

## SPECIFICATION SHEET

### AUTOMATED: TWC-205

#### APPLICATION:

Calibration of Static Torque Tools as per ISO 6789:2017-2, such as:

- Torque Wrenches: Dial, Click, Digital, Fixed, Torsion/Flexion Types (Indicating and Settable Types)
- Torque Screw Drivers: Click, Slip, Digital, Fixed Types (Indicating and Settable Types)

#### IMPORTANCE:

Torque Wrenches are one of the most commonly used tools across various industries and sectors.

The effects of improper torquing due to defective, worn-out or non-calibrated tools can be quite catastrophic leading to accidents, injuries, and in some cases, death.

Controlling torque of a torque tool is important for companies to ensure proper application of torque for their product's quality, safety, and reliability. It is also very important to maintain the requirements associated with ISO 9001 quality standard.

With regular calibration, we can ensure that the accuracy of a torque tool is within specified tolerances and maintain continuous quality standards in the assembly process.

Calibration ensures the performance of a torque tool and indicates the need for any adjustment. Furthermore, it can identify potential tooling problems such as wear and tear, broken component, etc, before it happens.

The torque tool calibration equipment plays an important role in preventive maintenance along with traceability to assure all measuring results are in accordance with national/international standards.

*check out the white paper on difference between ISO 6789:2003 and ISO 6789:2017*

## DESCRIPTION:

Sushma's solution for calibration of static torque tools as per ISO 6789:2017-2 is the Torque Wrench Calibration System. Our latest product is designed to make your life easy while complying with the new complex ISO standard.

Sushma Automated TWC systems require very limited training or experience to operate. It allows the user to learn hands on in a simple and straightforward manner.

The torque wrench is placed on Sushma Torque Sensor-Reaction Type and held by the adjustable tool holding fixture, enabling perfect horizontal alignment, connected to the rigid reaction bar.

The connection between the torque tool and the tool holding fixture is designed to ensure self-alignment, reduce parasitic forces, and moments to minimum levels, helping in better reading of uncertainty.

The main rigid torque loading rig consists of the servo motor driven system with a highly precise gearbox which rotates the sensor in turn loading the torque wrench.

The 7-inch touch Smart Control & Display Unit controls the entire machine and gives the user automated & guided instructions to help take actions. It also has a database to quickly recalibrate the tool without having to type all the details again (it can be coupled with the optional bar code scanner). The results from the test are then stored on the device, which can be viewed on the display or downloaded to PC through a USB or pen drive.

You can upgrade the System any time by simply purchasing the PC Software & PC Package. After performing all uncertainty calculations, the user can print calibration reports using the PC software included in the upgrade pack. To confirm the calculations for uncertainty, it also has an audit mode.

The TWC-205 is also future ready or comes with Internet of Things (IOT) Ready features enabling to connect to the Online Sushma Analytics Platform which will allow for further analysis from various mobile devices that can be used for Quality, Productivity, Research, or any other decision-making process.

## HIGHLIGHTS AND FEATURES:

- Calibrate different types of torque tools, such as, Type 1 (Indicating) & Type 2 (Setting) as per ISO 6789:2017-2
  - Includes all indicating, settable, or fixed type of Torque Wrenches like Dial, Click, Digital, Torsion, etc.
  - Includes Torque Screw Drivers - indicating, settable or fixed can also be done on the same machine by buying the optional Screwdriver Torque Tool Testing Fixture with relevant capacity of Torque Sensors
- The System consists of:
  - Rigid Torque Loading Rig
  - Selected Torque Sensor
  - Control & Display Unit
- Optional Features
  - PC Software
  - PC Package (PC, Desk Printer, UPS, PC Holder, Cabling, etc)
  - Screwdriver Torque Tool Testing Fixture
  - Bar Code & Printer
- Quick Changeover of different capacity sensors with just two pins
- User-Guided Torque Wrench Calibration steps as per the ISO 6789:2017-2 for ease of operation



- User friendly and requires very little expertise to operate the machine
- Tool Database on the Control Display Unit (or in the PC if software opted) for ease of repeated calibration, couple it with optional bar code scanner & printer to keep track & manage all your Torque Tools
- Calibration readings are stored on the Control Display Unit as Reports, which can be downloaded to the PC via a USB cable or USB Pen drive; if software is available, it is stored on the PC itself.
- Add the Sushma Torque Wrench Calibration Software to get a Calibration Report as per ISO 6789:2017 part 2 after all the uncertainty calculation
- IOT Ready Control Display Unit for Remote Diagnostics & Monitoring - Scale up to the future with Dashboards & Analytics of your Calibration Activity
- Storage Space for Sensors, PC, UPS or Files
- CE Approved, ready for world markets

## DISPLAY UNIT:

The 7" touch Control Display Unit controls the entire machine and provides automated and guided instructions to assist the user in taking actions. It also includes a tool database, which allows the user to quickly recalibrate the tool without having to retype all of the details (can be coupled with the optional bar code scanner). The test results are then saved on the device and can be viewed on the display or downloaded to a PC via USB or Pen drive.



## TORQUE SENSOR CAPACITY TABLE:

Sushma™ TS 203 Torque Sensor is a highly accurate & one of the smallest form factor reaction torque sensor available in the market today for ergonomic use. Choose any required capacities of sensors from the below table

CAPACITY Nm	RANGE IN Nm	DISPLAY RESOLUTION	SQR. DRIVE SIZE	ORDERING CODE
0.2	0.02 - 0.2	0.0001	1/4"	TS-203-0.2NM
0.5	0.05 - 0.5	0.0001	1/4"	TS-203-0.5NM
1	0.1 - 1	0.0001	1/4"	TS-203-1NM
2	0.2 - 2	0.0001	1/4"	TS-203-2NM
5	0.5 - 5	0.001	1/4"	TS-203-5NM
10	1-10	0.001	3/8"	TS-203-10NM
20	2-20	0.001	3/8"	TS-203-20NM
50	5-50	0.01	1/2"	TS-203-50NM
100	10-100	0.01	1/2"	TS-203-100NM
200	20-200	0.01	1/2"	TS-203-200NM
500	50-500	0.1	3/4"	TS-203-500NM
1k	100-1k	0.1	1"	TS-203-1kNM

CAPACITY Nm	RANGE IN Nm	DISPLAY RESOLUTION	SQR. DRIVE SIZE	ORDERING CODE
2k	200-2k	0.1	1"	TS-203-2kNM
3k	300 – 3k	1	1.1/2"	TS-203-3kNM

## FEATURE TABLE:

FEATURE	TWC-205
Calibration of Type 1 & Type 2 Torque Wrench	✓
Calibration of Type 1 & Type 2 Torque Screw Drivers	Optional - Add Screwdriver Torque Tool Testing Fixture TWT-101
Quick Changeover Torque Sensors	✓
Parasitic Forces Elimination	✓
Motor Driven System	✓
User Interface	Sushma Smart Control Display Unit
Guided Calibration Steps to the user	on Sushma Smart Control Display Unit
Calibration Readings Storage	on Sushma Smart Control Display Unit
Calibration Report with Uncertainty Calculations	Optional through Software
Calibration Report Analytics	Optional through Software

## PRODUCT SELECTION GUIDE:



## SEQUENCE OF SELECTION

## SELECTION OPTIONS

Decide Type of Torque Tools to be Calibrated

Decide Min and Max Torque Tool Capacities to be Calibrated

Select Max Capacity of the Test Rig as per max torque tool to be calibrated	User Convenience with two control options	Ordering Code
1000Nm	Automated – TWC 205	TWC-205-1kNm
3000Nm		TWC-205-3kNm

Torque Sensor - Reaction Type TS-203

to cover the Torque Tools to be calibrated  
 Note: Each sensor Range is 10% to 100% of the Capacities

Capacity Of Options:

Low Capacities: 0.2, 0.5, 1, 2, 5, 10,20, 50 Nm  
 High Capacities: 100, 200, 500, 1000, 2000, 3000Nm

Sensor Accuracy

± 0.25% of the reading from 10% to 100%

Select Optional Features if Automated

Screwdriver Torque Tool Testing Fixture

TWT-101

Capacity: 50Nm

(Select relevant sensors along with this)

Optional PC Software

Sushma Torque Wrench Calibration Software

SW-TWC-205

Optional PC package

All in one PC

Optional

Bar Code Scanner &amp; Printer Package

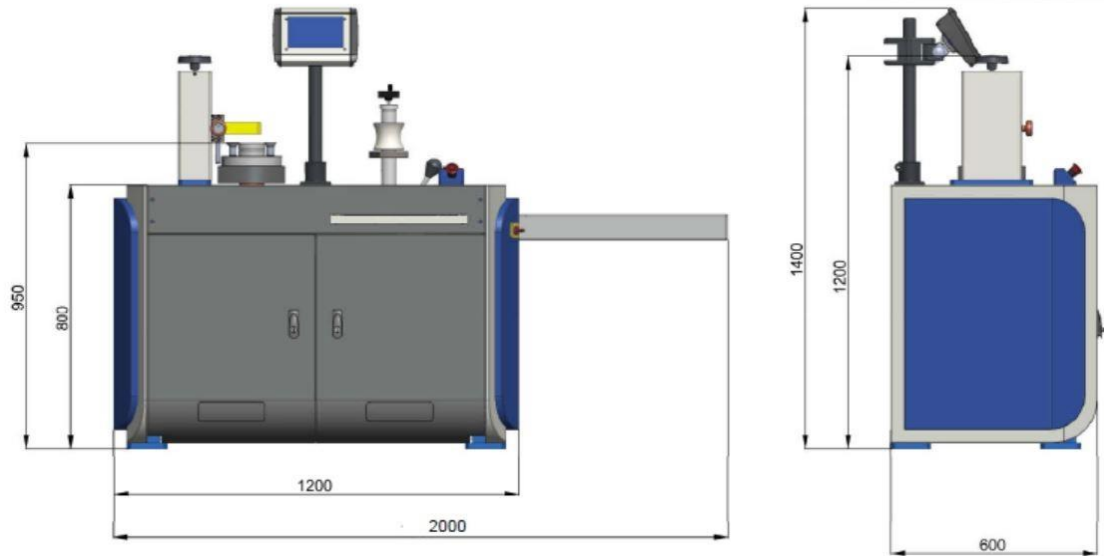
Select Transfer Torque Wrench (TTW-101) or Digital Torque Wrench (DTW-102) (if required)

Select if required: Tool Adapters or Sockets (exercise caution while selecting as it adds high uncertainty)

**DIMENSIONS:**

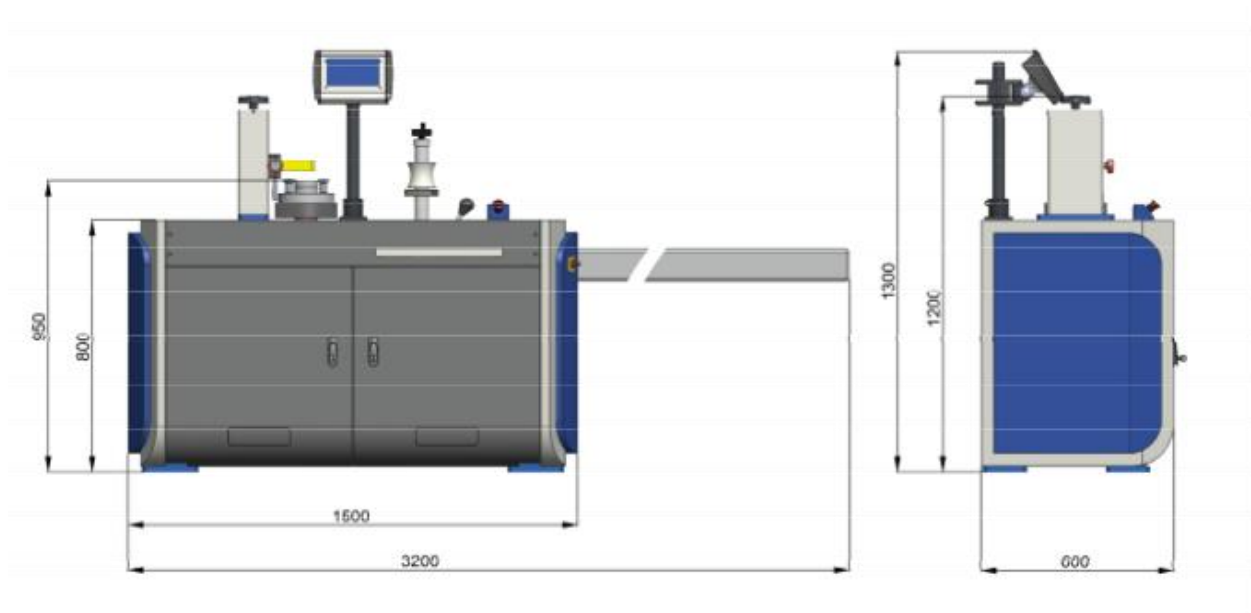
## TWC-205-AUTOMATED 1000NM

Approximate Weight-310kgs



## TWC-205-AUTOMATED 3000NM

Approximate Weight-450kgs



## STANDARD SCOPE OF SUPPLY:

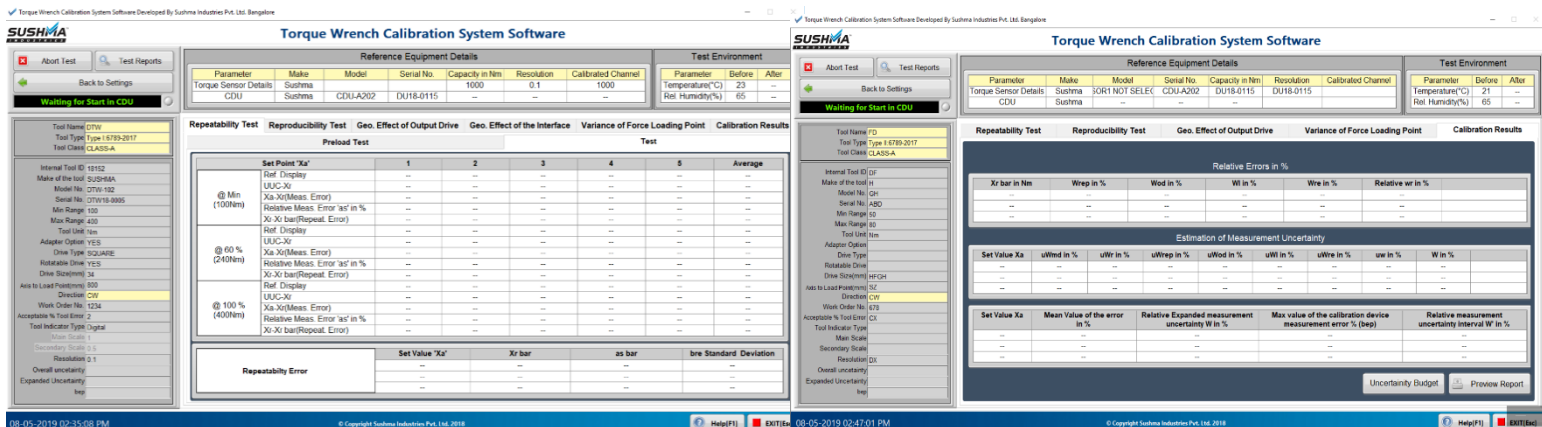
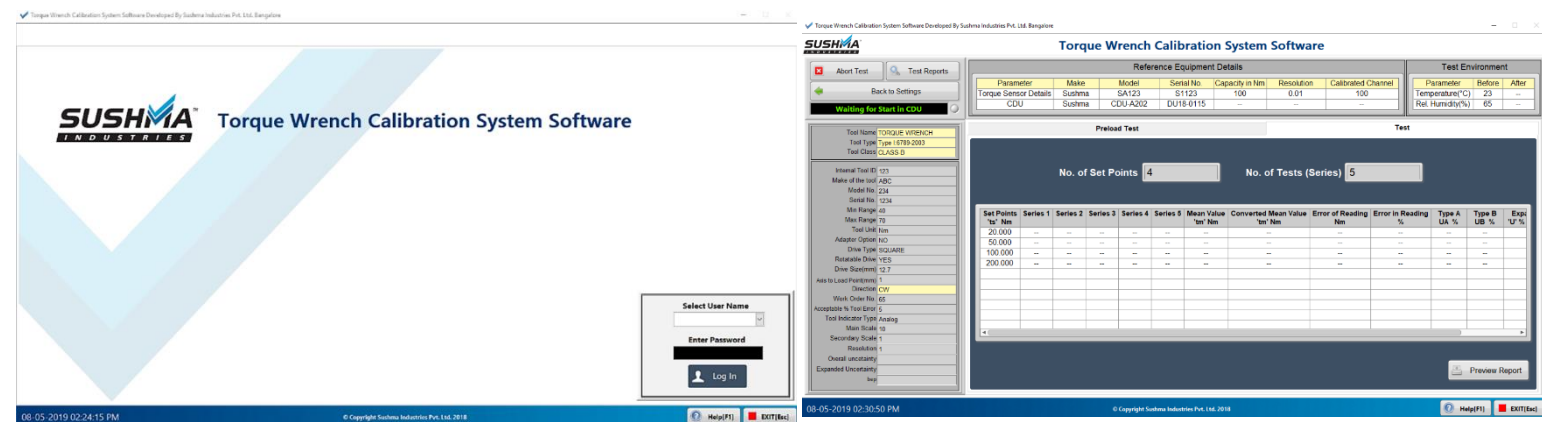
ITEM DESCRIPTION	ORDERING CODE
Test Rig with Electrical Control System	TWC-205-1kNm, TWC-205-3kNm
Control Display Unit	CDU-A202
Selected Sensors	TS-203
Allen Key Tool Kit	AKT-S-001
Optional Software	SW-TWC-205
Optional PC Package	---
Calibration Certificate	---
User Manual	---
Warranty Certificate	---

## TORQUE WRENCH CALIBRATION SOFTWARE: SW-TWC-205

- SW-TWC-205 is a lab view software developed to calibrate different types of torque tools, such as, Type 1 (Indicating) & Type 2 (Setting)
- Software ensures tools are performing to the required standard ISO 6789:2003/ ISO 6789:2017. The easy test feature guides the user through the test procedure
- The software is capable to prompt user to calibrate torque tools for the following type of tests which is governed by the standard:
  - Repeatability Test
  - Reproducibility Test
  - Geometric Effect Test
  - Variation of Force Loading Point
  - Measurement of Uncertainties
- The software helps in analyzing the data quickly and the user will get test report in the form of a certificate with all mandatory details in it
- Reports also contain traceability of reference equipment used. Reports can be exported to Microsoft Excel/MS Word/CSV/PDF format for further validation
- The SW-TWC-205 PC Software allows unlimited storage of tools, details, and data readings
- Tool Traceability can be achieved as the SW-TWC-205 PC Software can generate calibration certificates to the requirements of ISO 6789:2003/ISO 6789:2017



# FEW PC SOFTWARE SCREENS:



# RECOMMENDED RELATED PRODUCTS:

- Transfer Torque Wrench (Master Torque Wrench) for Effective Uncertainty Calculations or Evaluation of CMC used as a reference standard required as per ISO 6789:2017-2 and DKD-R-3-7/8
  - Ask for Sushma's Transfer Torque Wrench TTW-101 and its Display Unit with various capacities suitable as per your Torque Wrench Calibrator
- Digital Torque Wrench for regular Quality Checks
  - Ask for Sushma's Digital Torque Wrench DTW-102 with various capacities suitable as per your Torque Wrench Calibrator

### Release Note

- In view of continuous improvement in design and performance, specification is subject to change without notice
- Correct mounting is essential to ensure optimum performance
- Consult your application specialists or the factory for more technical information

