CEM3-G-BTS
CEM3-G-BTD

Wireless data transfer digital torque wrench

Direction

CEM100N3×15D-G-BTS
CEM100N3×15D-G-BTD

Tightening Data Management System

- Transfer collected data wirelessly by built in Bluetooth® module
- -BTS saves the data and transfers to an external device.
- -BTD receives tightening torque instructions from external device then transfers collected data back out.

Accuracy ±1%

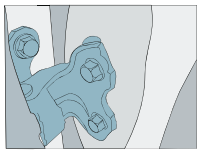
Head Size	Model	Model	Torque Range N·m		Torque Range kgf·m		Torque Range lbf·ft		Overall Length	Weight
	Simplex communication	Duplex communication	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	[mm]	[kg]
8D	CEM10N3×8D-G-BTS	CEM10N3×8D-G-BTD	2-10	0.01	0.200-1.000	0.001	1.50-7.30	0.01	212	0.54
10D	CEM20N3×10D-G-BTS	CEM20N3×10D-G-BTD	4-20	0.02	0.400-2.000	0.002	3.00-14.50	0.02	214	0.55
12D	CEM50N3×12D-G-BTS	CEM50N3×12D-G-BTD	10-50	0.05	1.000-5.000	0.005	7.50-36.00	0.05	282	0.66
15D	CEM100N3×15D-G-BTS	CEM100N3×15D-G-BTD	20-100	0.1	2.00-10.00	0.01	15.0-73.0	0.1	384	0.71
19D	CEM200N3×19D-G-BTS	CEM200N3×19D-G-BTD	40-200	0.2	4.00-20.00	0.02	30.0-150.0	0.2	475	0.86
22D	CEM360N3×22D-G-BTS	CEM360N3×22D-G-BTD	72-360	0.4	7.2-36.00	0.04	52.0-260.0	0.4	713	1.21
	CEM500N3×22D-G-BTS	CEM500N3×22D-G-BTD	100-500	0.5	10.00-50.00	0.05	73.0-360.0	0.5	949	4.08
32D	CEM850N3×32D-G-BTS	CEM850N3×32D-G-BTD	170-850	1	17.0-85.0	0.1	124-620	1	1387	5.22

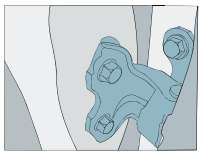
Note: For the specification, standard accessories and note of the basic CEM3-G model, refer to page 35.
To use various functions, special software is required separately.

CEM3-G-BTS

- Suitable for bolt inspection.
- Transfer the realtime inspection record to PC/Tablet.

CEM3G-BTS Display


Hinge R

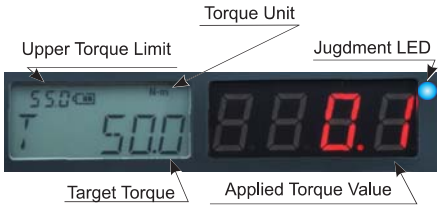

Hinge L

Process Order	Portion	Spindle	Hi/Lo	Value	Judgment
1	Hinge R	1	25/35	26	OK
1	Hinge R	2	25/35	24	NG
2	Hinge L	1	25/35	28	
2	Hinge L	2	25/35		

CEM3-G-BTD

- Suitable for bolt tightening operation.
- Change the preset target and upper limit torque by Bluetooth command input
- Preliminary alert at 80 % of the target torque
- Transfer realtime tightening data to PC/Tablet
  (Data will not be saved in the wrench memory)

CEM3G-BTD Display



Process Order	Portion	Spindle	Target Torque	Upper Limit	Value	Judgment
1	Wheel	1	105	135	106	OK
1	Wheel	2	105	135	138	NG
1	Wheel	3	105	135	107	OK
1	Wheel	4	105	135	106	OK
2	W/Center	1	180	210	185	

Handy Terminal

Compact data collection device for CEM3-G-BT
- Upload & download torque measuring information
- Guides user through torque assembly & quality inspection processes
- Statistics and charting capabilities
- Contact Tohnichi for lithium battery shipping specifications.

Bluetooth® Specification	
Communication Method	Bluetooth®
Radio Frequency Range	2.4GHz
Communication Distance	10m
Continuous Use	8 hours

TDMS

Tightening Data Management Software

Tightening Data Management System

- For process control of tightening or inspection of each portion and spindle
- Connectable with Tohnichi products equipped with Bluetooth® module
- Statistic processing [N], [X-bar], [σ], [cp], and [cpk] for analysis of quality trends
- Monitored data can be used for validation against product liability

Available Bluetooth® product

M-Mode : Measurement operation

- CEM3-G-BTS
- CTB2-G-BT
- STC2-G-BT

T-Mode: Tightening operation

- CEM3-G-BTD
- STC2-G-BT

CTB2-G-BT

STC2-G-BT

Model	Description	Language
TDMS	Software only	Japanese
TDMS-E		English
TDMS-C		Chinese

Handy Terminal

Model	Description	Dimension [mm]
TDMSHT	Software + Handy Terminal device	Japanese
TDMSHT-E		English
TDMSHT-C		Chinese

System Requirements	
Operating System	Windows® XP, 7, 8, 8.1, 10

Note

1. Software installation is allowed on a single PC at one time.
2. Applicable with CEM3-G-BTS/BTD, STC2-G-BT and other Tohnichi products equiped with Bluetooth® module.
3. Connectable with up to 7 Bluetooth® devices when using.
4. Excel® and Windows® is a trademark registration of Microsoft Co., Ltd.
5. Bluetooth® is a trademark registration of Bluetooth SIG, Inc.

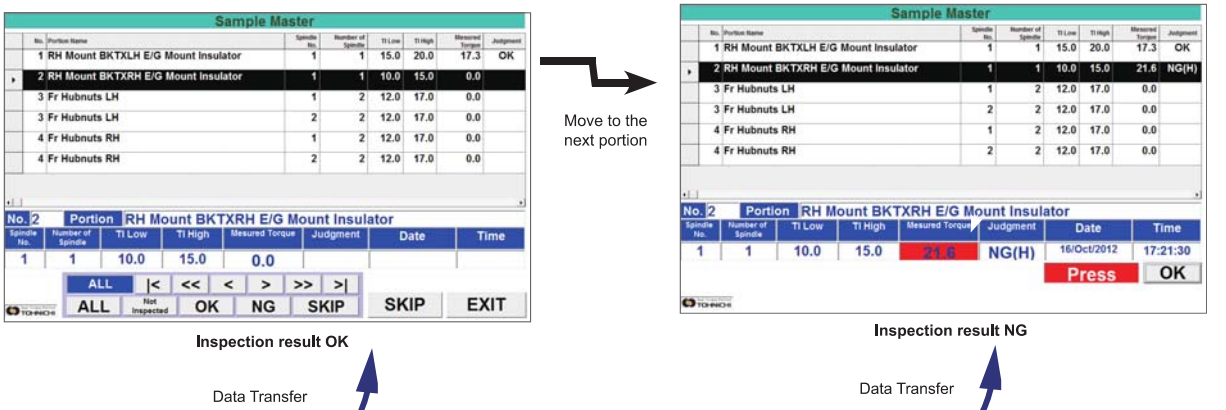
Standard Accessories

USB flash drive for portion master file management

Example : TDMS with CEM3-G-BTS for BOLT INSPECTION

Create a quality inspection torque route task list

TDMS Instructs inspection sequence, portion name, spindle number and judgment result.



Inspection result OK

Inspection result NG

Data Transfer

Data Transfer

CEM20N3×10D-G-BTS

Save the data in wrench memory

Connect to the next torque wrench automatically

CEM100N3×15D-G-BTS

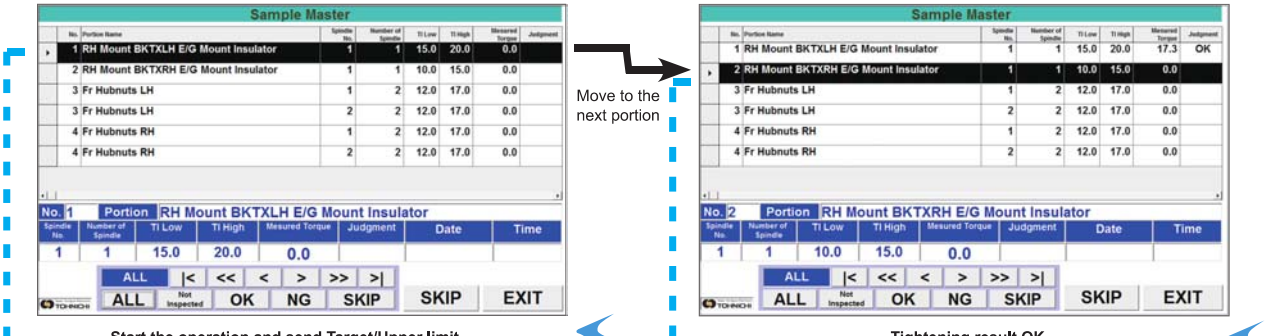
Save the data in wrench memory

Move to the next spindle

Example : TDMS with CEM3-G-BTD for ASSEMBLING

Integrates several torque wrenches and establishes process instruction for different applications

TDMS Instructs tightening sequence, portion name, spindle number. Both TDMS and CEM3-G-BTD indicate Judgment result .



Start the operation and send Target/Upper limit

Tightening result OK

Target/Upper Limit Torque Setting

Transfer actual applied torque

Target/Upper Limit Torque Setting

Transfer actual applied torque

CEM100N3×15D-G-BTD

Show judgment result on CEM3-BTD and TDMS. Save the data in TDMS.

Connect to the next torque wrench automatically

CEM20N3×10D-G-BTD

Move to the next spindle

CEM3-G

DATA TORK/ Digital Torque Wrench

Direction

Inspection | Digital | Interchangeable | Direct Reading | Re-Chargeable | RoHS

- Dual LED & LCD displays for optimal viewing
- 999 memory storage capacity
- For inspection and tightening

CEM100N3×15D-G

CEM20N3×10D-G

CEM850N3×32D-G

TUD TOHNICHI UNIFIED DESIGN CE

Common Specifications

Display	7 segments LED 4 lines 10mm (Torque value)
	14 segments LCD 3 lines 7mm (Counter)
	7 segments LCD 4 lines 3mm (Clock)
	Battery life indicator (4 steps)
	Judgment LED RED/BLUE
Number of Data Memory	999 (M-2 mode: 99 data)
Communication Functions	RS232C (2400-19200bps)
Power Supply	Ni-MH rechargeable battery
Continuous Use	20 hrs with fully charged (8 hours by 1 hour recharging)
Recharging Time	3.5 hours
Operating Temperature	0-40 °C
Basic Functions	Peak Hold, Auto memory & resetting, Tightening completion buzzer, Judgment of measured data, Auto zero setting, Auto off (3 minutes), Clock

Accuracy ±1%

Model	Torque Range										Hand Force	Overall Length	Weight
	N·m		kgf·cm		kgf·m		lbf·in		lbf·ft				
	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	[N]	[mm]	[kg]
CEM10N3×8D-G	2-10	0.01	20-100	0.1	0.200-1.000	0.001	20.0-90.0	0.1	1.50-7.30	0.01	48.1	212	0.46
CEM20N3×10D-G	4-20	0.02	40-200	0.2	0.400-2.000	0.002	36.0-180.0	0.2	3.00-14.50	0.02	92.2	214	0.47
CEM50N3×12D-G	10-50	0.05	100-500	0.5	1.000-5.000	0.005	100.0-440.0	0.5	7.50-36.00	0.05	196.9	282	0.58
CEM100N3×15D-G	20-100	0.1	200-1000	1	2.00-10.00	0.01	200-880	1	15.0-73.0	0.1	275.5	384	0.63
CEM200N3×19D-G	40-200	0.2	400-2000	2	4.00-20.00	0.02	360-1700	2	30.0-150.0	0.2	428.3	475	0.78
CEM360N3×22D-G	72-360	0.4	720-3600	4	7.2-36.00	0.04	650-3100	4	52.0-260.0	0.4	498.6	713	1.13
CEM500N3×22D-G	100-500	0.5	1000-5000	5	10.00-50.00	0.05	890-4400	5	73.0-360.0	0.5	549.5	949	4.00
CEM850N3×32D-G	170-850	1	-	-	17.0-85.0	0.1	-	-	124-620	1	608	1387	5.14

Note

1. Overall length does not include interchangeable head.
2. For interchangeable head, refer to page 41-44.
3. For infrared data transfer, use with R-DT999. Refer to page 64.
4. PH Pipe wrench head type interchangeable head is not available for this model.
5. CEM500N3×22D-G and CEM850N3×32D-G have knurled handles.
6. For USB data transfer, use optional connecting cable, No.584. Refer to page 46.

Standard Accessories

1. Battery pack/BP-5
2. QH interchangeable head. Refer to page 43.
3. Quick battery charger/BC-3-G (100-240V).

CEM3-P

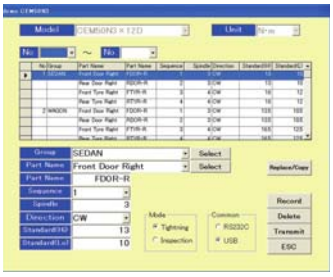
RoHS

- Programmable version of CEM3-G with data management software that links work name with test results.

Torque Accuracy	±1%
Portion Registration Memory	Max. 100 parts (Part name, number of screws, tightening direction, high/low torque, measuring order)
Measurement Data Storage	Up to 3,000 screw data (vary depending on parts registered), measurement part name, measured value, pass/fail judgment, measurement time and date)

CEM50N3×12D-P

Display part
Left: Part name, Right: Torque value



CEM3-P application software

Model
CEM10N3×8D-P
CEM20N3×10D-P
CEM50N3×12D-P

Model
CEM100N3×15D-P
CEM200N3×19D-P
CEM360N3×22D-P

Model
CEM500N3×22D-P
CEM850N3×32D-P

Handy Terminal

Compact data collection device for CEM3-G

- Upload & download torque measuring information
- Guides user through torque assembly & quality inspection processes
- Statistics and charting capabilities
- Contact Tohnichi for lithium battery shipping specifications.

Battery Pack (P.46)

Model
BP-5

Quick Battery Charger (P.46)

Model	Description
BC-3-G	100V-240V

Printer (P.64)

Model
EPP16M3

Connecting Cable (P.46)

Part #	Applicable Model
575	CEM3-G, CEM3-P, R-DT999 - PC, EPP16M3
584	CEM3-G, CEM3-P, R-DT999G - PC

Data Filing System (P.63)

Model	Media
DFS	CD-ROM

CTB2-G

Digital Retightening Torque Wrench

Direction

Inspection | Digital | Interchangeable | Signal | Re-Chargeable | RoHS

- Detects movement of fastener for more accurate testing
- For quality inspection applications, confirms previously tightened torque values.

CTB100N2×15D-G

CTB850N2×32D-G

Accuracy ±1%

Model	Torque Range										Hand Force	Overall Length	Weight
	N·m		kgf·cm		kgf·m		lbf·in		lbf·ft				
	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	Min.-Max.	1digit	[N]	[mm]	[kg]
CTB10N2×8D-G	2-10	0.01	20-100	0.1	0.2-1	0.001	20-90	0.1	1.5-7.3	0.01	48.1	212	0.46
CTB20N2×10D-G	4-20	0.02	40-200	0.2	0.4-2	0.002	36-180	0.2	3-14.5	0.02	92.2	214	0.47
CTB50N2×12D-G	10-50	0.05	100-500	0.5	1-5	0.005	100-440	0.5	7.5-36	0.05	196.9	282	0.58
CTB100N2×15D-G	20-100	0.1	200-1000	1	2-10	0.01	200-880	1	15-73	0.1	275.5	384	0.63
CTB200N2×19D-G	40-200	0.2	400-2000	2	4-20	0.02	360-1700	2	30-150	0.2	428.3	475	0.78
CTB360N2×22D-G	72-360	0.4	720-3600	4	7.2-36	0.04	650-3100	4	52-260	0.4	498.6	713	1.13
CTB500N2×22D-G	100-500	0.5	1000-5000	5	10-50	0.05	890-4400	5	73-360	0.5	549.5	949	4.00
CTB850N2×32D-G	170-850	1	-	-	17-85	0.1	-	-	124-620	1	608	1387	5.14

Common Specifications

Data Memory	999 data (T-point torque)
Arithmetic Function	Sampling, Maximum, Minimum, Means
Measurement Mode	Peak/Run
Data Output	RS232C I/F, USB serial output
Zero Adjustment	Auto zero function (C key)
Other Function	Auto power off (3 min./10 min./30 min./non)
Power Source	Ni-MH Nickel metal-hydride battery
Continuous Use	20 hours (8 hours by 1 hour charging)
Battery Charge	3.5 hours
Operating Temperature	0-40 °C

Note

1. Overall length does not include interchangeable head.
2. For interchangeable head, refer to page 41-44.
3. For infrared data transfer, use with R-DT999. Refer to page 64.
4. PH type interchangeable head is not available for this model.

Standard Accessories

1. Battery pack/BP-5
2. QH interchangeable head (P.43).
3. Quick battery charger/BC-3-G, 100-240V

Battery Pack (P.46)

Model
BP-5

Quick Battery Charger (P.46)

Model	Description
BC-3-G	100-240V

Printer (P.64)

Model
EPP16M3

Connecting Cable (P.46)

Part #	Applicable Model
575	CTB2-G - PC, EPP16M3
584	CTB2-G, R-DT999G - PC

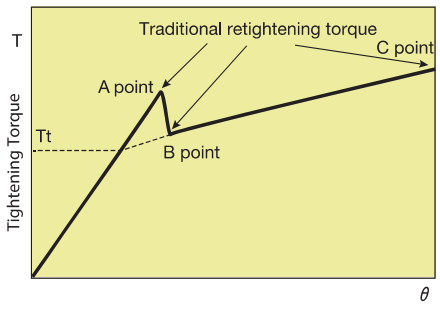
Data Filing System (P.63)

Model	Media
DFS	CD-ROM

Advantages of the New Retightening Method: T-point Method

- Anyone can measure the tightening torque easily.
- Requires less time to perform the measurement.
- Dispersion of data is small (Figure-3).
- No individual interpretation or performance variable is involved in measuring the torque (Figure-3).
- Internal software converts measured torque to initial tightening torque value (Figure-3).

Figure-1 Traditional retightening torque method



Retightening Torque Method

Retightening torque method aims to measure the torque at which a tightened bolt start to rotate again as further torque is applied. The retightening measured values are classified as one of these three kinds:

- The torque which overcome the static friction of the bolt (A point).
- The torque at which the bolt starts on turn continuously (B point).
- The maximum torque at this inspection (C point).

Proposal of T-point method (Figure-2)

Retightening torque first starts with the rotation of the head only, then the screw starts to rotate. Shifting from static friction to dynamic friction, the friction whip settles and the torque starts to increase at the steady pace again. T-point method figures TT as retightening torque value.

Figure-2 New retightening torque method by CTB2-G

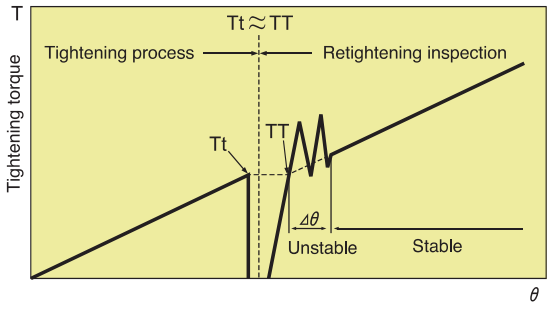
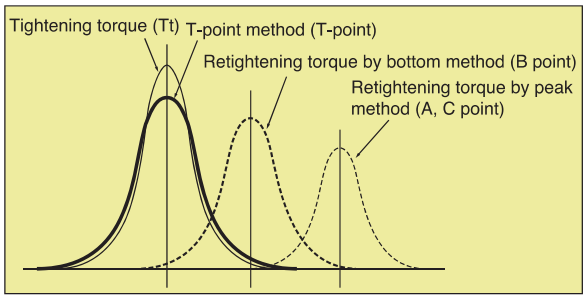


Figure-3 Distribution of retightening torque



Refer to Tohnichi Torque Handbook Vol. 8 on page 42 to 43 for the details.