

SCHATZ®-ANALYSE

Tension/thread torque transducer for testing screws, bolts and nuts

SCHATZ®
ADVANCED QUALITY



- tension range 0.2–500 kN
- thread torque range 0.1–1000 N·m
- relative indication deviation $\pm 0.5\%$
- quick-change adapter M4–M24
- SCHATZ-AUTOCODE identification

Application

The tension/thread torque transducer is especially suitable for incorporation in jigs (such as the Model 5413-4504 jig) for testing screws, bolts and nuts and other fastener elements.

With simultaneous measurement of torque and rotation angle in combination with the tension/thread torque transducer, head friction torque can be determined using suitable electronic instrumentation (Model 5413-2777 measurement and control unit).

This allows friction coefficients to be determined separately for head friction and thread friction.

With a suitable combination of original materials, this makes it possible to formulate tightening instructions for joint assembly and to test the suitability of screws, bolts, nuts and other fastener elements.

Description

The measurement elements of the tension and thread friction torque transducer are fitted with surface strain gauges connected to a full Wheatstone bridge. The thread friction torque transducer is mounted on the tension transducer using an axial bearing, which allows thread friction torque to be measured independently.

The steel housing is specially dimensioned for fitting into a suitable fixture, in order to allow it to be used in test jigs.

The housing is designed to be used with user-selectable attachments that allow screws, bolts and nuts of various dimensions to be tested.

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Technical data	5413-								
Sensortyp	Vorspannkraft				Gewindereibmoment				
Model no.	1960A/xxx	1961A/xxx	1962A/xxx	1963A/xxx	196xA/050	196xA/150	196xA/350	196xA/500	196xA/1000
Rated capacity [kN]	25	100	300	500					
[N·m]					50	150	350	500	1000
Weight (kg)	12	12	12	12	12	12	12	12	12
DIN 51309 classification	1 (±0.6 % to ±1.2 %)	2 (±1.2 % to ±2.4 %)			2 (±1.2 % to ±2.4 %)				
Relative indication deviation	±0.5 %								
Maximum service load	1.2 × measurement range (20 % overload)				1.2 × measurement range (20 % overload)				
Failure load	1.5 × measurement range (50 % overload)				1.5 × measurement range (50 % overload)				
Bridge resistance	700 ohm nom.				700 ohm nom.				
Calibration resistance	87.15 kiloohm ±0.1 %	40 kiloohm ±0.1 %			87.15 kiloohm ±0.1 %				
Nominal characteristic	1 mV/V	2 mV/V			1 mV/V				
Rated supply voltage range	10 V								
Usable supply voltage range	20 V								
Rated temperature range	0–70° C								
Operating temperature range	–10° C to +80° C								
Storage temperature range	–40° C to +85° C								

Dimensions and connectors							
Flange-mount connector	ODU Type G52B0C 19-pole socket						
Dimensions [mm]	A	77	77	77	77	77	77
	B	200	200	200	200	200	200
	C	53	53	53	53	53	53
	D	72	72	72	82	72	

