

BS EN ISO 6789:2017 introduction FAQ

Why did the standard change happen?

Revision to BS EN ISO 6789:2003 to take into account ISO requirements for calibration with greater emphasis on the inclusion of uncertainties, thereby allowing for the more stringent demands of higher tech applications or where absolute understanding of the tool is required.

Why 2 parts?

Part 1 allows for the manufacture to produce a document of conformance in accordance to the standard, it also details how the tool should be checked and what measurement considerations should be applied. This gives you a DECLARATION OF CONFORMANCE

Example user aftermarket vehicle repairs/tyre fitting where knowing the tool is fit for purpose is paramount.

Part 2 carries over part 1 measurement methods but includes detail of the uncertainties and associated tests which need to be factored in to produce a CERTIFICATE OF CALIBRATION

Example user Aerospace industry/Medical industry where performance and understanding of the tool are paramount.

How do I reduce parasitic forces (side loads)?

Norbar have introduced a patented counter balancing reaction post to reduce the parasitic forces associated with side loading a torque wrench, this features on the TWC400 and 1500 loaders as standard.

How to measure the 80% to 100% final application of torque

Norbar have updated the software on the T Box to indicate to the user whether the rate of torque increase meets the requirements of the ISO 6789:2017, T boxes sold prior to July 2017 can be upgraded contact repairs@norbar.com for details

Can my ISO loader or TWL be upgraded to meet the requirements of BS EN ISO 6789:2017?

The ISO1000/1500 and TWL1500 loaders do not have the automatic weight compensation of the new TWC and there is no factory upgrade planned for these loaders.

What will happen if I ignore the revised standard

In order to comply as an accredited laboratory, the revised ISO 6789:2017 must to be adopted.

For those who work to an in-house or another standard e.g. ASME B107.300-2010, nothing changes

I have an ISO1500 or a TWL which I bought before this change. Why did you sell it to me?

Up to the release of revised standard Norbar along with all other suppliers of torque loaders did not know when the release date would be. The design of the TWC has taken time to test and has been launched as soon as we were able.

Prior to the release of the 2017 edition the loading equipment supplied by Norbar was suitable for working to BS EN ISO 6789:2003

How do I check and record uncertainties for adaptors, ratchets and handle point of contact and reproducibility in accordance with the requirements of the new standard?

Norbar have updated the T Box (post Aug 2017) which will perform this function. The new automated TWC launched at the end of the year will also automatically calculate these factors. It is also possible to perform these calculations using a self-generated spread sheet .

If I remove and replace the FMT on my TWC with an angular offset will it affect my uncertainties?

This will not affect the uncertainties although in line with best practice consideration shall be given to replacing the transducer into the same position from which it was removed

If I have a transducer calibrated and its uncertainties change do I need to update my uncertainty budget within TDMS?

Yes, following a re-calibration of your transducer, the relevant fields need to be updated within TDMS, see the TDMS user manual for more detail.

If I calibrate using the short length reaction arm why is there no counter balance.

We will address the issue after launch the of the Automated TWC

Will my TTT/TST and transducer system work with the TWC?

Yes, but the defined time to load from 80% to 100% of target torque will not be measured. The Norbar T Box (post Aug 2017) will report this time and let the operator know if the torque has been applied Correctly.

Can I use my Protest with the TWC

Yes, use adaptor plate 60323

Can I use my ETS torque transducer equipment with the TWC.

Yes, but the rate of rise from 80% to 100% of target torque will not be measured. This is a requirement of ISO 6789:2017,

The ETS system is obsolete contact sales@Norbar.com. for options on available upgrade offers.

When using my T Box (ISO 6789:2017 part2) are the uncertainties recorded in any particular order e.g. Drive adaptor 1st?

The U/C data can be recorded in any order however Norbar as a best practice record the variation of the loading force (reaction position) last.

Q.

Norbar's transducers are typically better than class 1 for the primary classification range as per BS7882:2008 ($\pm 0.5\%$ reading from 20% to 100% of full scale). How will this translate to a maximum uncertainty interval required for EN ISO 6789 part 1 & 2?

A.

For part 1 there is no translation required, as it refers to measurement error and not uncertainty interval. The existing classification system can be used to determine suitability. See table below:

Maximum permissible relative deviation for the torque tool	Minimum TD classification required
1%	0.5
2%	1
3%	1
4%	2
5%	2
6%	2

For Part 2, the uncertainty interval of a Norbar transducer will be typically $\leq \pm 1.0$ making it suitable for a calibration of a torque tool requiring a 4% expected maximum relative measurement uncertainty interval.

However the following table may be used as a guide. The transducer needs to comply with the classification and corresponding uncertainty interval.

Expected maximum relative measurement uncertainty interval of the torque tool	Minimum TD classification	Maximum relative measurement uncertainty interval of the Transducer
1%	0.5	0.25
2%	1	0.5
3%	1	0.75
4%	2	1.0
5%	2	1.25
6%	2	1.5

Note: for ease of transducer selection the required measurement error of the torque tool may be considered equal to the expected maximum uncertainty interval of the torque tool.