

# TTS

## Reference Torque Wrench

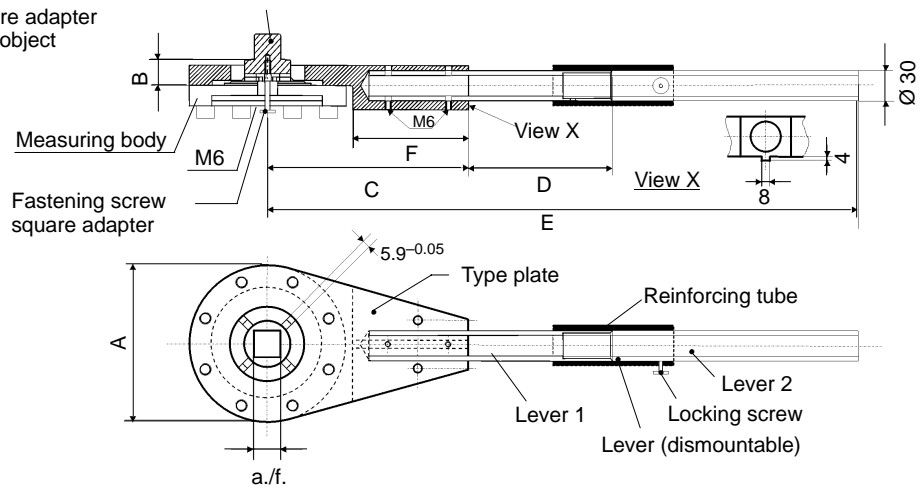


### Special features

- Transfer transducer with calibration certificate from the DKD-R 3-7 (German Calibration Service)
- Accuracy class 0.2
- Nominal torques 100 N·m, 200 N·m, 500 N·m and 1000 N·m 3000 N·m on request
- Little space required due to low profile
- Extremely insensitive to lateral and axial forces and to bending moments

### Dimensions (in mm; 1 mm= 0.03937 inches)

Interchangeable square adapter for connection to test object



Nominal torque (N·m)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	AF (inches)	Square shaft
100	100	37	110	445	555	3/8	one-piece
200	121	37	120	445	565	1/2	one-piece
500	156	20	200	400	1060	3/4	two-piece
1000	156	20	200	400	1060	1/1	two-piece

## Specifications

Type		Reference Torque Wrench			
Class according to DKD-R 3-7		0.2 <sup>1)</sup>			
<b>Nominal torque</b>	N·m	100	200	500	1000
<b>Nominal sensitivity</b> (nominal output signal at nominal torque, according to DKD calibration certificate)	mV/V	1.5...2.4			
<b>Temperature effect per 10K in the nominal temperature range</b>					
On output signal (related to actual value)	%	< ± 0.05			
On zero signal (related to nominal sensitivity)	%	< ± 0.05			
<b>Linearity deviation, including hysteresis</b> (related to nominal sensitivity)	%	≤ ± 0.06			
<b>Relative standard deviation of reproducibility</b> according to DIN 1319 (related to variation of output signal)	%	≤ ± 0.01			
<b>Input resistance at reference temperature</b>	Ohm	165 ± 50			
<b>Nominal excitation voltage</b> (according to DKD calibration certificate)	V	5			
<b>Reference temperature</b>	°C [°F]	+23 [+73.4]			
<b>Nominal temperature range</b>	°C [°F]	+10...+60 [+50...+140]			
<b>Service temperature range</b>	°C [°F]	-10...+60 [+14...+140]			
<b>Storage temperature range</b>	°C [°F]	-50...+70 [-13...+158]			
<b>Load limits</b>					
<b>Limit torque for the measuring body, related to <math>M_N</math></b>	%	200			
<b>Breaking torque for the measuring body, related to <math>M_N</math></b>	%	> 400			
<b>Bending limit moment for the measuring body<sup>2)</sup></b>	N·m	70	140	500	500
<b>Axial limit force for the measuring body<sup>2)</sup></b>	kN	2	4	7	7
<b>Lateral limit force for the measuring body<sup>2)</sup></b>	kN	1	3	6	8
<b>Protection class</b> according to EN 60529		IP 22			
<b>Weight with case and square</b>	kg	8	9	15	

<sup>1)</sup> The classification is associated with a DKD calibration certificate which is part of the supplied items, allowing the transducer to be used as a reference torque wrench. The testing procedure is carried out according to the DKD draft guidelines DKD-R 3-7.

<sup>2)</sup> Each type of irregular stress can only be permitted with its given limit value (bending moment, side load or axial load, exceeding the nominal speed) if none of the others can occur. Otherwise the limit values must be reduced. If for instance 30 % of the bending moment and also 30 % of the side load are present, only 40 % of the axial load are permitted, provided that the nominal torque is not exceeded. With maximum additional loading, measuring errors of the order of 0.2 % of the nominal torque can occur.

## Scope of delivery

Reference torque wrench in aluminium case; square adapter with external square shaft for test object; Star grip screw, DKD calibration certificate.

3 m TTS cable with Lemos connector / amplifier side 15-pin Sub D connector

## Accessories

Internal or external square adapter for test object.

Square shaft adapter	1/4"	3/8"	1/2"	3/4"	1"

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