BTM/ B-BTM

Bolt Tension Meter

`Dial Indicating` `Hydraulic` `Bourdon Type`

- Bourdon type hydraulic bolt tension meter
- Measure bolt tension to determine optimal torque

Accuracy ±3%

S.I. Model	Axial Tension Range [kN]		Metric Model	Axial Tension Range [ton]		American Model	Axial Tension Range [lbf]		Applicable Nominal Diameter of Bolts (Minimum Length) [mm]	Dimensions			Weight [kg]
	Min.-Max.	Grad.		Min.-Max.	Grad.		Min.-Max.	Grad.		Overall Length [mm]	Overall Thickness [mm]	Overall Height [mm]	
BTM400K	100-400	5	40BTM-2	10-40	0.5	40BTM-2-A	23000-90000	1000	Hexagon Bolt M16 (70), M20 (75) M22 (80), M24 (85)	260	64	280	12.6
									Torsia Bolt M16 (65), M20 (70) M22 (75), M24 (80)				
B-BTM13K	1.2-13	0.2	1.3B-BTM	0.12-1.3	0.02	1.3B-BTM-A	300-2800	50	Standard Bolt M5 (20), M6 (21) M7 (22), M8 (23)	106	78	217	7.7
B-BTM40K	4-40	0.5	4B-BTM	0.4-4	0.05	4B-BTM-A	1000-9000	100	Standard Bolt M10 (29), M12 (31) M14 (32)	134	82	241	9.8
B-BTM130K	12-130	2	13B-BTM	1.2-13	0.2	13B-BTM-A	3000-28000	500	Standard Bolt M16 (41), M18 (43) M20 (44), M24 (47)	186	106	287	17.5
B-BTM400K	40-400	5	40B-BTM	4-40	0.5	40B-BTM-A	10000-90000	1000	Standard Bolt M27 (72), M30 (74) M36 (79), M42 (84)	280	126	369	31.0

BTM400K

B-BTM13K

`Note`
1. BTM400K comes with a plate and bushing for torsia bolt M20 and M22. Other size are optional.
2. "Hexagon Bolt" in the above list stands for the high-tensile hexagon bolt for friction bonding.

`Standard Accessories` Plate, Bushing, Spanner for plate, Bolt for plate, Storage Case, Calibration Certificate

■ BTM Optional Accessories

Bushing for Hexagon Bolt

Part #	Applicable Nominal Diameter of Bolts
650	M16
651	M20
652	M22
653	M24

Bushing for Torsia Bolt

Part #	Applicable Nominal Diameter of Bolts
665	M16
666	M20
667	M22
668	M24

Plate for Torsia Bolt/Hexagon Bolt

Part #	Applicable Nominal Diameter of Bolts
669	M16
670	M20
671	M22
672	M24

Fcon

Bolt Tension Stabilization

`RoHS`

- Creates consistent bolt tension
- Applied to fasteners and nuts
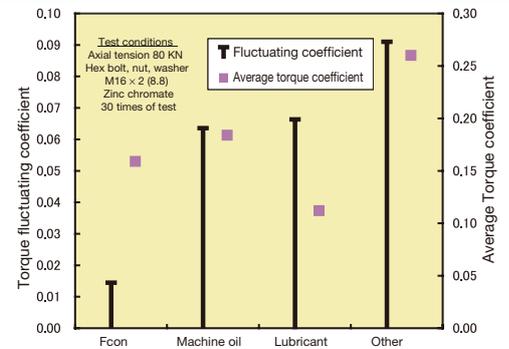- Acquisition of patent in EU.

Fcon

Model
Fcon

Sales Unit: 10pcs/case
Content: 90g/bottle

How to apply Fcon on the bolt (in case of M10 bolt)
Follow the illustration below. Apply some along the screw thread (2 mm width more or less), and on the bearing surface at 3 different spots evenly. Use appropriate amount depending on the size of the bolt.
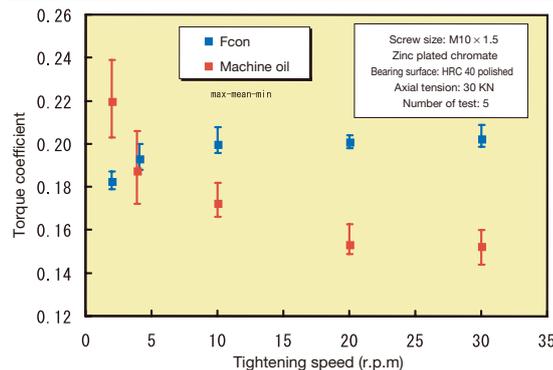
* Apply Fcon on part indicated in color.

Axial Tension Stability Characteristics

Test conditions
Axial tension 80 KN
Hex bolt, nut, washer
M16 × 2 (8.8)
Zinc chromate
30 times of test

- Fluctuating coefficient
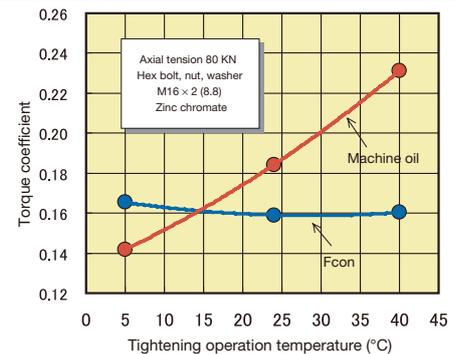- Average torque coefficient

Characteristic of axial tension stabilization
Torque coefficient calculated by formula $K = t/(d \times f)$
T = tightening torque, d = nominal size of screw,
F = axial tension
Torque fluctuating coefficient =
torque coefficient standard deviation/average torque coefficient

Influence of Tightening Speed

- Fcon
- Machine oil

max-mean-min

Screw size: M10 × 1.5
Zinc plated chromate
Bearing surface: HRC 40 polished
Axial tension: 30 KN
Number of test: 5

Influence of tightening speed on torque coefficient

Influence of Temperature

Axial tension 80 KN
Hex bolt, nut, washer
M16 × 2 (8.8)
Zinc chromate

Machine oil

Fcon

Influence of temperature on torque coefficient

Force Measurement Instrument