Date	October, 2010 to December, 2016.

[Diagram 1]



[Setting]

Ceramics hexagon bolt was set in a vice.

Two acrylic plates were bonded to inside faces of a vice (for a bolt is not damaged and not slip.) with making a space 0 to 5mm between bolt neck and vice top.

[Testing]

A bolt's head was turned by a torque driver slowly at a constant speed. The moment a bolt was broken, the torque value was recorded and calculated the mean value.