

Description: Proficiency testing Torque

PT-2026-003-M

Provider of proficiency testing

Testo Industrial Services GmbH
Gewerbestraße 3
79199 Kirchzarten
GERMANY

Coordination

Janina Posdziech
Tel: +49 (7661) 90901 8780
Email: proficiencytesting@testotis.de

Pilot laboratory

Testo Industrial Services GmbH
Mechanical Laboratory
Erich-Rieder-Straße 4
79199 Kirchzarten
GERMANY

1 Programme

A proficiency testing for calibrations of **torque wrenches** is carried out. The methodology and execution of the proficiency testing comply with the requirements of DIN EN ISO/IEC 17043:2023. The aim of the proficiency testing is to confirm the competence of the participating laboratories for the reported measurement uncertainties.

Three torque wrenches (10 Nm, 200 Nm and 1000 Nm; displaying and releasing) are sent as calibration objects. The calibration objects are to be calibrated according to **DIN EN ISO 6789-2:2017**.

1.1 Confidentiality

All parties involved undertake to maintain confidentiality with regard to the information and results obtained in the course of the proficiency testing.

The results are presented in anonymised form in the final report.

1.2 Schedule / Procedure

Planned Start: November 2026

The proficiency test is conducted in a ring format, with calibration taking place in the pilot laboratory at the start, at the end and after approximately five participants.

Each participant has one calendar week to carry out the calibration and forward the calibration objects. If this is not possible, the coordinator must be informed, if possible even before the start of the proficiency testing. If necessary, the time periods will be adjusted due to delivery distances and public holidays.

The participants are responsible for an **insured and immediate forwarding** of the calibration items to the next participant or to Testo Industrial Services.

2 Realisation

2.1 Calibration objects & Measurement characteristics

Designation	KG 1: 10 Nm Torque wrenche	KG 2: 200 Nm Torque wrenche	KG 3: 1000 Nm Torque wrenche
Type	714/1 eClick 96501001	714/20 eClick 96501020	714/100 eClick 96501100
Manufacturer	STAHLWILLE Eduard Wille GmbH & Co. KG		
Measurement range	1 Nm to 10 Nm	20 Nm to 200 Nm	100 Nm to 1000 Nm
Dimensions box	Height: 65 mm Width: 555 mm Depth: 80 mm	Height: 65 mm Width: 680 mm Depth: 80 mm	Height: 80 mm Width: 1510 mm Depth: 100 mm (without handle)
Weight (includ- ing box)	0,86 kg	2,2 kg	12,5 kg
Mode to be measured	displaying right	displaying and releasing, right in each case	displaying and releasing, right in each case



Figure 1: Top left: KG 1: 10 Nm torque wrench. Top right: KG 2: 200 Nm torque wrench. Bottom: KG 3: 1000 Nm torque wrench

The calibration objects must be calibrated in accordance with **DIN EN ISO 6789-2:2017 at the start, 60 per cent and 100 per cent of the measurement range**. At each measurement point, the **mean deviation a_s** and the associated **relative expanded measurement uncertainty W** must be determined.

The contributions to measurement uncertainty must be determined for each wrench (no statistical determination).

2.2 Further details

The calibrations are to be carried out by the participating laboratory.

The measurement uncertainty must be stated as an expanded measurement uncertainty in accordance with EA-4/02 M:2022 and ILAC-P14:09/2020.

An overload limit of 110% must be observed. No adjustment should be made. Calibration must only be carried out using the provided interchangeable element.

2.3 Assigned values

The assigned values are determined using the weighted average of all participant results from the accredited calibration laboratories (consensus value).

The mathematical basis for determining the reference value and its measurement uncertainty is based on Cox's publication¹. An examination for outliers is carried out in advance.

If this is not possible, the assigned values are determined as a reference value measurement in the pilot laboratory.

In addition, the stability of the calibration items is evaluated over the period of the proficiency testing and, if necessary, taken into account in the evaluation as a transfer uncertainty contribution.

2.4 Evaluation

The results are evaluated using the E_n -value for the assigned value. A correlation may be taken into account. An acceptable result is achieved if $|E_n| < 1.0$.

3 Participation

3.1 Participants

This proficiency testing is primarily aimed at calibration laboratories that have or are seeking accreditation for the specified measurand.

Other laboratories can also participate as long as they calibrate according to the specified procedures, issue a report according to ISO 17025 and declare an expanded measurement uncertainty according to EA-4/02 M:2022.

3.2 Registration procedure

If interested, the laboratory will be sent an offer with the participation fees. Participation is considered binding as soon as the offer has been accepted and the order confirmation has been sent to the laboratory.

The registration deadline is enclosed with the offer.

Note: A minimum number of 7 participants is required for the organisation of this proficiency testing.

4 Further information

At the end of the proficiency testing, a draft of the final report is sent to the participants to review the results and their performance evaluation.

It is planned to present the results in anonymised form to the DKD Technical Committee.

¹ Cox, M.G., The evaluation of key comparison data, Metrologia, 39 (2002), 589-595