

# R&S<sup>®</sup> ZN-ZTW Torque Wrench Specifications



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# Definitions

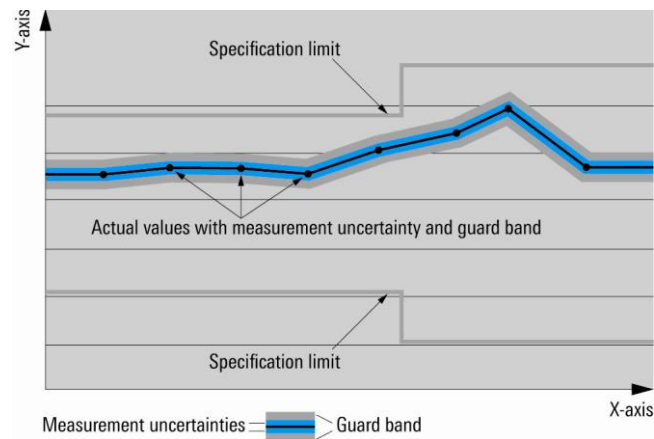
## General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

## Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as  $<$ ,  $\leq$ ,  $>$ ,  $\geq$ ,  $\pm$ , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



## Non-traceable specifications with limits (n. trc.)

Represent product performance that is specified and tested as described under “Specifications with limits” above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

## Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

## Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with  $<$ ,  $>$  or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

## Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

## Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

## Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are indicated as follows: “parameter: value”.

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP/3GPP2 standard, chip rates are specified in Mcps (million chips per second), whereas bit rates and symbol rates are specified in Mbps (million bits per second), kbps (thousand bits per second) or ksps (thousand symbols per second), and sample rates are specified in Msample/s (million samples per second). Mcps, kbps, ksps and Msample/s are not SI units.

# Specifications

## Mechanical specifications <sup>1</sup>

	Connector	Width across flats		SI in N·m	Imperial unit in lbf·in
R&S <sup>®</sup> ZN-ZTW model .71	type N	20 mm	torque setting <sup>2</sup>	1.5	13.3
			permissible deviation of torque setting	±0.2	±1.8
R&S <sup>®</sup> ZN-ZTW model .19 ( <b>ruggedized</b> test port connectors)	3.5 mm 2.92 mm 2.4 mm	19 mm	torque setting <sup>2</sup>	0.9	8
			permissible deviation of torque setting	±0.1	±0.9
R&S <sup>®</sup> ZN-ZTW model .35 (for 3.5 mm, 2.92 mm, 2.4 mm and 1.85 mm connectors)	1.85 mm	8 mm	torque setting <sup>2</sup>	0.9	8
			permissible deviation of torque setting	±0.1	±0.9
R&S <sup>®</sup> ZN-ZTW model .10 (in line with IEEE 287:2007)	1.0 mm	6 mm	torque setting <sup>2</sup>	0.45	4
			permissible deviation of torque setting	±0.05	±0.44
R&S <sup>®</sup> ZN-ZTW model .12 (in line with IEC 61169-31:1999)			torque setting <sup>2</sup>	0.34	3
			permissible deviation of torque setting	±0.05	±0.44
R&S <sup>®</sup> ZN-ZTW model .11 (ball bearing connectors <sup>3</sup> )			torque setting <sup>2</sup>	0.23	2
			permissible deviation of torque setting	±0.05	±0.44

## General data

Temperature ranges	operating temperature range	+18 °C to +28 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	-40 °C to +70 °C
Humidity		≤ 90 % relative humidity, noncondensing
Material and plating		wrench head: nickel-plated steel alloy, handle: anodized aluminum
Recommended calibration interval		1 year, or approximately 5000 cycles
Specification and rating		based on DIN EN ISO 6789:2003

		SI in g	Imperial unit in lb
Weight	R&S <sup>®</sup> ZN-ZTW model .71	105	0.23
	R&S <sup>®</sup> ZN-ZTW model .19		
	R&S <sup>®</sup> ZN-ZTW model .35	85	0.19
	R&S <sup>®</sup> ZN-ZTW model .10		
	R&S <sup>®</sup> ZN-ZTW model .12		
	R&S <sup>®</sup> ZN-ZTW model .11		

<sup>1</sup> All mechanical specifications are valid at +25 °C ambient temperature unless otherwise specified.

<sup>2</sup> The force is applied at the center of the wrench handle (not at the center of the wrench as a whole), i.e. at the loading point as shown in the torque wrench lateral views on pages 5 and 6.

<sup>3</sup> Contrary to conventional connecting screws, a ball bearing in the coupling nut reduces the friction loss. Therefore, it is necessary to adapt the initial force in order to prevent a damaging of the connector.

# Dimensions (in mm)



Lateral view of model .71.



Lateral view of model .19.



Lateral view of model .35.



Lateral view of model .10.



Lateral view of model .12.



Lateral view of model .11.

## Ordering information

Designation	Connector	Width across flats	Type	Order No.
Torque Wrench, for type N connectors with 20 mm width across flats, 1.5 N·m coupling torque	type N	20 mm	R&S®ZN-ZTW	1328.8534.71
Torque Wrench, for 3.5/2.92/2.4/1.85 mm test port connectors with 19 mm width across flats, 0.9 N·m coupling torque	3.5 mm 2.92 mm 2.4 mm	19 mm		1328.8534.19
Torque Wrench, for 3.5/2.92/2.4/1.85 mm connectors with 8 mm width across flats, 0.9 N·m coupling torque	1.85 mm	8 mm		1328.8534.35
Torque Wrench, for 1.0 mm connectors with 6 mm width across flats, 0.45 N·m coupling torque	1 mm	6 mm		1328.8534.10
Torque Wrench, for 1.0 mm connectors with 6 mm width across flats, 0.34 N·m coupling torque				1328.8534.12
Torque Wrench, for 1.0 mm connectors with 6 mm width across flats, 0.23 N·m coupling torque				1328.8534.11