



0170/01 MS

**Mini-Smart
Torque Sensor**

**The specialist in
bolting techniques**



Technical data

■ **Electrical specifications**

Supply voltage	11 - 26 VDC, pole-secure
Current consumption	< 100 mA
Voltage output for rated torque	0 ± 5 VDC
Linearity, Hysteresis	< ±0,2 % of full scale
Dynamics	≤ 3 kHz
Operating temperature range	+5 ...+50 °C
Temperature influence on zero	< ±0,15 % / 10 K
Temperature influence on sensitivity	< ±0,15 % / 10 K
Mechanical overload capacity (working torque)	150 %
Range of oscillation (peak to peak)	70 %
Max. speed	≤ 12000 rpm
Angle measurement (option A max. 4000 min. ⁻¹)	.2 x 360 pulses, 90° displaced, TTL
Connection	12-pole Tüchel
Calibration input	100 %-control for torque
Cabinet	aluminium, hard eloxadized, red
Protection class	IP 40

■ **Example of order specification:**

Protection class 0170/01MS18-HA-16606



■ **Measuring system**
 Torque analyzer
 type MD 9000,
 Data sheet 4110

■ **Accessories**
 Mating plug,
 article no. 703

■ **Practical application**



Online torque measurement
 with screwdriver

5143 Electric Avenue, P.O. Box 858
 Hillside, Illinois 60162-858, U.S.A.
 Phone: 708-449-5700
 Fax: 708-449-5703
 e-mail: info@schlenkent.com
 http://www.schlenkent.com



Torque sensor 0170/01 MS

Torque transducer with shaft ends and mounting base

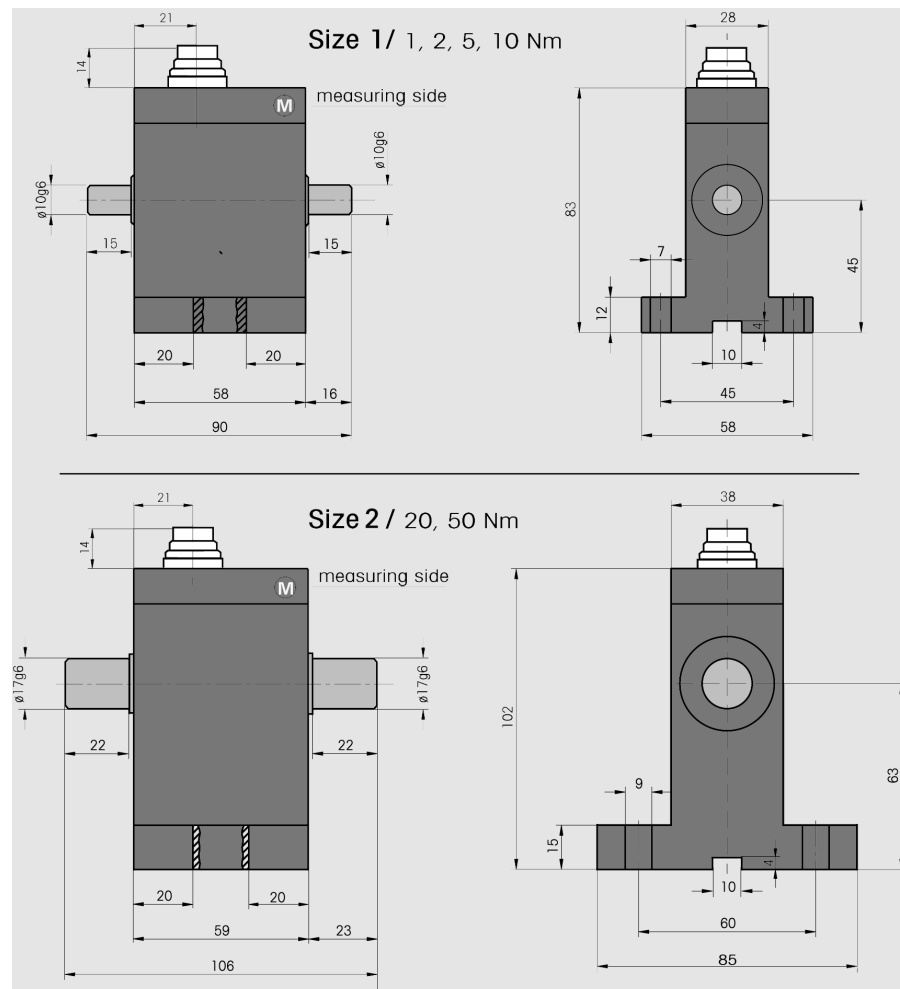
The **Version** with shaft ends and mounting support can be used a functional check on tilt procedure or rotating monitoring. The mounting position is chooseable, the application for left- and right torque readings as well as the static and the dynamic conditions are obligatory.

Integrated rotation angle-measurement.



Order specification	Article-No.
0170/01 MS 1 RA	17557
0170/01 MS 2 RA	17711
0170/01 MS 5 RA	17712
0170/01 MS 10 RA	17713
0170/01 MS 20 RA	17571
0170/01 MS 50 RA	17572

Mechanical Dimensions



Torque sensor O170/O1 MS

Introduction

The **Mini-Smart-Torque Sensor** with rotating measuring shaft is suitable both for dynamical detection of **starting torques and break-away torques** for bolting and assembly techniques and for quality assurance in production and laboratory.

The socket wrench torque sensor can also be used to check the calibration of mechanical torque wrenches.

Due to its standardized connections the device can be quickly adapted to **air- electronic- and pulse tools**.

General

The **Mini-Smart Torque sensor** operates according to the strain gage principle. The torque signal is transmitted from the rotating shaft via frequency modulation without contact and is processed as analog signal. The rotation angle signal with each 360 pulses per rev and track is available as TTL-signal.

An external electrical calibration input is standard.

A measuring range detection can be effected optionally.

Special features

- Smart, i.e. integrated measuring electronics
- High failsafety due to active torque output (+/- 5V), galvanically separated from supply and measuring signal
- Non-contact signal transfer
- Unipolar supply
- Rotation angle measurement
- High dynamics
- Maintenance-free
- Standardized mech. connections:
 - hexagon (1/4") DIN 3126
 - square (size depending on measuring range)
- Extremely compact due to minimum dimensions
- Suitable for pulse tools
- CE-sign

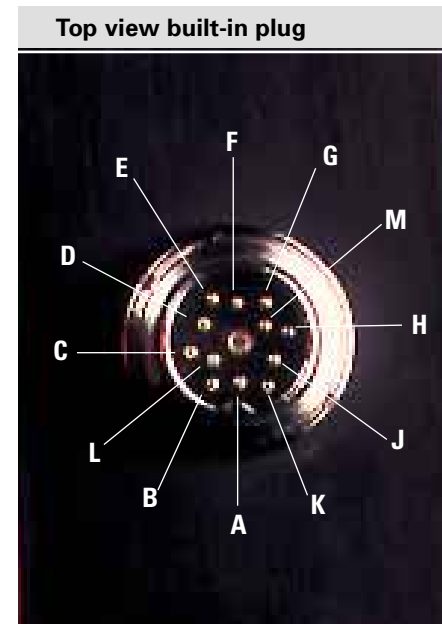


Torque sensor O170/O1 MS

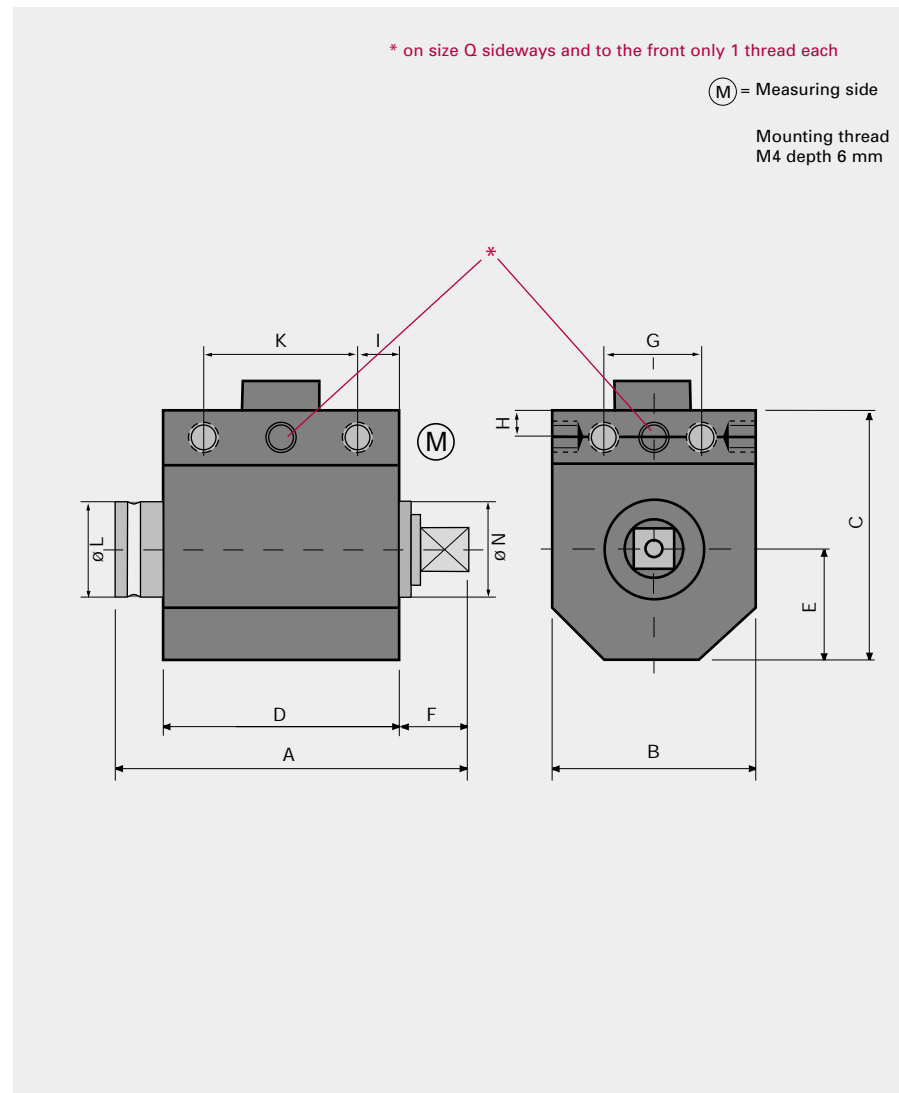
Transducers are delivered with traceable test certification

Pin connection

Function	Pin	Color
Ground, Calibration input	A	green
Angle 1	B	white/ brown
Signal output, $U_s \pm 5VDC$	C	pink
Ground, Signal output $5 U_s$	D	grey
Ground, Supply (U_s), Angle	E	blue
Supply, $U_s, +11 V$ to + 26 V, 1 Watt	F	red
Angle 2 (90° running after angle 1)	G	white/ green
Supply angle, +5 V	H	violet
Measuring range detection	J	white
Calibration input, Kal, + 5 V bis 30 VDC	K	yellow
Option Measuring range detection, Ground	L	brown
Shield	M	black



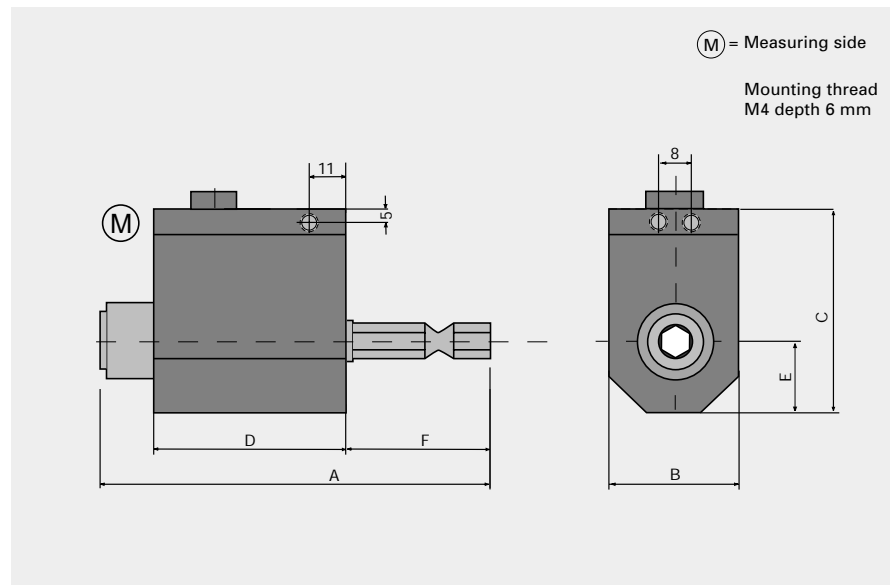
Mechanical Design



Torque sensor with standard square connection

- with rotating shaft
- with rotation angle measurement (option A)
- pulse-tool suited

Type / Order specification	Rated torque (Nm)	Square	A		B		C		D		E
			Q	QA	Q	QA	Q	QA	Q	QA	
0170/01 MS 12 Q/QA	12	1/4"	75	75	28		52		58		1
0170/01 MS 18 Q/QA	18	1/4"	75	75	28		52		58		1
0170/01 MS 50 Q/QA	50	3/8"	74,5	101	38		58	44	59		1
0170/01 MS 63 Q/QA	63	3/8"	74,5	101	38		58	44	59		1
0170/01 MS 100 Q/QA	100	1/2"	79	106	38		58	44	59		1
0170/01 MS 150 Q/QA	150	1/2"	79	106	38		58	44	59		1
0170/01 MS 160 Q/QA	160	1/2"	79	106	38		58	44	59		1
0170/01MS 250 Q/QA	250	3/4"	97	135	58		76	50	64		2
0170/01MS 300 Q/QA	300	3/4"	97	135	58		76	50	64		2
0170/01 MS 500 Q/QA	500	3/4"	97	135	58		76	50	64		2
0170/01 MS 1000 Q/QA	1000	1"	112	177	73		90	57	73		36



**Torque sensor
 with standard hexagon 1/4"
 connection according
 DIN 3126 Form E/F**

- with rotating shaft
- rotation angle measurement from 10 Nm (option A)
- quick-change chuck

Type / Order specification	Rated torque (Nm)	A		B		C		D		E		F		max. axial force (N)	Article-No.	
		H	HA	H	HA	H	HA	H	HA	H	HA	H	HA		H	HA
0170/01 MS 0,5 H/HA	0,5	101	101	28	28	52	52	58	58	14	14	28	28	20	16607	16608
0170/01 MS 1 H/HA	1	101	101	28	28	52	52	58	58	14	14	28	28	50	16609	16610
0170/01 MS 2 H/HA	2	101	101	28	28	52	52	58	58	14	14	28	28	50	16274	16605
0170/01 MS 6 H/HA	6	101	101	28	28	52	52	58	58	14	14	28	28	150	16275	4315
0170/01 MS 12 H/HA	12	101	101	28	28	52	52	58	58	14	14	28	28	150	16276	4316
0170/01 MS 18 H/HA	18	101	101	28	28	52	52	58	58	14	14	28	28	200	16277	16606

E	F		G		H		I		K		L		N		max axial force (N)	Article-No.	
	Q	QA	Q	QA	Q	QA	Q	QA	Q	QA	Q	QA	Q	QA		Q	QA
4	8,5	8,5	-	8	5	5	11	-	-	13	-	-	-	150	13417	4320	
4	8,5	8,5	-	8	5	5	11	-	-	13	-	-	-	150	16603	16604	
9	18	21,5	-	14	6	5	22	12	-	35	25	17	-	1000	16307	16299	
9	18	21,5	-	14	6	5	22	12	-	35	25	17	-	1000	13459	13464	
9	22,5	26	-	14	6	5	22	12	-	35	25	17	-	1200	16308	16302	
9	22,5	26	-	14	6	5	22	12	-	35	25	17	-	1800	16309	16304	
9	22,5	26	-	14	6	5	22	12	-	35	25	17	-	1800	16460	13465	
9	30	40	-	30	5	5	25	14	-	36	40	30	-	3000	16310	16305	
9	30	40	-	30	5	5	25	14	-	36	40	30	-	4000	16311	16306	
9	30	40	-	30	5	5	25	14	-	36	40	30	-	4000	13461	13466	
15,5	34,5	57,5	-	45	5	5	28,5	14	-	45	50	40	-	6000	13462	13467	