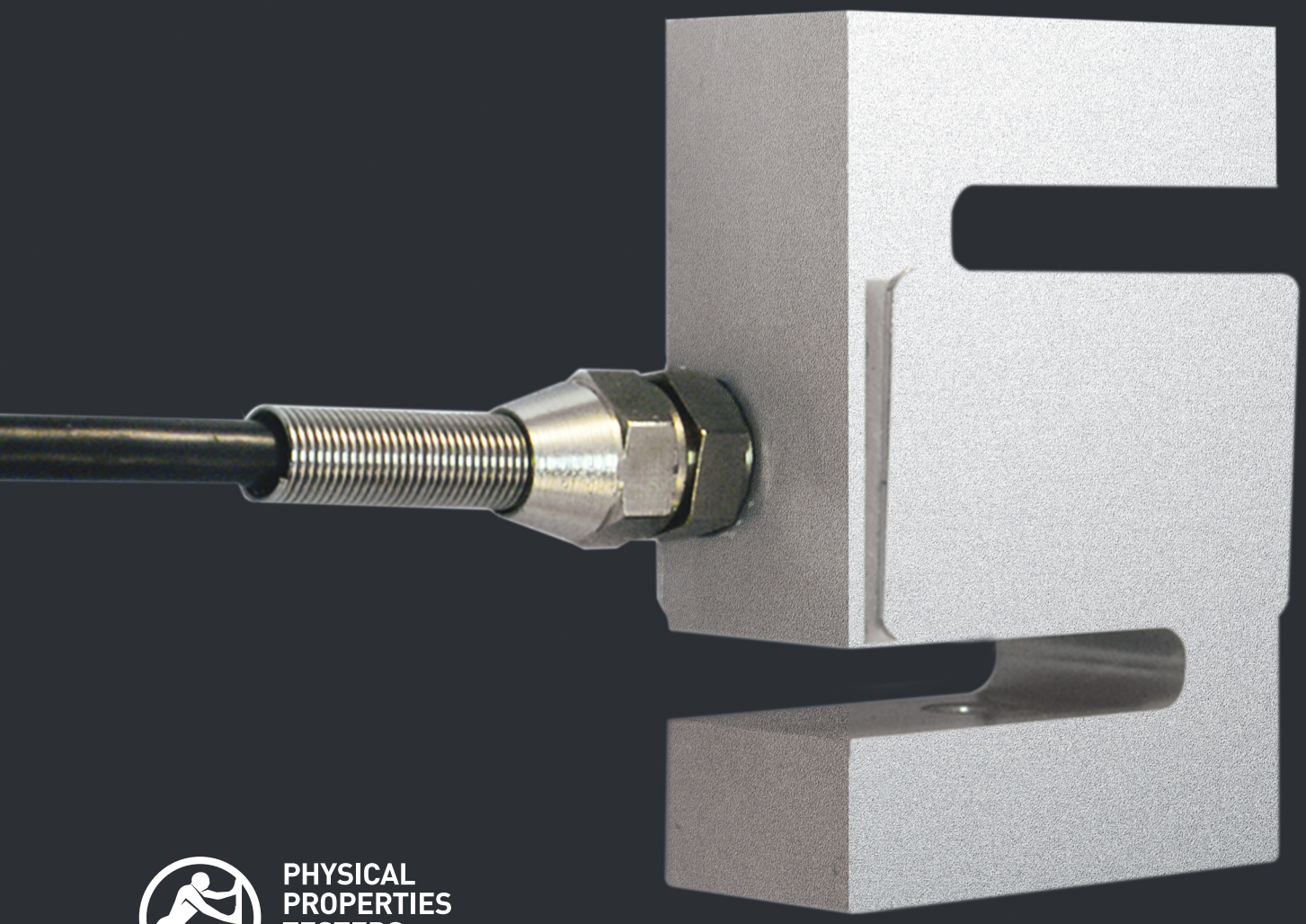
Mecmesin

Digital force and torque sensors

Sales brochure



PHYSICAL PROPERTIES TESTERS GROUP

Explore our range of force and torque sensors

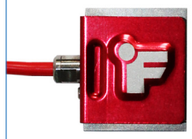
Mecmesin provides a wide choice of ‘Smart’ force and torque sensors for connection to its range of AFG and VFG force gauges plus the dedicated AFTI and VFTI display units.

The capacity and calibration parameters of these ‘Smart’ sensors is hosted within the sensor plug and are automatically recognised by these instruments allowing true plug and play. Each Smart sensor is supplied with its own calibration certificate traceable to national standards.

Smart sensors are available in different types for measuring tension, compression, static torque and rotary torque. For further details on Smart sensors please visit mecmesin.com.

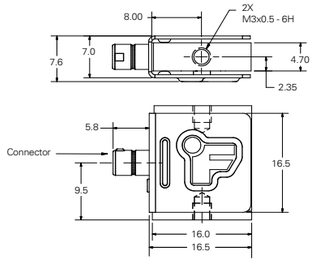
Discover Mecmesin range of sensors online
visit mecmesin.com/sensors

Compression sensors



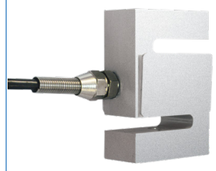
Junior S-Beam

The Junior S-beam is suitable for measuring tension and compression in applications where space is limited. Available in 9 capacities from 1 N to 500 N, its height is less than 20 mm and dedicated fixtures can be fitted via M3 threaded holes.



Part No.	Capacity				L (mm)	W (mm)**	H (mm)	Thread
870 – 101	1	N	100	gf	3.5	ozf	16.5	7.6	19	M3 x 0.5
870 – 102	2.5	N	250	gf	9	ozf	16.5	7.6	19	M3 x 0.5
870 – 103	5	N	500	gf	18	ozf	16.5	7.6	19	M3 x 0.5
870 – 104	10	N	1	kgf	2.2	lbf	16.5	7.6	19	M3 x 0.5
870 – 105	25	N	2.5	kgf	5.5	lbf	16.5	7.6	19	M3 x 0.5
870 – 106	50	N	5	kgf	11	lbf	16.5	7.6	19	M3 x 0.5
870 – 107	100	N	10	kgf	22	lbf	16.5	7.6	19	M3 x 0.5
870 – 108	250	N	25	kgf	55	lbf	16.5	7.6	19	M3 x 0.5
870 – 109	500	N	50	kgf	110	lbf	16.5	7.6	19	M3 x 0.5

Accuracy ±0.25% of full scale



S-Beam

The S-Beam provides an economical solution to general force measurement applications where space is not restricted. Available in 10 capacities from 100 N to 100 kN, it has a threaded hole at each end for fitting of fixtures - sensor height and thread size varying according to capacity.

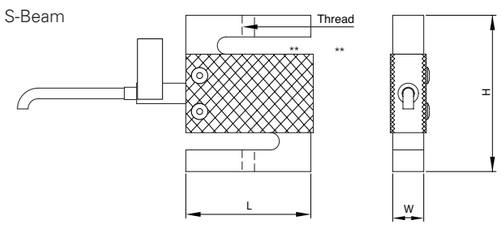
Part No.	Capacity				L (mm)	W (mm)**	H (mm)	Thread
870 – 002	100	N	10	kgf	22	lbf	51	13	64	M6 x 1
870 – 004	200	N	20	kgf	44	lbf	51	13	64	M6 x 1
870 – 009	500	N	50	kgf	110	lbf	51	19	76	M6 x 1
870 – 001	1000	N	100	kgf	220	lbf	51	19	76	M10 x 1.5
870 – 006	2500	N	250	kgf	550	lbf	51	25	76	M12 x 1.75
870 – 008	5000	N	500	kgf	1100	lbf	51	25	76	M12 x 1.75
870 – 003	10	kN	1000	kgf	2200	lbf	51	25	76	M12 x 1.75
870 – 007	25	kN	2500	kgf	5500	lbf	76	25	108	M16 x 2

Cylindrical

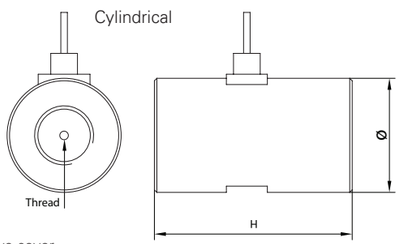
Part No.	Capacity				Ø (mm)	H (mm)	Thread
870 - 011	*50	kN	5000	kgf	11 000	lbf	70	120	M36 x 3
870 - 010	*100	kN	10 000	kgf	22 000	lbf	70	120	M36 x 3

Accuracy ±0.25% of full scale * Uni-directional calibration (please specify tension or compression)

S-Beam



Cylindrical



** 6mm added to the overall width of the central portion due to the protective cover

Compression only sensors

Load button cell – 'smart'

The Load Button Cell is a sensor for compression measurement only where the available space is very limited. For optimum results apply compressive load to the top of the sensors central dome. It is available in 2 designs and varying load capacities. The Miniature series features 3 threaded holes for fixing the Load Button to a base and is typically larger and taller than the Sub-Miniature series which has a low-profile design without fixing holes.

Miniature Series

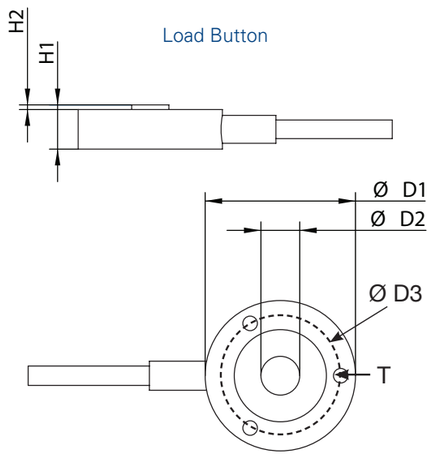
Part No.	Capacity				ØD1 (mm)	ØD2 (mm)	ØD3 (mm)	H1 (mm)	H2 (mm)	T
878 - 008	100	N	10	kgf	22	lbf	25	5	19	8	1.3	4/40UNC
878 - 009	250	N	25	kgf	55	lbf	25	5	19	8	1.3	4/40UNC
878 - 010	500	N	50	kgf	110	lbf	31	8	25	10	1.3	6/32UNC
878 - 011	1000	N	100	kgf	220	lbf	31	8	25	10	1.3	6/32UNC
878 - 012	2500	N	250	kgf	550	lbf	31	8	25	10	1.3	6/32UNC
878 - 013	5000	N	500	kgf	1100	lbf	31	8	25	10	1.3	6/32UNC
878 - 014	10	kN	1000	kgf	2200	lbf	31	8	25	10	1.3	6/32UNC
878 - 015	20	kN	2000	kgf	5500	lbf	38	11	32	16	2	6/32UNC
878 - 016	50	kN	5000	kgf	11 000	lbf	38	11	32	16	2	6/32UNC

Accuracy ±1% of full scale

Sub-miniature Series

Part No.	Capacity				ØD1 (mm)	ØD2 (mm)	H1 (mm)	H2 (mm)
878 - 002	100 N	10	kgf	22	lbf	19	5	6.4	0.6
878 - 003	250 N	25	kgf	55	lbf	19	5	6.4	0.6
878 - 004	500 N	50	kgf	110	lbf	19	5	6.4	0.6
878 - 005	1000 N	100	kgf	220	lbf	19	5	6.4	0.6
878 - 006	5000 N	500	kgf	1100	lbf	19	5	6.4	0.6

Accuracy ±1% of full scale



Dimensions are approximate.
Detailed drawings available upon request

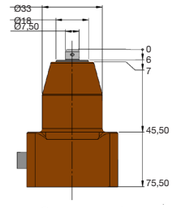
Static torque sensors

TT-ST Torque Transducer 'Smart'

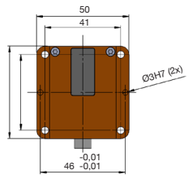
The TT-ST Torque Transducer is a sensor for static torque measurement below 2 N.m in clockwise (CW) and counter-clockwise (CCW) directions. Available in 5 capacities, the torque is applied via a 3mm diameter bore hole or ¼" hex socket. Fixing holes in the sensor body allow it to be mounted to a bench or integrated into a test rig.

Model	Part No.	Capacity						Drive	H (mm)	W (mm)	D (mm)
TT-ST0.05	872 - 030	50	mN.m	500	gf.cm	7	ozf.in	Bore Ø3 H7	75	50	50
TT-ST0.20	872 - 032	200	mN.m	2000	gf.cm	28	ozf.in	Bore Ø3 H7	75	50	50
TT-ST0.50	872 - 033	500	mN.m	5	kgf.cm	4.5	lbf.in	¼" HEX Socket	91	50	50
TT-ST1	872 - 034	1	N.m	10	kgf.cm	9	lbf.in	¼" HEX Socket	91	50	50
TT-ST2	872 - 035	2	N.m	20	kgf.cm	18	lbf.in	¼" HEX Socket	91	50	50

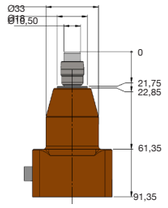
Accuracy ±0.5% of full scale



Side view of TT-ST0.05 and TTST0.20 (Ø3 H7 bore)



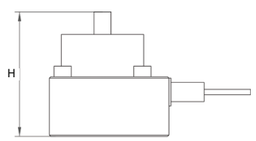
Top View of all TT models

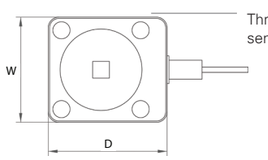


Side view of TT-ST0.50, TT1 and TT-ST2 (¼" HEX Socket)

Static Torque Transducer - 'Smart' (mid & high-torque)

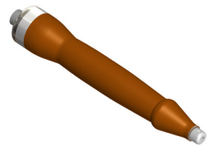
The ST Torque Transducer is a sensor for static torque measurement in clockwise (CW) and counter-clockwise (CCW) directions. Available in 9 capacities from 1.5 N.m to 1,000 N.m, for mounting to a bench or integrating into a complete test rig. Equipped with male square drive for easy fitting of adaptors.





Model	Part No.	Capacity						Sq Drive Male	H (mm)	W (mm)	D (mm)
ST1.5	872 - 001	1.5	N.m	15	kgf.cm	13	lbf.in	3/8"	87	80	90
ST6	872 - 009	6	N.m	60	kgf.cm	53	lbf.in	3/8"	87	80	90
ST10	872 - 004	10	N.m	100	kgf.cm	90	lbf.in	3/8"	87	80	90
ST15	872 - 006	15	N.m	150	kgf.cm	133	lbf.in	3/8"	87	80	90
ST60	872 - 008	60	N.m	600	kgf.cm	530	lbf.in	3/8"	87	80	90
ST100	872 - 003	100	N.m	1000	kgf.cm	870	lbf.in	1/2"	93	80	90
ST150	872 - 005	150	N.m	1500	kgf.cm	1300	lbf.in	1/2"	93	80	90
ST600	872 - 007	600	N.m	6000	kgf.cm	5200	lbf.in	3/4"	113.5	78.7	100
ST1000	872 - 002	1000	N.m	10000	kgf.cm	8850	lbf.in	1"	124	78.7	100

Accuracy ±0.5% of full scale

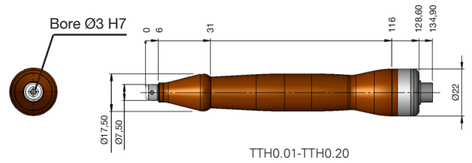


TTH 'Mini' Torque Screwdriver – 'Smart'

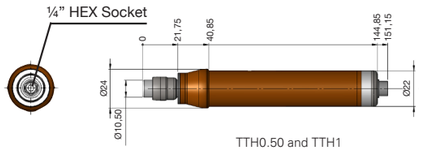
The TTH Mini Torque Screwdriver is designed for hand-held applications requiring the measurement of very fine static torque below 1 N.m. Available in 6 capacities, the torque is applied via a 3mm diameter bore hole or ¼" hex socket.

Model	Part No.	Capacity						Drive	L1 (mm)	Ø (mm)
TTH0.01	871 - 100	10	mN.m	100	gf.cm	1	ozf.in	Bore Ø3 H7	135	22
TTH0.05	871 - 101	50	mN.m	500	gf.cm	7	ozf.in	Bore Ø3 H7	135	22
TTH0.10	871 - 102	100	mN.m	1000	gf.cm	14	ozf.in	Bore Ø3 H7	135	22
TTH0.20	871 - 105	200	mN.m	2000	gf.cm	28	ozf.in	Bore Ø3 H7	135	22
TTH0.50	871 - 103	500	mN.m	5	kgf.cm	4.5	lbf.in	¼" HEX Socket	151	22
TTH1	871 - 104	1	N.m	10	kgf.cm	9	lbf.in	¼" HEX Socket	151	22

Accuracy ±0.5% of full scale



TTH0.01-TTH0.20

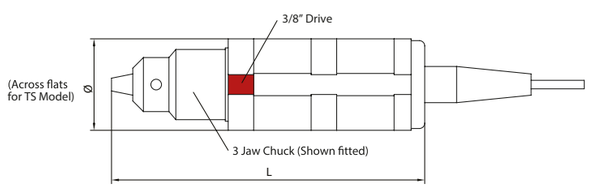


TTH0.50 and TTH1

TS Torque Screwdriver – 'Smart'

The TS Torque Screwdriver is designed for hand-held applications or may be mounted in a bench stand for stationary use. Available in 5 capacities from 0.3 N.m to 10 N.m, the torque is applied via a male square drive or an interchangeable 3-jaw chuck.

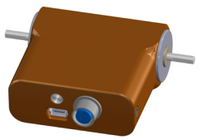
3/8"sq male driver



Model	Part No.	Capacity						Drive	L (mm)	Ø (mm)	Weight (g)
TS0.3	871-004	0.3	N.m	3	kgf.cm	2.6	lbf.in	3/8" sq male/3 jaw chuck	143	43	660
TS1.5	871-002	1.5	N.m	15	kgf.cm	13	lbf.in	3/8" sq male/3 jaw chuck	143	43	660
TS3	871-003	3	N.m	30	kgf.cm	26	lbf.in	3/8" sq male/3 jaw chuck	143	43	660
TS6	871-005	6	N.m	60	kgf.cm	53	lbf.in	3/8" sq male/3 jaw chuck	143	43	660
TS10	871-001	10	N.m	100	kgf.cm	90	lbf.in	3/8" sq male/3 jaw chuck	143	43	660

Supplied as standard with both 3/8" sq male drive & 3/8" opening 3 jaw chuck
Part No 432-113 1/2" opening Chuck Assembly for use with 'TS' Torque Screwdriver (optional extra)

Rotary Torque Sensors

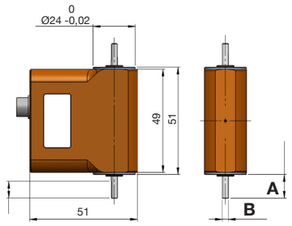


TTR 'Mini' Rotary Torque Transducers – 'Smart'

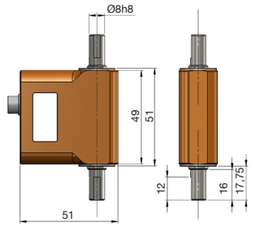
The TTR range of Torque Transducers is designed for applications requiring the measurement of very fine rotary torque below 1 N.m. Available in 5 capacities, the outer housing should be held allowing the central round shaft to rotate as torque is applied. Suitable for applications with multiple revolutions (eg cassette spool mechanism, fine gears) typically up to speeds of 5000 rpm.

Model	Part No.	Capacity						A Shaft Length (mm)	B Shaft Ø (mm)
TTR0.05	877 - 030	50	mN.m	500	gf.cm	7	ozf.in	11.2	Ø 3h8
TTR0.10	877 - 031	100	mN.m	1000	gf.cm	14	ozf.in	10.4	Ø 5h8
TTR0.20	877 - 032	200	mN.m	2000	gf.cm	28	ozf.in	10.4	Ø 5h8
TTR0.50	877 - 033	500	mN.m	5	kgf.cm	4.5	lbf.in	17.75	Ø 8h8
TTR1	877 - 034	1	N.m	10	kgf.cm	9	lbf.in	17.75	Ø 8h8

Accuracy ±0.5% of full scale



TTR0.05 - TTR0.20



TTR0.50 - TTR1

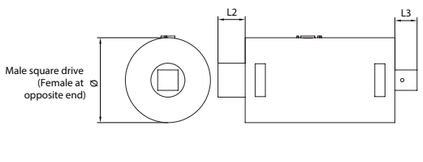
FAST Rotary Torque Transducers – 'Smart'

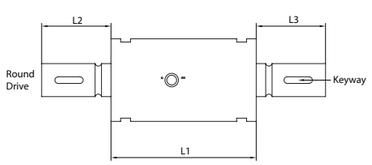
The FAST range of Torque Transducers is designed for applications requiring the measurement of rotary torque from 2 N.m to 150 N.m. The outer housing should be held allowing the central shaft to rotate as torque is applied. Shaft fittings are either round or square-drive. Suitable for torque applications with multiple revolutions typically up to speeds of 5000 rpm.

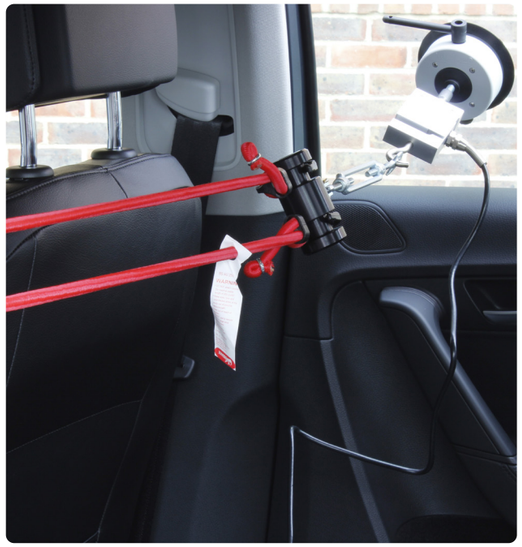
Model	Part No.	Capacity						Drive	L1 (mm)	L2 (mm)	L3 (mm)	Ø (mm)	Max rpm
FAST 2 N.m sq	877 - 020	2	N.m	20	kgf.cm	18	lbf.in	1/4" square	70	16	10	40	1000
FAST 2 N.m rd	877 - 021	2	N.m	20	kgf.cm	18	lbf.in	Ø 9mm round*	70	28	28	40	5000
FAST 6 N.m sq	877 - 022	6	N.m	60	kgf.cm	53	lbf.in	1/4" square	70	16	10	40	1000
FAST 6 N.m rd	877 - 023	6	N.m	60	kgf.cm	53	lbf.in	Ø 9mm round*	70	28	28	40	5000
FAST 15 N.m sq	877 - 024	15	N.m	150	kgf.cm	133	lbf.in	1/4" square	70	16	10	40	1000
FAST 15 N.m rd	877 - 025	15	N.m	150	kgf.cm	133	lbf.in	Ø 9mm round*	70	28	28	40	5000
FAST 60 N.m sq	877 - 026	60	N.m	600	kgf.cm	530	lbf.in	3/8" square*	70	24	13	50	1000
FAST 60 N.m rd	877 - 027	60	N.m	600	kgf.cm	530	lbf.in	Ø 14mm round*	70	28	28	50	5000
FAST 150N.m sq	877 - 028	150	N.m	15.3	kgf.m	111	lbf.ft	1/2" square	70	35	19	50	1000
FAST 150 N.m rd	877 - 029	150	N.m	15.3	kgf.m	111	lbf.ft	Ø 19mm round*	70	55	55	50	5000

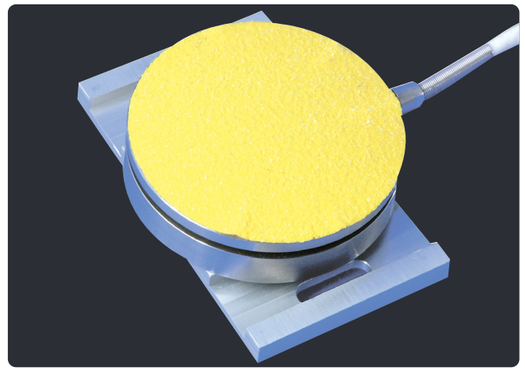
- Maximum axial force is 40 N
- Maximum lateral radial force is 50 N
- Accuracy ±1% of full scale

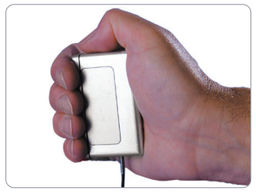
* fitted with keyway

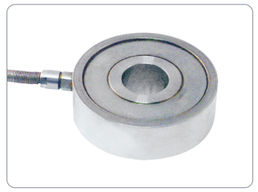












In addition to Mecmesin's standard range of Smart force and torque sensors, we can also supply custom sensors for more challenging applications - contact our sales engineers for advice

Discover Mecmesins range of sensors online
visit mecmesin.com/sensors

VFTI

touchscreen force & torque indicator

The VFTI Touchscreen Force & Torque Indicator is a high specification touchscreen display unit, with all the features and benefits of the VFG, for use with Mecmesin 'Smart' force and torque sensors. These 'plug and play' sensors connect to the VFTI via a 'Smart' adapter enabling the calibration parameters of the sensor to be automatically recognised without the need for any operator input.

This versatility make the VFTI ideal for a variety of test applications requiring force or torque sensors.

Discover Mecmesins VFTI online
visit mecmesin.com/vfti

All Mecmesin Smart Sensors are 'plug and play' for use with the AFG and VFG range of digital force gauges (containing their own internal loadcell). Alternatively they can be used with the AFTI and VFTI digital displays (no loadcell inside). Take advantage of Mecmesin's latest VFG and VFTI touchscreen instruments to get the best out of your Smart sensors.

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