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Force and Torque Measurement Products



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We make a measurable difference ...

For more than 25 years, Mark-10 has been an innovative designer and manufacturer of force and torque measuring instruments. We produce a wide range of standard equipment and offer full engineering capabilities for customized applications.

We serve a variety of industries around the world, including medical, pharmaceutical, automotive, textile, consumer products, aerospace, food and beverage, and more.

Our products utilize proven sensor, electronics, and material technologies, and all carry a 3-year warranty. All engineering and manufacturing are performed in our Copiague, New York facility. Gauges and sensors are calibrated in our laboratory to NIST standards.



Automotive

- Ergonomics
- Airbag deployment
- Buttons & switches
- Torque tool calibration
- Switch testing
- Seat belt retractors
- Fastener torque testing
- Windshield wiper arm force

Medical / Pharmaceutical



- Blade sharpness
- Suture strength
- Catheter torque
- Stent strength
- Syringe insertion and extraction
- Burst testing
- Tube terminal pull strength
- Closure torque



Electronics

- Crimp pull strength
- Peel strength
- Keypad testing
- Weld strength
- Wire terminal strength
- Component removal force
- Contact activation force
- Connector force

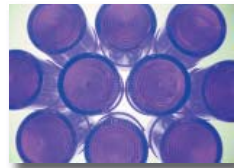


... in force and torque measurement



General Manufacturing

- Spring testing
- Torque tool testing
- Push-out force testing
- Tensile testing



Plastics & Chemicals

- Film bond strength
- Adhesion testing
- Foam compression
- Elastomer elongation testing
- Ceramics and plastics bending
- Peel testing

Food & Beverage



- Fruit ripeness testing
- Puncture testing
- Package seal testing
- Package burst testing
- Bottle cap testing
- Food texture testing





Welcome to Mark-10

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Configuring a Mark-10 System

Force Testing Systems

1 Test stand

Produces the force needed for the test. A test stand eliminates much of the variability inherent in hand-held testing with a force gauge. Motorized and manual models are available.

2 Digital force gauge

Measures the force being produced on the test sample. Choose from Series BG, CG, EG, and MG gauges. All Mark-10 gauges mount to Mark-10 test stands without the need for any extra adapters.

3 Travel display

Useful in spring testing, elongation testing, and other applications where displacement is a relevant factor. Digital and mechanical models are available, depending on the test stand.

4 Grips and attachments

Choose from a wide range of grips and attachments, many designed for specific tests such as peel testing, wire terminal testing, and more.



Torque Testing Systems

1 Test stand

Produces the torque needed for the test. A test stand eliminates much of the variability inherent in hand-held testing with a torque gauge. Motorized and manual models are available.

2 Torque sensor

Measures the torque being produced on the test sample. Choose from a selection of different sensor types and capacities.

3 Digital indicator

Displays the torque being produced on your test sample. Choose from the BGI universal gauge with choice of torque sensor, or the all-in-one MGT. Series STJ sensors and MGT gauges mount to Mark-10 torque test stands without the need for any extra adapters.

4 Grips and attachments

Choose from a selection of grips and attachments, designed for such applications as bottle cap torque testing, fastener torque testing, and more.



Digital angle display (not shown)

Useful in spring testing, cap torque testing, and many other applications.

Digital Force & Torque Gauges



Series BG / CG

The advanced Series BG and Series CG force gauges include sophisticated measurement capabilities, data outputs, computer control capabilities, and a long list of features and configurable settings. When used with Mark-10 motorized test stands, the BG or CG can stop test stand travel at operator-selectable set points and prevent force overload (requires optional items). Go / no go type testing can be accomplished with an optional plug-in high / low limits indicator.

Features:

■ Communication with external devices

RS-232, Mitutoyo, and analog outputs, dual set points with outputs, general purpose I/O for external device control

■ Averaging mode

For obtaining average readings over time, particularly useful for peel testing

■ Gauge Control Language

Full computer control of all gauge functions

■ Customizable default configuration

Set filters, communication settings, measurement settings, mode of operation, and more

Series EG

Series EG force gauges are ideal for compression and tension applications requiring accuracy and flexibility in the 0.12 lbF to 500 lbF range. Features include selectable units of measurement, automatic peak memory, simple pushbutton calibration, programmable automatic shutoff, initial status of units and mode of operation, permanent configuration memory, and optional outputs (RS-232, Mitutoyo, and analog). Reversible aluminum housing allows for hand-held use or test stand mounting.

Features:

■ Optional communications package

RS-232, Mitutoyo, analog outputs

■ Push-button calibration

Simple and quick calibration procedure

■ Peak memory recall

For tension and compression

■ Selectable units of measurement

Displays lbF, kgF, or N

■ Customizable default configuration

Set filters, communication settings, measurement settings, mode of operation, and more



Digital Force & Torque Gauges



Series MG

Series MG digital force gauges offer an economical solution for push and pull testing of up to 500 lbf. Rugged aluminum construction allows Series MG gauges to be hand-held or mounted to a test stand. Three pushbuttons allow the operator to easily select units of measurement, reset zero, and recall peak loads. Compact design makes the MG portable and flexible for a wide range of applications.

Features:

■ Compact design

Portable and flexible for a wide range of applications

■ Push-button calibration

Simple and quick calibration procedure

■ Peak memory recall

For tension and compression

■ Selectable units of measurement

■ Reversible housing



Series MGT

Series MG digital torque gauges offer an economical solution for torque testing up to 100 lbin. A dedicated remote torque sensor with rugged aluminum housing and Jacobs chuck can be used in a wide range of hand-held and test stand-mounted applications. Three pushbuttons allow the operator to easily select units of measurement, reset zero, and recall peak loads.

Features:

■ Compact design

Portable and flexible for a wide range of applications

■ Push-button calibration

Simple and quick calibration procedure

■ Peak memory recall

For clockwise and counter-clockwise

■ Selectable units of measurement

■ Reversible housing

Digital Force & Torque Gauges



Series CT

Series CT closure torque testers present a powerful, yet value priced solution for closure manufacturers, bottlers, food and beverage companies, and others. The tester features a solid aluminum housing and rugged construction for many years of service in laboratory or production environments. Adjustable posts effectively grip a broad range of container shapes and sizes, while a set of optional jaws are available as an alternative gripping method. The controls and electronics of the CT are based on Series MG gauges.

Features:

- **Peak memory recall**

For application and removal measurements

- **Selectable units of measurement**

Displays lbin, kgFmm, or Ncm

- **Movable sample gripping posts**

- **Solid aluminum housing**

- **Push-button calibration**

Simple and quick calibration procedure



Series ST

ST Torque Tool Testers present a simple yet accurate solution for testing torque screwdrivers, wrenches, and other tools. The ST features a solid aluminum housing, making it rugged enough for many years of service in production or laboratory use, while a universal receptacle with square drive and grooves accepts common bits and attachments. The controls and electronics of the ST are based on Series MG gauges.

Features:

- **Peak memory recall**

For application and removal measurements

- **Selectable units of measurement**

Displays lbin, kgFmm, or Ncm

- **Universal tool receptacle**

- **Solid aluminum housing**

- **Push-button calibration**

Simple and quick calibration procedure



Digital Force & Torque Gauges

Specifications

	BG / BGI	CG	EG	ST	MG / MGT	CT
Accuracy (% of full scale)	±0.2% ±1 digit		±0.3% ± 1 digit	±0.5% ± 1 digit		
Sampling rate (readings/s)	65		30	65	30	
Display rate (updates/s)	2.5 / 65 in peak mode		2.5 / 30 in peak mode	2.5 / 65 in peak mode	2.5 / 30 in peak mode	
Power	AC or rechargeable battery. Includes Intelligent Power Management System (IPM). IPM warns the user via a "LO BAT" indicator and then will power off the gauge			AC or non-rechargeable battery, includes IPM		
Battery life	8-10 hours of continuous use per charge			30 hours of continuous use		
Peak capture	Yes, in tension and compression (cw and ccw for torque gauges)					
Units of measurement	lbF, gF / kgF (depending on model), and N (selectable)			lbFin / ozFin (depending on model), kgFmm, Ncm (selectable)		
Outputs	Standard		Optional	Standard	N/A	Optional
RS-232	Fully configurable up to 9600 baud. Includes Gauge Control Language (GCL).		Fully configurable up to 9600 baud		N/A	Fully configurable up to 9600 baud
Mitutoyo (Digimatic)	Serial BCD suitable for all Mitutoyo SPC-compatible devices				N/A	Serial BCD suitable for all Mitutoyo SPC-compatible devices
Analog	±1 VCD, ±0.25% of full scale at capacity. Positive for compression, negative for tension			N/A		
General purpose I/O	Three open collector outputs and one input (utilizing Mitutoyo lines)		N/A			
Set point	Three open collector lines (utilizing Mitutoyo lines)		N/A			
Configurable Settings	Analog filters, digital filters, outputs selection, automatic output (through RS-232), automatic shutoff, initial (default), averaging mode, calibration		Outputs selection, automatic shutoff, initial (default), calibration		Automatic shutoff, initial (default), calibration	Outputs selection, automatic shutoff, initial (default), calibration
Load cell deflection	0.010 in [0.25 mm] at full capacity	0.015 in [0.38 mm] at full capacity	0.010 in [0.25 mm] at full capacity	N/A	0.010 in [0.25 mm] at full capacity (N/A to MGT)	N/A
Safe overload	150% of full scale (display shows "----" at 110% and above)					
Weight (lb [kg])	BG012 - BG200: 0.95 [0.4] BG500: 1.12 [0.5] BGI: 0.9 [0.4]	All capacities: 1.8 [0.8]	EG012 - EG200: 0.95 [0.4] EG500: 1.12 [0.5]	All capacities: 4.8 [2.2]	MG025 - MG200: 0.7 [0.3] MG500: 0.87 [0.4] MGT: 1.8 [0.8]	All capacities: 10.0 [4.5]
Included items	Carrying case, AC adapter/charger, rechargeable 7.2V battery, NIST-traceable certificate of calibration, attachments (BG / CG: chisel, cone, V-groove, hook, flat, extension rod, BGI: none)		Carrying case, AC adapter, non-rechargeable 9V battery, NIST-traceable certificate of calibration, hook, flat	AC adapter, non-rechargeable 9V battery, NIST-traceable certificate of calibration	Carrying case, AC adapter, non-rechargeable 9V battery, NIST-traceable certificate of calibration, hook, flat	AC adapter, non-rechargeable 9V battery, NIST-traceable certificate of calibration
Environmental requirements	40°F - 100°F [5°C - 45°C], <96% humidity (non-condensating)					
Thermal effects	Zero: 0.03% of full scale/°C, Span: 0.01% of full scale/°C					

Ordering Information

Below models use 110V power. For 220V operation, add suffix "E" to model number. Ex: CT50E

Model No.		Capacity				Resolution				Dim. Drawing Page No.	
		lbin	ozin	kgFmm	Ncm	lbin	ozin	kgFmm	Ncm		
CT	CT12	12	-	140	135	0.01	-	0.1	0.1	36	
	CT50	50	-	580	570	0.05	-	0.5	0.5		
	CT100	100	-	1150	1150	0.1	-	1	1		
	CTRS	Outputs option for any Series CT torque tester. Available at time of order or as a retrofit.									
	CT001	Optional sample gripping jaws, pair									
	CT002	Carrying case for CT									
ST	ST12	12	-	140	135	0.01	-	0.1	0.1	36	
	ST50	50	-	580	570	0.05	-	0.5	0.5		
	ST100	100	-	1150	1150	0.1	-	1	1		
	ST001	Bench mounting bracket for ST									
	ST002	Carrying case for ST									



Digital Force & Torque Gauges



Ordering Information (cont'd)

Model No.		Capacity				Resolution				Dim. Drawing Page No.
		lbin	ozin	kgFmm	Ncm	lbin	ozin	kgFmm	Ncm	
MGT	MGT10Z	-	10	7	7	-	0.01	0.005	0.005	36
	MGT20Z	-	20	14	14	-	0.02	0.01	0.01	
	MGT50Z	-	50	36	35	-	0.05	0.05	0.05	
	MGT12	12	-	140	135	0.01	-	0.1	0.1	
	MGT50	50	-	580	570	0.05	-	0.5	0.5	
	MGT100	100	-	1150	1150	0.1	-	1	1	
		lbF	gF	kgF	N	lbF	gF	kgF	N	
BG	BG012	0.12	50	-	0.5	0.0005	0.02	-	0.0002	35
	BG025	0.25	100	-	1	0.0001	0.05	-	0.0005	
	BG05	0.5	250	-	2.5	0.0002	0.1	-	0.001	
	BG2	2	-	1	10	0.001	-	0.0005	0.005	
	BG5	5	-	2.5	25	0.002	-	0.001	0.01	
	BG10	10	-	5	50	0.005	-	0.002	0.02	
	BG20	20	-	10	100	0.01	-	0.005	0.05	
	BG50	50	-	25	250	0.02	-	0.01	0.1	
	BG100	100	-	50	500	0.05	-	0.02	0.2	
	BG200	200	-	100	1000	0.1	-	0.05	0.5	
CG	BG500	500	-	250	2500	0.2	-	0.1	1	35
	CG1000	1000	-	500	5000	0.5	-	0.2	2	
EG	EG012	0.12	50	-	0.5	0.0001	0.05	-	0.0005	35
	EG025	0.25	100	-	1	0.0002	0.1	-	0.001	
	EG05	0.5	250	-	2.5	0.0005	0.2	-	0.002	
	EG2	2	-	1	10	0.002	-	0.001	0.01	
	EG5	5	-	2.5	25	0.005	-	0.002	0.02	
	EG10	10	-	5	50	0.01	-	0.005	0.05	
	EG20	20	-	10	100	0.02	-	0.01	0.1	
	EG50	50	-	25	250	0.05	-	0.02	0.2	
	EG100	100	-	50	500	0.1	-	0.05	0.5	
	EG200	200	-	100	1000	0.2	-	0.1	1	
	EG500	500	-	250	2500	0.5	-	0.2	2	
EGRS		Outputs option for any Series EG force gauge. Available at time of order or as a retrofit.								
MG	MG012	0.12	50	-	0.5	0.0001	0.05	-	0.0005	35
	MG025	0.25	100	-	1	0.0002	0.1	-	0.001	
	MG05	0.5	250	-	2.5	0.0005	0.2	-	0.002	
	MG2	2	-	1	10	0.002	-	0.001	0.01	
	MG5	5	-	2.5	25	0.005	-	0.002	0.02	
	MG10	10	-	5	50	0.01	-	0.005	0.05	
	MG20	20	-	10	100	0.02	-	0.01	0.1	
	MG50	50	-	25	250	0.05	-	0.02	0.2	
	MG100	100	-	50	500	0.1	-	0.05	0.5	
	MG200	200	-	100	1000	0.2	-	0.1	1	
	MG500	500	-	250	2500	0.5	-	0.2	2	





Universal Force / Torque Gauge



Universal Force / Torque Gauge Model BGI

Test up to 10,000 lbF of force and 5,000 lbin of torque with interchangeable remote sensors

The innovative BGI Universal Force / Torque Gauge is the ultimate in force and torque measurement flexibility. With all the features of the Series BG, coupled with compatibility with a wide selection of external force and torque sensors, the BGI is a versatile solution for many force and torque testing applications. All sensors are fully interchangeable with the BGI, with no operator configuration required - simply plug and play.



Universal Force / Torque Gauge



BGI Torque Sensors

1 Series STJ

Universal Torque Sensors, fixed chuck

Measure bi-directional torque for a wide variety of applications. Contains a chuck for up to 1/2" diameter samples. The sensor can be used as a hand held device, or mounted to a torque test stand. Capacities available from 10 ozin to 100 lbin.

2 Series STH

Universal Torque Sensors, interchangeable chucks

A great solution for general bi-directional torque testing applications with several different sample sizes. Three interchangeable chuck capacities and bit holder are available. The STH has superb overload protection and is available in capacities from 10 ozin to 100 lbin.

3 Series STE

Wrench Extension Torque Sensors

Convert any wrench to a torque tool with this sensor, or use it as a component of a torque testing system. Capacities available from 20 lbin to 5,000 lbin.

4 Series STC

Static Torque Sensors

Calibrate torque tools, or use it as a component of a torque testing system. Tapped holes on every surface allow for easy mounting to a work bench or fixture. Capacities available from 10 ozin to 100 lbin.

5 Series STW

Torque Wrenches

Ideal for testing application and removal torque on bolts and other fasteners, with numerous uses in the automotive, aerospace, and other industries. Capacities available from 100 lbFin to 1000 lbFin.

6 Series STB

Closure Torque Sensors

Ideal for testing torque on bottle caps and containers. Reversible jaws or movable posts, depending on model, effectively accommodate a variety of shapes and sizes. Capacities available from 10 ozin to 100 lbin.

BGI Force Sensors

7 Series SS

Tension / Compression Sensors

A rugged sensor for measuring tensile and compressive force of up to 10,000 lbF. Durable S-Beam design with thread on two sides allows for many applications and setups. Solid steel construction ensures many years of use.

8 Series SSM

Inline Tension / Compression Sensors

Measures tensile and compressive loads for a wide variety of applications, available in capacities from 0.25 lbF to 100 lbF. Thread on two sides can accept a variety of hooks and implements, making this sensor particularly well suited for inline tests.

9 Series SJR

Miniature Tension / Compression Sensors

Extremely compact force measurement sensor for tensile and compressive loads in applications with limited space. Capacities available from 0.25 lb to 100 lbF. The sensors include threaded holes on two sides for the mounting of attachments or implements.

10 Series SBC

Compact Compression Sensors

Button type sensor for compressive loads of up to 10,000 lbF. Compact and rugged, the SBC is ideal for heavy duty applications with space constraints.

11 Series SHP

Pull / Tension Sensors

Fully enclosed type load cell for pull testing. Useful in ergonomics testing, workplace safety testing, and general lifting or push/pull requirements. For up to 500 lbF of force.



Universal Force / Torque Gauge

Specifications and Ordering Information - BGI & BGI Force Sensors

Model No.	Description
BGI	Universal force/torque gauge, 110V
BGIE	Universal force/torque gauge, 220V

Model No.		Capacity					Resolution					Accuracy (% of full scale)*	Safe Overload (% of full scale)	Dim. Drawing Page No.
		lbF	gF	kgF	N	kN	lbF	gF	kgF	N	kN			
SS	SS50	50	-	25	250	-	0.02	-	0.01	0.1	-	±0.15	150	38
	SS100	100	-	50	500	-	0.05	-	0.02	0.2	-			
	SS200	200	-	100	1000	-	0.1	-	0.05	0.5	-			
	SS500	500	-	250	2500	-	0.2	-	0.1	1	-			
	SS1000	1000	-	500	5000	-	0.5	-	0.2	2	-			
	SS2000	2000	-	1000	10000	-	1	-	0.5	5	-			
	SS5000	5000	-	2500	-	25	2	-	1	-	0.01			
	SS10000	10000	-	5000	-	50	5	-	2	-	0.02			
SSM	SSM025	0.25	100	-	1	-	0.0001	0.05	-	0.0005	-	±0.15	200	39
	SSM05	0.5	250	-	2.5	-	0.0002	0.1	-	0.001	-			
	SSM2	2	-	1	10	-	0.001	-	0.0005	0.005	-			
	SSM5	5	-	2.5	25	-	0.002	-	0.001	0.01	-			
	SSM10	10	-	5	50	-	0.005	-	0.002	0.02	-		150	
	SSM20	20	-	10	100	-	0.01	-	0.005	0.05	-			
	SSM50	50	-	25	250	-	0.02	-	0.01	0.1	-			
	SSM100	100	-	50	500	-	0.1	-	0.02	0.5	-			
SJR	SJR025	0.25	100	-	1	-	0.0001	0.05	-	0.0005	-	±0.2	200	39
	SJR05	0.5	250	-	2.5	-	0.0002	0.1	-	0.001	-			
	SJR2	2	-	1	10	-	0.001	-	0.0005	0.005	-			
	SJR5	5	-	2.5	25	-	0.002	-	0.001	0.01	-			
	SJR10	10	-	5	50	-	0.005	-	0.002	0.02	-			
	SJR20	20	-	10	100	-	0.01	-	0.005	0.05	-			
	SJR50	50	-	25	250	-	0.02	-	0.01	0.1	-			
	SJR100	100	-	50	500	-	0.1	-	0.05	0.5	-			
SBC	SBC100	100	-	50	500	-	0.05	-	0.02	0.2	-	±0.5	150	39
	SBC200	200	-	100	1000	-	0.1	-	0.02	0.5	-			
	SBC500	500	-	250	2500	-	0.2	-	0.1	1	-			
	SBC1000	1000	-	500	5000	-	0.5	-	0.2	2	-			
	SBC2000	2000	-	1000	10000	-	1	-	0.5	5	-			
	SBC5000	5000	-	2500	-	25	2	-	1	-	0.01			
	SBC10000	10000	-	5000	-	50	5	-	2	-	0.02			
SHP	SHP500	500	-	250	2500	-	0.2	-	0.1	1	-	±0.15	150	39

All sensors include a cable and connector for the BGI force / torque gauge and a NIST-traceable certificate of calibration.

* Accuracy refers to the sensor only. Total accuracy includes BGI (±0.1). For example, the total accuracy of the SS50 sensor equals ±0.15 + ±0.1 = ±0.25.

Universal Force / Torque Gauge



Specifications and Ordering Information - BGI Torque Sensors

Model No.		Capacity				Resolution				Accuracy (% of full scale)*	Safe Overload (% of full scale)	Dim. Drawing Page No.
		ozin	lbin	kgFmm	Ncm	ozin	lbin	kgFmm	Ncm			
STJ	STJ10Z	10	-	7	7	0.01	-	0.005	0.005	±0.35	300	37
	STJ20Z	20	-	14	14	0.02	-	0.01	0.01			
	STJ50Z	50	-	36	35	0.05	-	0.05	0.05			
	STJ12	-	12	140	135	-	0.01	0.1	0.1			
	STJ50	-	50	580	570	-	0.05	0.5	0.5			
	STJ100	-	100	1150	1150	-	0.1	1	1			
STH	STH10Z	10	-	7	7	0.01	-	0.005	0.005	±0.15	300	37
	STH20Z	20	-	14	14	0.02	-	0.01	0.01			
	STH50Z	50	-	36	35	0.05	-	0.05	0.05			
	STH12	-	12	140	135	-	0.01	0.1	0.1			
	STH50	-	50	580	570	-	0.05	0.5	0.5			
	STH100	-	100	1150	1150	-	0.1	1	1			
STE	STE20	-	20	230	220	-	0.02	0.2	0.2	±0.6	150	37
	STE50	-	50	580	570	-	0.05	0.5	0.5			
	STE100	-	100	1150	1150	-	0.1	1	1			
	STE200	-	200	2300	2200	-	0.2	2	2			
	STE400	-	400	4600	4500	-	0.5	5	5			
	STE1000	-	1000	11500	11000	-	1	10	10			
	STE5000	-	5000	55 kgFm	550 Nm	-	5	0.05 kgFm	0.5 Nm			
STC	STC10Z	10	-	7	7	0.01	-	0.005	0.005	±0.35	300	37
	STC20Z	20	-	14	14	0.02	-	0.01	0.01			
	STC50Z	50	-	36	35	0.05	-	0.05	0.05			
	STC12	-	12	140	135	-	0.01	0.1	0.1			
	STC50	-	50	580	570	-	0.05	0.5	0.5			
	STC100	-	100	1150	1150	-	0.1	1	1			
STB	STB10Z	10	-	7	7	0.01	-	0.005	0.005	±0.7	300	38
	STB20Z	20	-	14	14	0.02	-	0.01	0.01			
	STB50Z	50	-	36	35	0.05	-	0.05	0.05			
	STB12	-	12	140	135	-	0.01	0.1	0.1			
	STB50	-	50	580	570	-	0.05	0.5	0.5			
	STB100	-	100	1150	1150	-	0.1	1	1			
STW	STW100	-	100	1150	1150	-	0.1	1	1	±0.7	150	38
	STW500	-	500	5000	5000	-	0.5	5	5			
	STW1000	-	1000	11500	11000	-	1	10	10			

All sensors include a NIST-traceable certificate of calibration.

* Accuracy refers to the sensor only. Total accuracy includes the BGI's accuracy (±0.1). For example, the total accuracy of the STJ50 sensor is ±0.35 + ±0.1 = ±0.45.



Test Stands

Model ES05

Force, Manual, 30 lbF / 150 N

The ES05 test stand is an economical and compact compression test stand for various testing applications. A spring-loaded lever allows for repeatable testing with up to 1.5" (38 mm) displacement, and the lever mechanism can be repositioned along the length of the column.

Features:

- **Spring loaded lever mechanism**

Convenient for repetitive testing.

- **Repositionable lever mechanism**

Adds flexibility in test setups.

- **Compact size**

Portable, small footprint.



ES20

ES10

Models ES10 and ES20

Force, Manual, 100 lbF / 500 N

The ES10 and ES20 test stands are economical and compact push/pull solutions for many testing applications. Available in lever (ES10) or hand wheel (ES20) operation.

Features:

- **Choice of lever (ES10) or hand wheel (ES20) operation**

Lever action provides for quick testing at high speeds, while hand wheel action allows for fine positioning and better motion control.

- ▶ **Optional 1" dial or digital indicator**

For spring testing, rubber and polymer testing, and more. Digital model displays in and mm.

- **Compact size**

Portable, small footprint.





Model ES30

Force, Manual, 200 lbF / 1000 N

The ES30 accommodates a wide range of sample shapes and sizes due to generous travel distance, daylight, and throat distance. Convenient side-mounted hand wheel operation makes testing easier.

Features:

- **Side mounted hand wheel**

Convenient loading method, offers more control over test speed.

- **Removable base**

The entire base may be removed for alternative mounting.

- **Optional 6" digital travel display**

Useful in spring testing, rubber and polymer testing, and more.

- **Optional column extensions**

For testing long samples. Available in lengths of 6" [152 mm], 12" [305 mm], and 24" [610 mm]. Custom lengths also available.



Model TSA / TSAH

Force, Manual, 750 lbF / 3750 N

The TSA is a rugged stand for heavy duty testing applications requiring quick action. Lever operation allows the operator to produce 750 lb with relatively little effort. Modular design allows for the force gauge bracket and lever mechanism to be repositioned along the column. Available in vertical and horizontal configurations.

Features:

- **Rack and pinion mechanism with lever operation**

Allows for quick testing. The lever can be repositioned in 30° increments.

- **Adjustable travel stops**

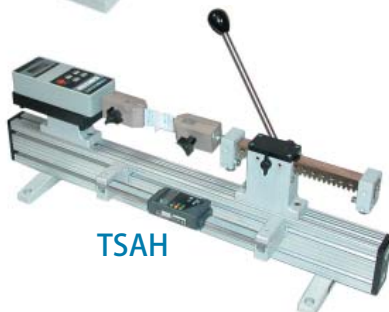
For limiting travel distance. Useful in repetitive testing.

- **Optional 6" digital travel display**

Useful in spring testing, rubber and polymer testing, and more.



TSA



TSAH



Test Stands

Model TSB

Force, Manual, 100 lbF / 500 N

The TSB is an economical lever operated test stand for many applications requiring quick action. Lightweight and compact design makes this stand portable for field testing. Modular design allows for the force gauge bracket and lever mechanism to be repositioned along the column. Removable base allows for a range of custom mounting configurations. Adjustable travel stops are available.

Features:

- **Rack and pinion mechanism with lever operation**

Allows for quick testing. The lever can be repositioned in 30° increments.

- **Removable base with loading table**

A steel loading table with threaded holes is provided for grip or fixture mounting. The entire base may be removed for alternative mounting.

- **Optional 6" digital travel display**

Useful in spring testing, rubber and polymer testing, and more.



TSC

Model TSC / TSCH

Force, Manual, 1000 lbF / 5000 N

The TSC is a rugged stand for heavy duty testing requirements requiring precision action and fine control of travel. Hand wheel operation allows the operator to produce gradual and repeatable force during testing. Modular design allows for the gauge mounting plate and housing to be moved along the length of the column. Removable base (TSC) or mounting legs (TSCH) allow for a range of custom mounting configurations.

Features:

- **Inline hand wheel operation**

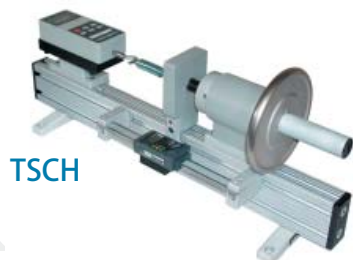
Precision Acme screw and nut provide smooth operation over the entire 1000 lbF range. Inline force minimizes column bending during testing.

- **Modular design**

Adjustable components accommodate a wide range of testing configurations.

- **Optional 6" digital travel display**

Useful in spring testing, rubber and polymer testing, and more.



TSCH



Model TSF / TSFH

Force, Manual, 1000 lbF / 5000 N

The TSF is a rugged stand with an exceptionally strong and rigid column, making it perfect for spring testing, high force tensile testing, and other applications. Precision side-mounted hand wheel operation is virtually effortless over the entire 1000 lb range. Modular design allows for the gauge mounting plate and housing to be moved along the length of the column. Removable base (TSF) or mounting legs (TSFH) allow for a range of custom mounting configurations.

Features:

- **Side-mounted hand wheel operation**

Convenient loading method makes testing easier and more efficient.

- **Exceptionally strong column**

Rugged 3" x 3" column is durable and stiff, ideal for spring testing. Inline force minimizes column bending during testing.

- **Optional 6" digital travel display**

Useful in spring testing, rubber and polymer testing, and more.

TSF



TSFH



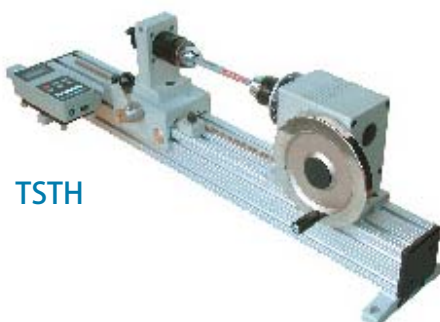
Model TST / TSTH

Torque, Manual, 100 lbin / 11.3 Nm

The TST is ideal for a wide variety of torque testing applications up to 100 lbin, including closure torque testing, fastener torque testing, and more. Smooth hand wheel operation ensures ease of use and a lever-operated slider with travel stops is provided for engaging and disengaging samples. The stand includes a torque loading table with tapped holes for grip mounting and a resettable angle indicator. Available in vertical and horizontal configurations.



TST



TSTH

Features:

- **Lever operated slider**

For simply and quickly engaging and disengaging samples.

- ▶ **Fixture mounting table with angle indicator**

A steel table with threaded holes and resettable analog angle indicator are included.

- ▶ **Optional digital angle indicator**

Useful in torsion spring testing, bottle cap testing, catheter testing, and more.





Test Stands

Model ESM300

Force, Motorized, 300 lbF / 1500 N

The ESM300 is a highly configurable motorized test stand for tension and compression applications that introduces a unique concept in force testing: all major controller software features are optional and may be purchased at time of order or added by the user in the field at a later date. Such flexibility makes the ESM300 a highly versatile tester that can be as basic or advanced as required, from basic push/pull requirements to programmable sequences for demanding test procedures. When fully equipped, the stand has a class-leading speed range, configurable cycling sequences with dwell time at limits, auto-return, button control options, password protection, and more. An LCD with intuitive menu navigation and modular mechanical design round out the features of this motorized test stand.

Standard Features

Controller Features

- LCD with UP, DOWN, STOP, and emergency stop buttons and soft keys
- Selectable speed units of measurement (in/min & mm/min)
- Configurable password prevents unwanted changes to test parameters

Test Frame Features

- Integrated travel limit switches
- Removable fixture mounting plate with matrix of threaded holes
- Stepper motor-driven, produces 0% speed variation with increasing load
- Mounting holes for bench mounting
- Unique mechanical design significantly reduces column bending

Optional Hardware Features

► Digital travel display

6" [150 mm] travel, 0.0005" [0.01 mm] resolution, SPC output for data collection.

■ Set point cable

Stops test stand travel or cycles between programmable high and low force set points. Compatible with Mark-10 force gauges with set point outputs only.

■ Overload protection module

Protects the force gauge against overloads, adjustable from 20 - 110% of gauge's full capacity. Compatible with Mark-10 force gauges equipped with analog output.

■ Column extensions

Available in 6" (150 mm), 12" (300 mm), 24" (600 mm), and custom lengths



The ESM300 is shown in a typical tensile testing application, with Series BG digital force gauge, digital travel display, and parallel jaw grips



Optional digital travel display



Optional Controller Features

Any of the below option packages may be purchased at time of order or may be added in the field at a later date by entering an activation code.

■ Auto-return

The crosshead moves to a limit switch or force set point (requires a force gauge with set point outputs), stops, and reverses direction at full speed to the other limit switch or set point.

■ Cycling / Dwell Time

The crosshead moves up and down between limit switches or force set points. Dwell time allows the operator to program the length of time for which the crosshead pauses at limits.

■ Programmable Button Functions

Expands UP and DOWN button operation to three user-configurable modes:

1. Maintained (standard): a short push produces continuous motion until STOP is pressed
2. Momentary: crosshead moves only while the button is pressed
3. Auto: short push produces maintained motion, while holding the button down will produce momentary motion

■ Independent Up and Down Speeds

Configurable speeds for up and down directions

■ Low Speed Extended Range

Extends the speed range to 0.02 - 13 in/min (0.5 - 330 mm/min)

■ High Speed Extended Range

Extends the speed range to 0.5 - 45 in/min (13 - 1100 mm/min)

■ Complete Speed Range

Extends the speed range to 0.02 - 45 in/min (0.5 - 1100 mm/min)

■ Complete Options Package

Includes all the above options



Digital controller contains a backlit LCD screen with menu choices for ease of setup and operation

Specifications

Load capacity	1 - 24 in/min (25 - 610 mm/min) > 24 in/min (> 610 mm/min)	300 lbf [1.5 kN] 200 lbf [1 kN]
Standard speed range	0.5-13 in/min [13-330 mm/min]	
Maximum travel	12.5 in [317 mm]	
Speed setting accuracy	±0.2%	
Speed variation with load	±0% [Stepper motor driven]	
Limit switch repeatability	0.001 in [0.03 mm]	
Power	Universal input 80-240 VAC, 50/60 Hz	
Weight (without options)	30 lbs [13.6 kg]	
Included accessories:	Extension rod, small hook, medium hook, #10-32 coupler, compression plate, force gauge mounting hardware, tool kit	

Ordering Information

Model No.	Description
Hardware	
ESM300	Motorized test stand, 110 V
ESM300E	Motorized test stand, 220 V
ESM300-001	Digital travel display, 6" x 0.0005 (150 mm x 0.01)
ESM300-002-1	Column extension, 6"
ESM300-002-2	Column extension, 12"
ESM300-002-3	Column extension, 24"
09-1090	Set point cable
11-1042	Overload protection module
Controller Options	
CF001	Auto return
CF002	Cycling / dwell time
CF003	Programmable button functions
CF004	Independent up and down speeds
CF005-1	Low speed range extension
CF005-2	High speed range extension
CF005-3	Complete speed range
CF006	Complete options package (includes all above items)



Test Stands

Model ESM

Force, Motorized, 200 lbF / 1000 N



The ESM motorized test stand is a versatile and precision testing solution for most compression and tensile testing applications up to 200 lbF. It can accept a wide variety of sample shapes and sizes and can be configured for many applications due to its modular design.

Speed is adjustable and a remote control unit provides added safety during testing. Other features include a manual fine adjustment knob and a stepper motor that prevents speed variation with load, making testing precise and repeatable.

When used with a Series BG force gauge, the ESM can stop travel at user selectable force set points (requires optional set point cable). The optional overload protection module prevents force gauge overload.

Features:

■ Broad speed range

Set the speed from 0.5 - 13 in [13 - 330 mm]/min. Custom ranges available.

■ No speed variation with load

Stepper motor control eliminates any speed variation, regardless of the force produced.



■ Removable base with loading table

A steel loading table with threaded holes is provided for grip or fixture mounting. The entire base may be removed for alternative mounting.

◀ Optional 6" digital travel display

Useful in spring testing, rubber and polymer testing, and more.



◀ Optional limit switch kit

Set of upper and lower adjustable solid state limit switches. Repeatable to within 0.001" [0.03 mm].

■ Optional column extensions

For testing long samples. Available in lengths of 6" [152 mm], 12" [305 mm], and 24" [610 mm]. Custom lengths also available.



Model ESMH

Force, Motorized, 50 lbf / 250 N



The ESMH is a universal horizontal tester designed for tension, compression, and friction testing.

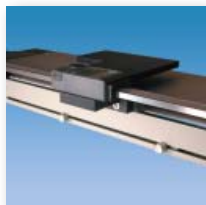
The tester features integrated limit switches for repetitive testing and other requirements. Speed is adjustable and a remote control unit provides added safety during testing. Other features include a stepper motor that prevents speed variation with load, making testing precise and repeatable.

When used with a Series BG force gauge, the ESMH can stop travel at user selectable force set points (requires optional set point cable). The optional overload protection module prevents force gauge overload.

Features:

■ Broad speed range

Set the speed from 0.2 - 50" [5 - 1270 mm]/min. Custom ranges available.



■ No speed variation with load

Stepper motor control eliminates any speed variation, regardless of the force exerted.

◀ Integrated limit switches

Set of adjustable solid state limit switches. Repeatable to within 0.001" [0.03 mm].



◀ Optional 12" digital travel display

Useful in spring testing, rubber and polymer testing, and more.

■ Fully enclosed design

Protects internal components and allows for friction testing on the aluminum top surface.

■ Removable loading plate

A removable aluminum loading table with threaded holes is provided for grip or fixture mounting.



Test Stands



TSFM500



TSFM500H

Model TSFM500 / TSFM500H

Force, Motorized, 500 lbF / 2500 N

The TSFM500 is designed for compression and tension testing of springs, packaging, metals, fabrics, and other items requiring up to 500 lb of force. Generous clearance and throat depth accommodate a broad range of sample shapes and sizes. The TSFM500's durable and rigid column minimizes bend, making it particularly well suited for precision spring testing.

Speed is adjustable and a remote control unit provides added safety during testing. Other features include a manual fine adjustment knob and a stepper motor that prevents speed variation with load, making testing precise and repeatable.

When used with a Series BG or CG force gauge, the stand can stop travel at user selectable force set points (requires optional set point cable). The optional overload protection module prevents force gauge overload.

Available in vertical and horizontal configurations.

Features:

■ Broad speed range

Set the speed from 0.2 - 5.5" [5 - 140 mm]/min. Custom ranges available.

■ No speed variation with load

Stepper motor control eliminates any speed variation, regardless of the force produced.

■ Removable base

The entire base may be removed for alternative mounting in a larger testing system.

◀ Optional 6" digital travel display

Useful in spring testing, rubber and polymer testing, and more.

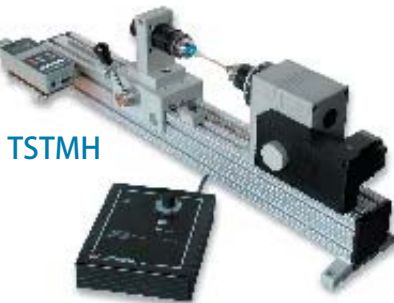
◀ Optional limit switch kit

Set of upper and lower adjustable solid state limit switches. Repeatable to within 0.001" [0.03 mm].

■ Custom column lengths available



TSTM



TSTMH

Model TSTM / TSTMH

Torque, Motorized, 100 lbin / 11.3 Nm

The TSTM Motorized Torque Measurement Test Stand is ideal for a wide variety of torque testing applications up to 100 lbin, including closure torque testing, fastener torque testing, and more. Motorized clockwise and counterclockwise rotation allows for highly precise and repeatable tests. Versatile modular design allows the stand to be configured for a variety of torque sensors and gripping fixtures while a lever-operated slider with travel stops makes engaging and disengaging samples quick and efficient. The stand includes a torque loading plate with tapped holes for grip and custom fixture mounting and a resettable angle indicator.

When used with a BGI force/torque gauge and sensor, the TSTM can stop rotation at user selectable torque set points (requires optional set point cable). The optional overload protection module prevents force gauge overload.

Available in vertical and horizontal configurations. Manually operated torque stands are also available.

Features:

■ Broad speed range

Set the rotational speed from 0.3 - 8.6 RPM (4 - 52°/s). Custom ranges available.

■ No speed variation with load

Stepper motor control eliminates any speed variation, regardless of the torque produced.

► Fixture mounting table with angle indicator

A steel table with threaded holes is provided for grip or fixture mounting. A resettable analog angle indicator is also provided, with resolution of 2°.



► Optional digital angle indicator

Useful in torsion spring testing, bottle cap testing, catheter testing, and more. The indicator has 0.1° resolution and includes a "zero" button and backlight. Accurate to $\pm 0.7^\circ$.



■ Custom column lengths available



Test Stands

Specifications

Model	Capacity lbF [N]	Maximum travel ¹ in [mm]	Loading method	Travel rate in [mm]	Daylight ² in [mm]	Included accessories	Dim. Drawing Page No.
ES05	30 [150]	1.5 [38]	Lever	-	8 [203]	-	40
ES10	100 [500]	9 [229]	Lever	1.050 [26.7] / lever rev.	9 [229]	-	40
ES20			Top-mounted hand wheel	0.083 [2.1] / wheel rev.			40
ES30	200 [1000]	13 [330]	Side-mounted hand wheel	0.05 [1.3] / wheel rev.	14 [356] ³	Tool kit ⁸ , extension rod (G1031-1), small hook (G1028), medium hook (G1038), #10-32 coupler (G1039), 2" compression plate (G1009)	40
TSA	750 [3750]	w/stops: 2.75 [70]	Rack & pinion, lever can be positioned in 30° increments	3.00 [76.2] / lever rev.	10.5 [267] ³	Tool kit ⁸ , medium hook (G1038), large hook (G1035), 2" compression plate (G1009)	41
TSAH		w/o stops: 6 [152]			14.5 [368] ³		42
TSB	100 [500]						13 [330] ³
TSC	1000 [5000]	3.5 [89]	Inline hand wheel	0.10 [2.5] / wheel rev.	10 [254] ³	Tool kit ⁸ , medium hook (G1038), large hook (G1035), 2" compression plate (G1009)	42
TSCH					13 [330] ³		42
TSF				Side-mounted hand wheel	0.013 [0.34] / wheel rev.	14 [356] ³	Tool kit ⁸ , small hook (G1028), medium hook (G1038), large hook (G1035), 2" and 3" compression plates (G1009, G1009-1), #10-32 coupler (G1039), 5/16-18 coupler (G1037)
TSFH						16.5 [419] ³	
TSFM500	500 [2500]	4 [102]		0.2 - 5.5 [5 - 140] / min	14 [356] ³		43
TSFM500H					16.5 [419] ³		43
ESM300	300 [1500]	12.5 [317]	Motorized	0.02 - 45 [0.5 - 1100] / min	14 [356] ³	Tool kit ⁸ , extension rod (G1031-1), small hook (G1028), medium hook (G1038), #10-32 coupler (G1039), 2" compression plate (G1009)	41
ESM	200 [1000]	13 [330]		0.5 - 13 [13 - 300] / min			41
ESMH	50 [250]			0.2 - 50 [5 - 1270] / min	13 [330]		41
TST	100 lbin [11.3 Nm]	Angular travel: ∞, at 2° resolution	Side-mounted hand wheel	12° / wheel rev.	15 [381] ^{3,7}	Tool kit ⁸	44
TSTH					16 [406] ^{3,7}		44
TSTM		Slider travel: 15.5 [394] ⁶ Slider rate: 1.047 [26.6] / lever rev. ⁶	Motorized	0.3 - 8.6 RPM [4 - 52° / s]	13 [330] ^{3,7}		44
TSTMH					16 [406] ^{3,7}		44

1. Maximum travel depends on the grips or fixtures used during testing. The dimensions indicate distances without the use of grips or fixtures.

2. The clearance between the bottom of a mounted force gauge or sensor and the loading surface of the stand. This distance will be less if grips or fixtures are used. The numbers in this chart are approximate. If your test sample size is very close to the daylight figure above (or daylight less grip(s) or fixture(s)), a column extension may be necessary.

3. Longer columns available.

4. All force test stands include force gauge mounting screws.

5. All torque test stands include an adapter to secure the Series STJ torque sensor during testing. Adapters are also available for other torque sensors.

6. The slider is intended for engaging and disengaging samples. The torque sensor adapter is mounted to the slider.

7. With use of a Series STJ torque sensor.

8. Tool kit consists of a set of Allen keys for test stand adjustments, assembly, and disassembly.



Ordering Information

Test Stand Model No.	Description
Optional Item Part No.	
ES05	Test stand, lever operated, vertical, 30 lbF
ES10	Test stand, lever operated, vertical, 100 lbF
ES20	Test stand, hand wheel operated, vertical, 100 lbF
ES001	Dial indicator kit for ES10 / ES20, 1" x 0.001"
ES002	Digital indicator kit for ES10 / ES20, 1" x 0.0005" / 25 x 0.01 mm
ES30	Test stand, hand wheel operated, 200 lbF
ESM001	Digital travel display for ESM / ES30, 6" x 0.0005" [150 mm x 0.01]
TSA	Test stand, lever operated, vertical, 750 lbF
TSAH	Test stand, lever operated, horizontal, 750 lbF
TSA001	Digital travel display for TSA / TSAH, 6" x 0.0005" [150 mm x 0.01]
TSA002	Horizontal / wall mounting kit for TSA / TSC
TSB	Test stand, lever operated, vertical, 100 lbF
TSB001	Digital travel display for TSB, 6" x 0.0005" [150 mm x 0.01]
TSB002	Horizontal / wall mounting kit for TSB
TSB003	Travel stops kit for TSB
TSC	Test stand, inline hand wheel operated, vertical, 1000 lbF
TSCH	Test stand, inline hand wheel operated, horizontal, 1000 lbF
TSC001	Digital travel display for TSC / TSCH, 6" x 0.0005" [150 mm x 0.01]
TSA002	Horizontal / wall mounting kit for TSA / TSC
TSF	Test stand, side-mounted hand wheel operated, vertical, 1000 lbF
TSFH	Test stand, side-mounted hand wheel operated, horizontal, 1000 lbF
TSFM500*	Test stand, motorized, vertical, 500 lbF, 110V
TSFM500H*	Test stand, motorized, horizontal, 500 lbF, 110V
TSF001	Digital travel display for Series TSF test stands, 6" x 0.0005" [150 mm x 0.01]
TSF002	Horizontal / wall mounting kit for TSF / TST / TSTM
TSFM002	Limit switch kit for TSFM500 / TSFM500H
ESM300	See page 16
ESM*	Test stand, motorized, vertical, 200 lbF, 110V
ESM001	Digital travel display for ESM / ES30, 6" x 0.0005" [150 mm x 0.01]
ESM002	Limit switch kit for ESM
ESM003-1	Column extension for ESM/ES30, 6"
ESM003-2	Column extension for ESM/ES30, 12"
ESM003-3	Column extension for ESM/ES30, 24"
ESMH*	Test stand, motorized, horizontal, 50 lbF, 110V
ESMH001	Digital travel display for ESMH, 12" x 0.0005" [330 mm x 0.01]
TST	Test stand, side-mounted hand wheel operated, vertical, 100 lbin
TSTH	Test stand, side-mounted hand wheel operated, horizontal, 100 lbin
TSTM*	Test stand, motorized, vertical, 100 lbin, 110V
TSTMH*	Test stand, motorized, horizontal, 100 lbin, 110V
TST001*	Digital angle indicator for Series TST test stands, 0.1° resolution
TSF002	Horizontal / wall mounting kit for TSF / TST / TSTM

* Add suffix E for 220V operation. Example: ESME



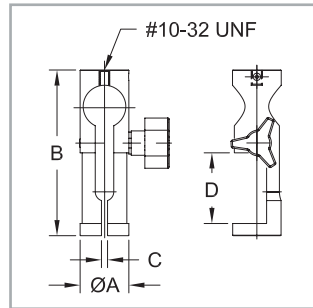
Grips & Attachments

► All dimensions presented as IN [MM]

Wire terminal grips

For testing wire terminals, cables, connectors, and other samples for pull testing.

Model No.	Capacity lbF [N]	Weight lb [kg]	ØA	B	C	D
G1001	200 [1000]	0.29 [0.13]	1.00 [25.4]	3.40 [86.4]	0 - 0.125 [0 - 3.1]	1.45 [36.8]
G1001-1					0.125 - 0.25 [3.1 - 6.3]	
G1001-2					0.25 - 0.375 [6.3 - 9.5]	

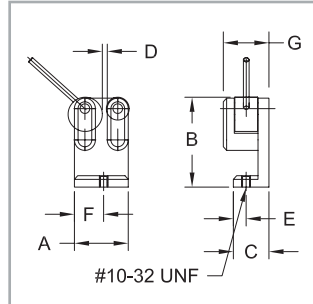


Dual roller grip

For securing the ends of wire, cable, and tubing samples for pull testing. Engaging and disengaging samples is quick and easy with an efficient cam design and convenient side slot for sample insertion. Steel rollers are serrated for good grip.

Model No.	Capacity lbF [N]	Weight lb [kg]
G1002	200 [1000]	0.19 [0.09]

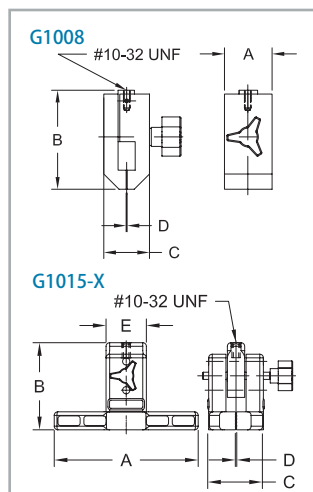
A	B	C	D	E	F	G
1.18 [30.0]	2.00 [50.8]	0.75 [19.1]	0 - 0.25 [0 - 6.3]	0.25 [6.4]	0.64 [16.3]	1.0 [25.4]



Film and paper grips

For gripping film, paper, labels, packaging, and other thin materials for tensile and peel testing. Adjustable serrated interlocking jaws grip the sample securely.

Model No.	Capacity lbF [N]	Weight lb [kg]	A	B	C	D
G1008	100 [500]	0.31 [0.14]	1.00 [25.4]	2.50 [63.5]	1.60 [40.6]	0 - 0.15 [0 - 3.8]
G1015-1		0.57 [0.26]	3.00 [76.2]	3.00 [76.2]	1.90 [48.3]	0 - 0.50 [0 - 12.7]
G1015-2		0.67 [0.30]	5.00 [127.0]			
G1015-3		0.77 [0.35]	7.00 [177.8]			



Grips & Attachments

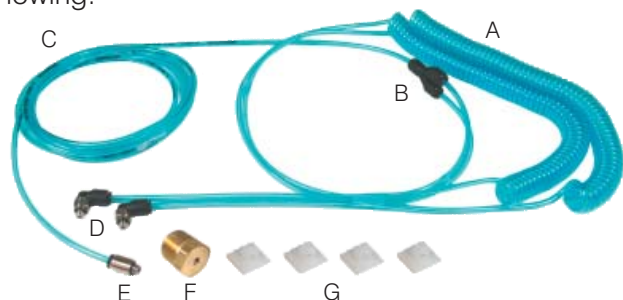


Pneumatic film and paper grip

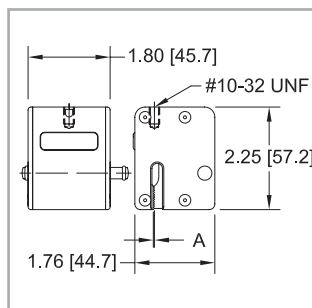
Fully enclosed, air-powered grip for seal strength testing of packaging, elongation testing of various materials, and other tensile testing requirements. Serrated interlocking jaws effectively grip samples for up to 100 lb of force. The grip features a unique integrated open/close valve for quick sample engagement and disengagement. An air connection kit, consisting of tubing and fittings needed to connect two grips, is available separately.

Model No.	Capacity lbf [N]	Weight lb [kg]	Max. pressure PSI (MPa)	Air input thread	A
G1046	100 [500] at 100 PSI [0.86 MPa]	0.58 [0.26]	125 [0.86]	#10-32 UNF	0 - 0.13 [0 - 3.3]

The optional air connection kit consists of the following:



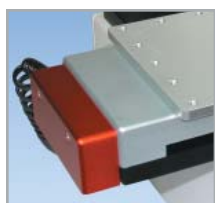
Model No.	Description
AC1019	Air connection kit for G1046



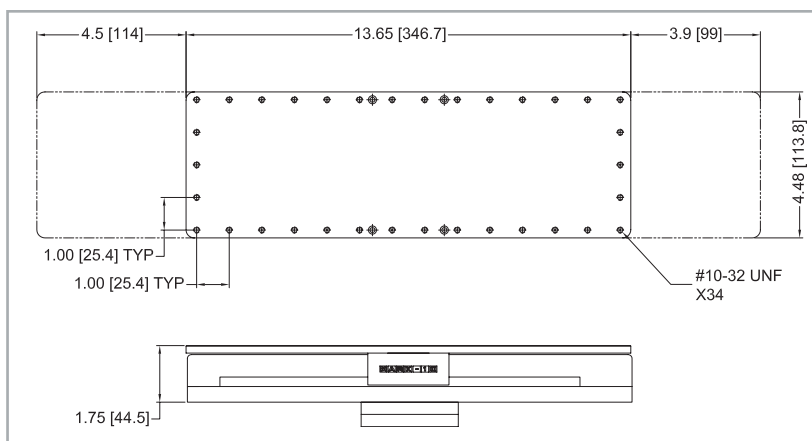
- A. Coiled tubing, 1/8" OD, 1/16" ID, 8" retracted length (qty. 2)
- B. Y-splitter (qty. 1)
- C. Straight tubing, 1/8" OD, 1/16" ID, 5' length (qty. 1)
- D. Elbow fitting, tubing to #10-32M (qty. 1)
- E. Straight fitting, tubing to #10-32M (qty. 1)
- F. Thread adapter, #10-32F to 1/4" NPT M (qty. 1)
- G. Adhesive-backed guide (qty. 4)

90° Peel Fixture

For the testing of adhesives, films, and various types of packaging. Maintains a 90° angle between the table and direction of pull. Optional limit switch stops motorized travel, preventing cable breakage.



◀ G1045-1
optional limit switch



Model No.	Description
G1045	90° peel fixture
G1045-1	Limit switch for G1045

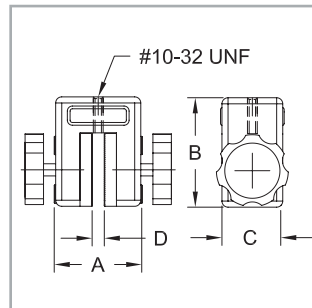


Grips & Attachments

Parallel jaw grip

For general pull testing applications. Manually tightened serrated jaws may be individually adjusted.

Model No.	Capacity lbF [N]	Weight lb [kg]	A	B	C	D
G1013	200 [1000]	0.65 [0.29]	1.75 [44.5]	2.25 [57.2]	1.25 [31.8]	0 - 0.25 [0 - 6.3]

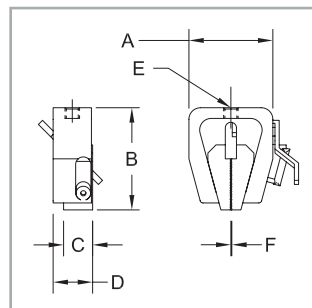


Wedge grips

For a variety of tensile testing requirements. These heavy duty self-tightening grips can accept various sample thicknesses. Serrated jaws are easily opened by a spring loaded lever.

Model No.	Capacity lbF [kN]	Weight lb [kg]
G1012	200 [1]	0.30 [0.14]
G1012-1	2000 [10]	0.90 [0.41]

Model No.	A	B	C	D	E	F
G1012	1.65 [41.9]	2.02 [51.3]	0.6 [15.2]	0.83 [21.1]	#10-32 UNF	0 - 0.17 [0 - 4.3]
G1012-1	2.75 [69.9]	3.27 [83.1]	1.0 [25.4]	1.38 [35.1]	5/16-18 UNC	0 - 0.39 [0 - 9.9]



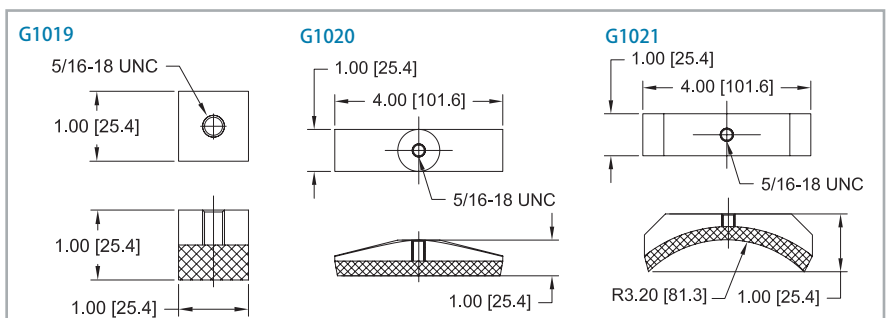
Padded attachments

For applications in physical therapy and ergonomics, including muscle strength testing, job task requirements, and more.

Model No.	Capacity lbF [kN]	Weight lb [kg]
G1019	500 [2.5]	0.03 [0.01]
G1020	500 [2.5]	0.13 [0.06]
G1021	500 [2.5]	0.25 [0.11]



Supplied with a 5/16-18M to #10-32F adapter



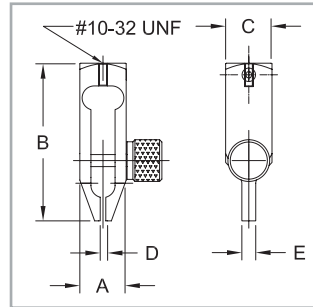
Grips & Attachments



Miniature component grip

For testing small and hard-to-reach electronic and mechanical components. Slender profile allows this grip to be used in a wide range of applications.

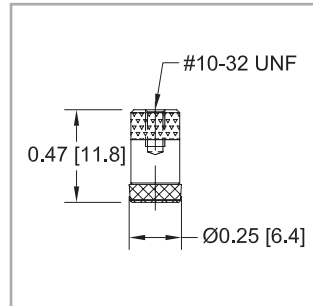
Model No.	Capacity lbF [N]	Weight lb [kg]	A	B	C	D	E
G1003	30 [150]	0.05 [0.02]	0.5 [12.7]	1.7 [43.2]	0.5 [12.7]	0 - 0.07 [0 - 1.8]	0.15 [3.8]



Rubber tip

Simulates a finger for testing pushbuttons, membrane switches, touch-screen panels, keyboards, etc.

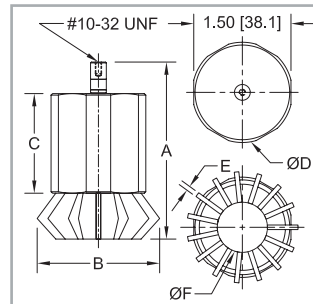
Model No.	Capacity lbF [N]	Weight lb [kg]
G1011	50 [250]	0.01 [0.004]



Multi-jaw grip

For gripping round or odd shaped items.

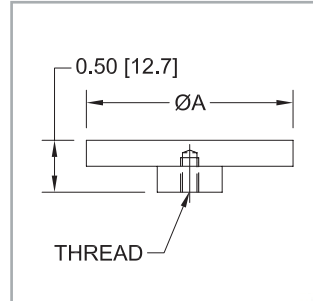
Model No.	Cap. lbF [N]	Weight lb [kg]	ØA	B	C	ØD	E	ØF
G1056	100 [500]	0.30 [0.14]	3.50 [88.9]	2.30 [58.4] MAX	1.63 [41.4]	1.55 [39.4]	0.075 [1.91]	0.40 - 1.25 [10.2 - 31.7]



Compression plates

For compressing springs, foams, cartons, aerosol cans, and many other products.

Model No.	Capacity lbF [N]	Weight lb [kg]	ØA	Thread
G1009	200 [1000]	0.08 [0.04]	2.0 [51.0]	#10-32F
G1009-1	500 [2500]	0.27 [0.12]	3.0 [76.2]	5/16-18F



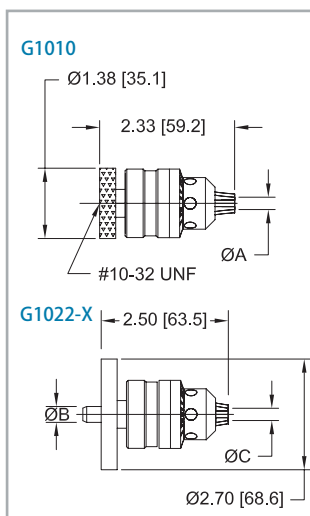


Grips & Attachments

Chuck grips

For securing round samples, fixtures, or bits. Although both models may be used in force and torque applications, the G1010 is typically used in force measurement applications, while the G1022 is typically mounted to Series TST torque test stands for torque measurement applications.

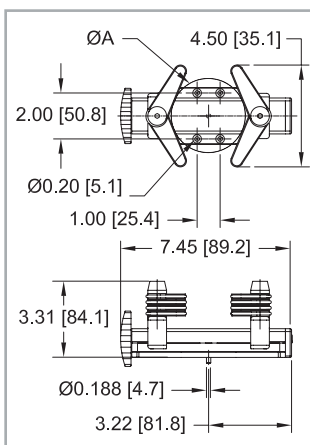
Model No.	Capacity	Weight lb [kg]	ØA	ØB	ØC
G1010	30 lb [150 N]	0.35 [0.16]	0.062 - 0.375 [1.6 - 9.5]	N/A	N/A
G1022-1	100 lbin [11.3 Nm]	0.50 [0.23]	N/A	0.188 [4.7]	0.028 - 0.250 [0.7 - 6.3]
G1022-2					0.062 - 0.375 [1.6 - 9.5]
G1022-3					0.078 - 0.500 [2 - 12.7]



Universal bottle grip

For gripping bottles and containers for closure torque testing. Eight rubber edged gripping arms secure a wide range of sample shapes and sizes and can be individually positioned at angles of up to 180°. Mounts directly to Series TST torque test stands or force test stands (for such applications as top load testing).

Model No.	Capacity lbin [Nm]	Weight lb [kg]	ØA
G1023	100 [11.3]	1.50 [0.7]	4.80 [122.0] MAX

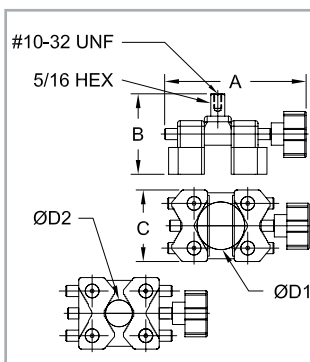


Universal V-Jaw grip

For gripping round objects. Serrated, reversible aluminum jaws effectively grip a wide range of sample shapes and sizes. Mounts directly to Series STH and STJ torque sensors, and Mark-10 force test stands.

Model No.	Capacity lbin [Nm]	Weight lb [kg]
G1053	100 [11.3]	0.39 [0.18]

A	B	C	ØD1*	ØD2*
3.1 [78.7]	2.0 [50.8]	1.6 [40.6]	1.16 - 1.80 [29.5 - 45.7]	0.65 - 1.29 [16.5 - 32.8]



* Jaws must be reversed to switch from ØD1 to ØD2

Grips & Attachments

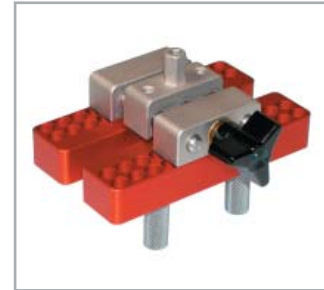
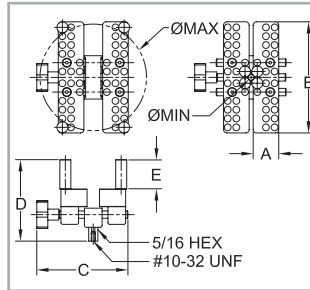


Universal cap grip

For securing caps, lids, and other similar items for torque and pull testing. Accommodates a wide range of sample sizes, and can be used manually with a torque gauge or in test stand applications.

Model No.	Capacity	Weight lb [kg]
G1058	100 lbin [11.3 Nm] or 50 lb [250 N]	0.75 [0.34]

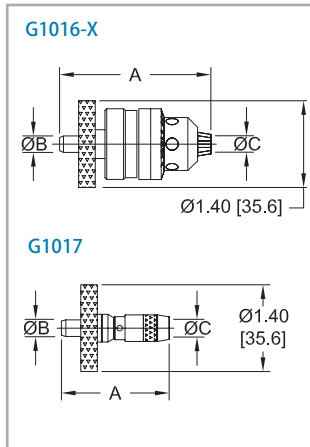
A	B	C	D	E	ØMIN - ØMAX
0.9 [22.9]	3.8 [96.5]	3.2 [81.3]	2.8 [71.1]	1.0 [25.4]	0.20 - 3.50 [5.1 - 89.0]



Series STH attachments

Jacobs chucks and bit holder mount to the STH to secure a fixture, bit, or sample during torque testing.

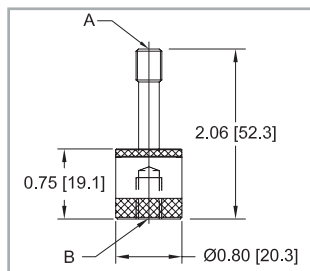
Model No.	Capacity lbin [Nm]	Weight lb [kg]	A	ØB	ØC
G1016-1	100 [11.3]	0.26 [0.12]	2.90 [73.7]	0.188 [4.7]	0.028 - 0.250 [0.7 - 6.3]
G1016-2		0.36 [0.16]	3.16 [80.3]		0.062 - 0.375 [1.6 - 9.5]
G1016-3		0.67 [0.30]	3.73 [94.7]		0.078 - 0.500 [2 - 12.7]
G1017		0.11 [0.05]	2.33 [59.2]		1/4" hex



Swivel adapters

For use in pull testing. Adapters mount between any grip and force gauge to provide a swiveling action for proper sample alignment.

Model No.	Capacity lbF [N]	Weight lb [kg]	A	B
G1018-1	200 [1000]	0.12 [0.05]	#10-32M	#10-32F
G1018-2	500 [2500]	0.27 [0.12]	5/16-18M	5/16-18F



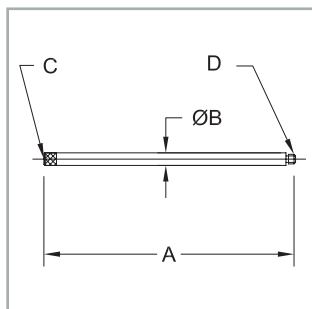


Grips & Attachments

Extension rods

For use between a force gauge and another attachment, such as a hook or compression plate.

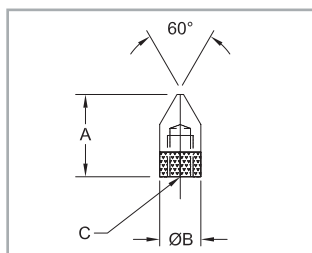
Model No.	Capacity lbF [N]	Weight lb [kg]	A	ØB	C	D
G1024	200 [1000]	0.01 [0.005]	5.0 [127.0]	0.25 [6.4]	#10-32F	#10-32M
G1024-1		0.02 [0.009]	2.0 [50.8]			
G1024-2		0.05 [0.023]	1.0 [25.4]			
G1031	500 [2500]	0.05 [0.023]	5.0 [127.0]	0.50 [12.7]	5/16-18F	5/16-18M
G1031-1		0.10 [0.045]	2.0 [50.8]			
G1031-2		0.25 [0.113]	1.0 [25.4]			



Chisel points

For compressing or puncturing a variety of samples.

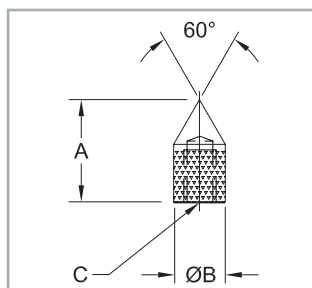
Model No.	Capacity lbF [N]	Weight lb [kg]	A	ØB	C
G1025	200 [1000]	0.003 [0.001]	0.50 [12.7]	0.25 [6.4]	#10-32F
G1032	500 [2500]	0.040 [0.018]	1.00 [25.4]	0.50 [12.7]	5/16-18F



Cone points

For various compression tests.

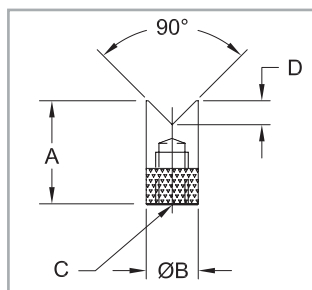
Model No.	Capacity lbF [N]	Weight lb [kg]	A	ØB	C
G1026	200 [1000]	0.003 [0.001]	0.50 [12.7]	0.25 [6.4]	#10-32F
G1033	500 [2500]	0.030 [0.014]	1.00 [25.4]	0.50 [12.7]	5/16-18F



V-grooves

For compression testing of round or odd-shaped samples.

Model No.	Capacity lbF [N]	Weight lb [kg]	A	ØB	C	D
G1027	200 [1000]	0.004 [0.002]	0.50 [12.7]	0.25 [6.4]	#10-32F	0.08 [2.0]
G1034	500 [2500]	0.040 [0.018]	1.00 [25.4]	0.50 [12.7]	5/16-18F	0.25 [6.4]



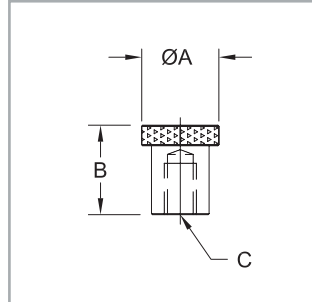
Grips & Attachments



Flat heads

For compression testing of buttons, membrane switches, etc.

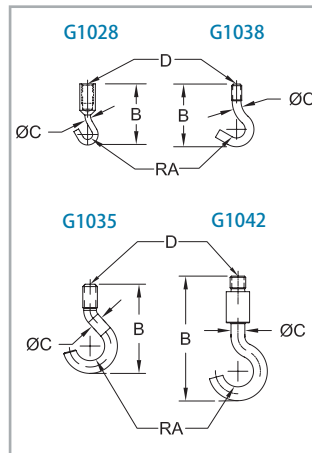
Model No.	Capacity lbF [N]	Weight lb [kg]	ØA	B	C
G1029	200 [1000]	0.01 [0.005]	0.5 [12.7]	0.5 [12.7]	#10-32F
G1036	500 [2500]	0.06 [0.027]	0.75 [19.1]	0.87 [22.1]	5/16-18F



Hooks

For tensile testing of various samples.

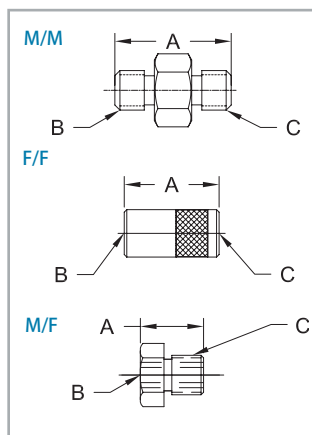
Model No.	Capacity lbF [N]	Weight	RA	B	ØC	D
G1028	20 [100]	0.010 [0.005]	0.05 [1.3]	1.00 [25.4]	0.10 [2.5]	#10-32F
G1038	200 [1000]	0.020 [0.009]	0.20 [5.1]	1.50 [38.1]	0.19 [4.8]	#10-32M
G1035	500 [2500]	0.050 [0.023]	0.30 [7.6]	1.90 [48.3]	0.28 [7.1]	5/16-18M
G1042	1000 [4500]	0.320 [0.145]	0.5 [12.7]	4.10 [104.1]	0.45 [11.4]	1/2-20M



Thread adapters & couplings

For use between force gauge shafts, grips, and/or attachments.

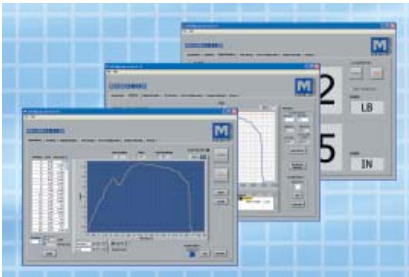
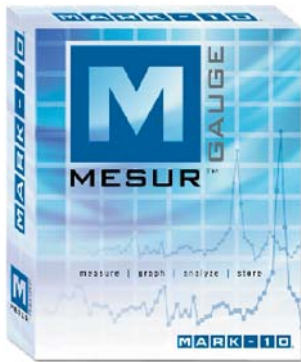
Model No.	Capacity lbF [N]	A	B	C
G1050	100 [500]	0.75 [19.1]	#4-40M	#10-32F
G1051		0.60 [15.2]	#4-40M	#10-32M
G1039		0.75 [19.1]	#10-32F	#10-32F
G1030	200 [1000]	0.50 [12.7]	#10-32F	5/16-18M
G1047		0.75 [19.1]	#10-32M	M4F
G1048		0.75 [19.1]	M4M	#10-32F
G1054		0.75 [19.1]	M6M	#10-32F
G1040	500 [2500]	1.00 [25.4]	5/16-18M	5/16-18M
G1037		1.00 [25.4]	5/16-18F	5/16-18F
G1049		1.25 [31.8]	M6M	5/16-18F
G1041	1000 [5000] or 500 [2500]*	1.00 [25.4]	1/2-20M	5/16-18M



*1000 [5000] when used in compression, 500 [2500] when used in tension



Software



MESURgauge

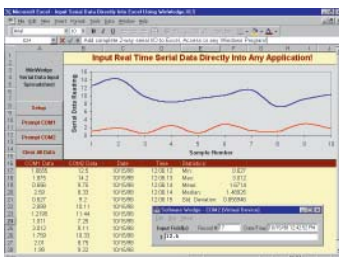
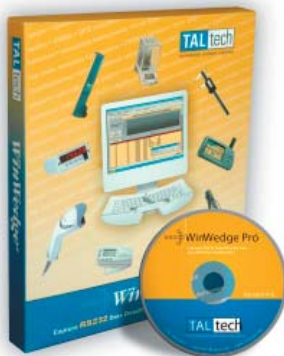
MESURgauge captures load and travel data, graphs load vs. time or travel, calculates statistics, and offers a range of features including one-button export to Excel, customizable reports, configurable test parameters, and more.

Features:

- Inputs data from a force or torque gauge to a PC
- Graphs load vs. time or load vs. travel
- Configurable start and stop test triggers
- Statistical calculations
- One-button export to Excel
- Customizable reports and report templates

Ordering Information:

Model No.	Description
15-1004	MESURgauge software
15-1004-1	MESURgauge DEMO software



WinWedge

Easily transfer data from your Mark-10 gauge to common Windows applications such as Excel, Access, etc. for further analysis.

Features:

- Transfers data to any Windows program
- Provides full two-way I/O for data collection and instrument control
- Collects real-time data on multiple serial ports simultaneously
- Powerful DDE support in Windows
- Easy to set up and use, no programming required

Ordering Information:

Model No.	Description
15-1002	WinWedge 32 Std
15-1003	WinWedge 32 Pro



Double handle grips

For use in ergonomics testing, job task analysis, and physical therapy. Includes four gauge mounting screws.



Model No.	Description
AC1002	Double handle grip for Series BG/EG gauges
AC1003	Double handle grip for Series MG gauges

Single handle grips

For use in ergonomics testing, job task analysis, and physical therapy. Includes four gauge mounting screws.



Model No.	Description
AC1002-1	Single handle grip for Series BG/EG gauges
AC1003-1	Single handle grip for Series MG gauges

Hi / Lo Limits Indicator

Displays limit conditions for a test - red lights for high and low limits, green light to indicate passing. Compatible with Series BG/BGI and CG gauges.



Model No.	Description
11-1022	Hi/Lo limits indicator for BG/BGI/CG

Replacement Battery

Rechargeable 7.2V NiMH battery, for use with Series BG/BGI, EG, and CG gauges.



Model No.	Description
08-1006	Battery, rechargeable, 7.2V

AC adapter/chargers

110V and 220V models available, for use with all Mark-10 gauges.



Model No.	Description
08-1007	AC adapter/charger, 110V
08-1008	AC adapter/charger, 220V

Tabletop stand for BGI force/torque gauge

Features an angle adjustment and thru holes for work-bench mounting. Includes four gauge mounting screws.



Model No.	Description
AC1008	Stand, BGI, tabletop



Accessories

Tabletop mounting kits for torque sensors

For securing Series STC, STJ, STE200, and STE400 torque sensors to a workbench. Mounting screws included.



Model No.	Description
AC1006	Mounting kit, STC, tabletop
AC1007	Mounting kit, STJ, tabletop
AC1010	Mounting kit, STE200/STE400, tabletop

Test stand mounting kits for remote sensors

Refer to the compatibility table below:



Model No.	Sensors	Test Stands
AC1015	Series STH	TST-series torque test stands
AC1016	Models STE200, STE400	TST-series torque test stands
AC1018	Series SS, Series SSM	All force test stands

Set point cable

Stops or reverses motorized test stand travel. Compatible with gauges with set point outputs.



Model No.	Description
09-1090	Set point cable, gauge to motorized test stand

Overload protection module

Protects the gauge against accidental overloads during motorized tests. Adjustable from 20 - 110% of gauge's capacity. Compatible with gauges with analog output.



Model No.	Description
11-1042	Overload protection module, gauge to motorized test stand

Competitor gauge mounting kits

For mounting other brand force gauges to certain Mark-10 force test stands.

Model	Description
AC1020	Gauge mounting kit, Chatillon DFE/DFS/DFX
AC1021	Gauge mounting kit, Chatillon DFM
AC1022	Gauge mounting kit, Chatillon DFIS
AC1023	Gauge mounting kit, Mecmesin AFG/BFG
AC1024	Gauge mounting kit, Imada Z2/DS2/DPZ/DPS
AC1025	Gauge mounting kit, Shimo FGV/FGE



Rundown Fixtures for Series ST Torque Testers

Recommended to assist in obtaining accurate readings when testing power torque tools with Series ST torque testers.



Model No.	Description	Socket Size
AC1026-1	Rundown fixture for ST, 8 - 50 lbin	1/4" hex
AC1026-2	Rundown fixture for ST, 50 - 100 lbin	5/16" hex

Accessories / Ergonomics Testing Kits



Cables & Communication Adapters

A range of output cables and communication adapters are available to send data from force gauges, torque gauges, and travel displays to a PC, printer, or other device.



Model No.	Description
09-1040	Cable, RSM100/RSM100A to Mitutoyo (Digimatic) SPC
09-1047	Cable, gauge to Mitutoyo (Digimatic) SPC
09-1048	Cable, gauge to RS-232, 25-pin
09-1048A	Cable, gauge to RS-232, 9-pin
09-1049	Cable, gauge to analog, dual banana plug
09-1066	Cable, digital travel display to Mitutoyo (Digimatic) SPC
09-1090	Cable, set point, gauge to motorized test stand
MRS100	Adapter, Mitutoyo to RS-232, 25-pin
MRS100A	Adapter, Mitutoyo to RS-232, 9-pin
RSM100	Adapter, RS-232 to Mitutoyo, 25-pin
RSM100A	Adapter, RS-232 to Mitutoyo, 9-pin
09-1040	Cable, RSM100/RSM100A to Mitutoyo SPC
FTSW	Foot switch port option for MRS/RSM

Series MK Ergonomics Testing Kits

Test push/pull muscle strength and functional task requirements

These kits are ideal for ADA compliance, workplace design, and ergonomic studies. Available in 200 lbF and 500 lbF capacities. The kits consist of the following items:

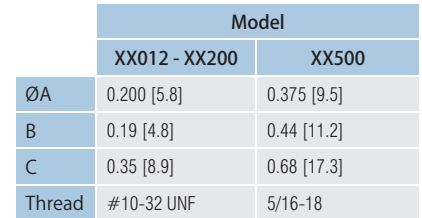
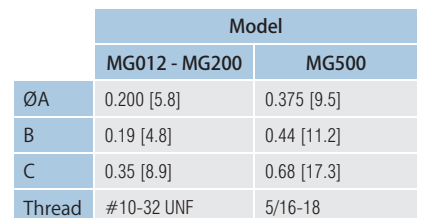
- Series MG digital force gauge
- Double- and single-handle cradles
- Padded attachments
- Implements and accessories

Ordering Information:

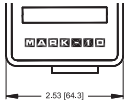
Model No.	Description
MK200	Ergonomics testing kit, 200 lbF capacity
MK500	Ergonomics testing kit, 500 lbF capacity

* Add suffix E for 220V operation. Example: MK200E



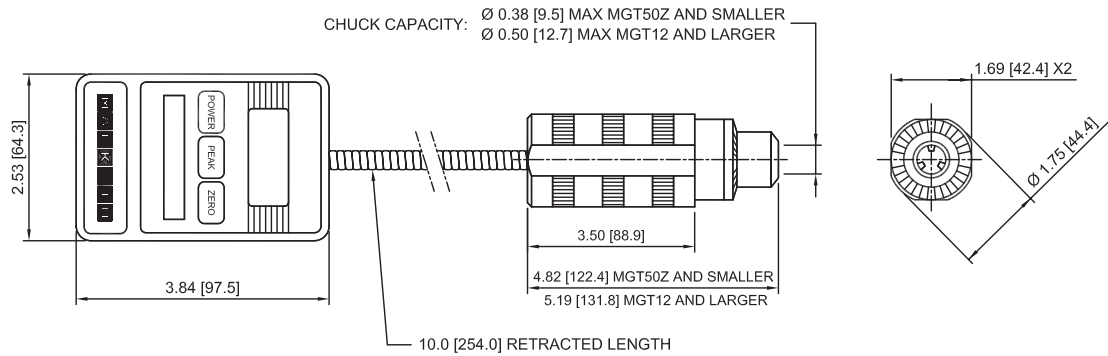
Series BG /
BGI* / EGSeries
CG

Dimensional Drawings IN [MM]

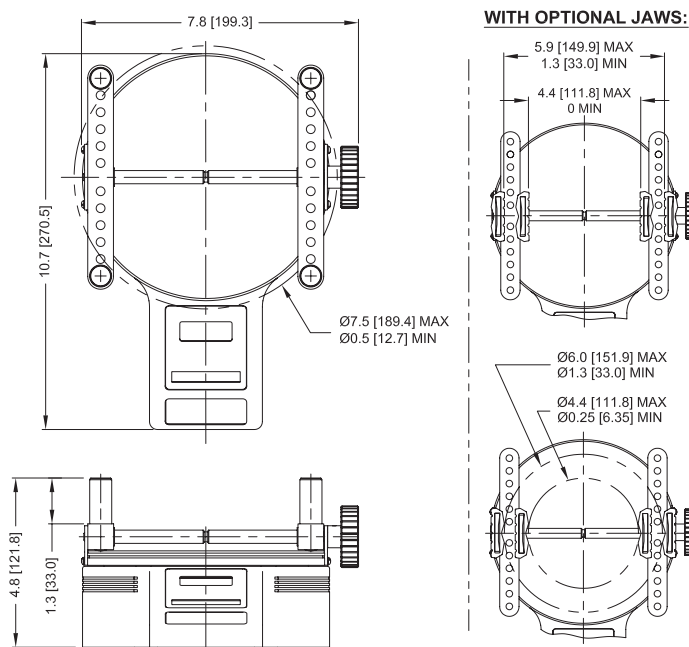


Force and torque gauges

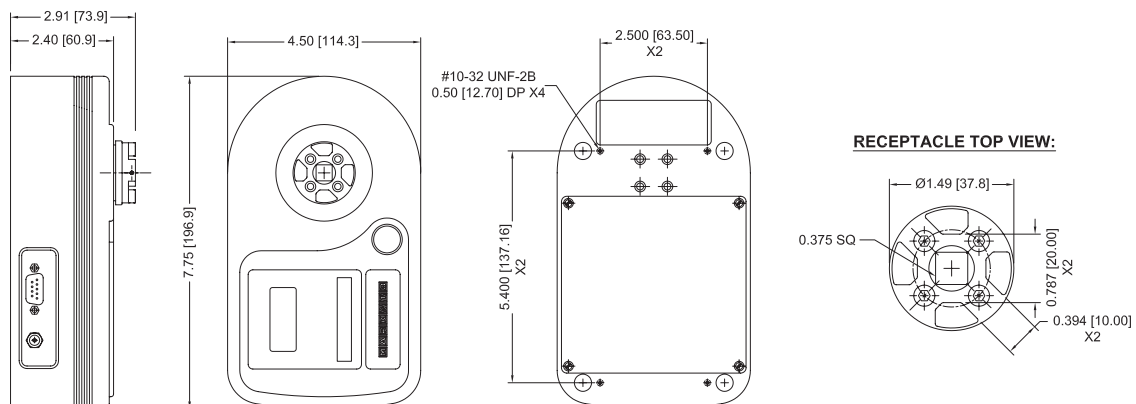
Series MGT



Series CT



Series ST

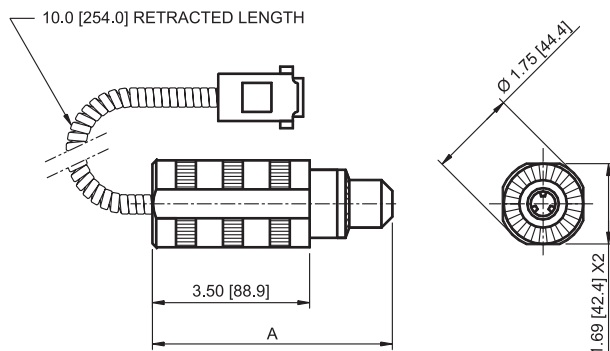




Dimensional Drawings IN [MM]

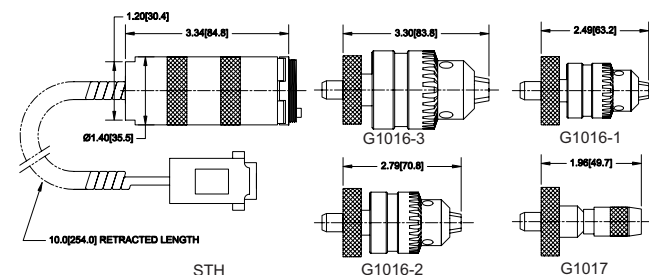
BGI force and torque remote sensors

Series STJ

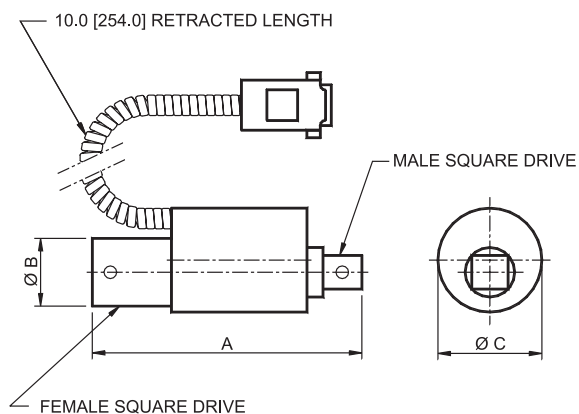


Model	A	Chuck Capacity
STJ10Z - STJ50Z	4.82 [122.4]	0.38 [9.5]
STJ12 - STJ100	5.19 [131.8]	0.5 [12.7]

Series STH

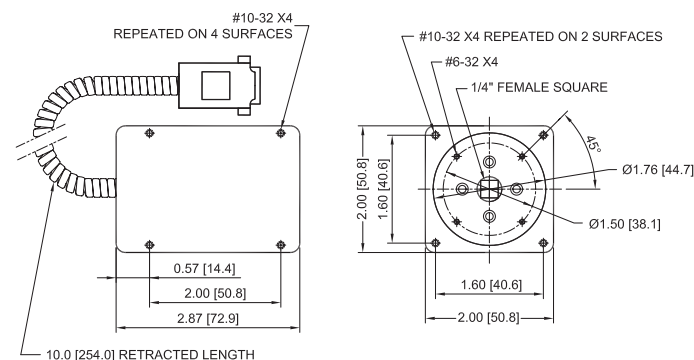


Series STE



Model	A	ØB	ØC	Drive Size
STE20 - STE100	1.88 [47.8]	0.56 [14.2]	1.00 [25.4]	1/4"
STE200 - STE400	3.00 [76.2]	0.73 [18.5]	1.12 [28.6]	3/8"
STE1000	3.50 [88.9]	0.98 [24.9]	1.25 [31.8]	1/2"
STE5000	5.00 [127.0]	1.48 [37.6]	2.0 [50.8]	3/4"

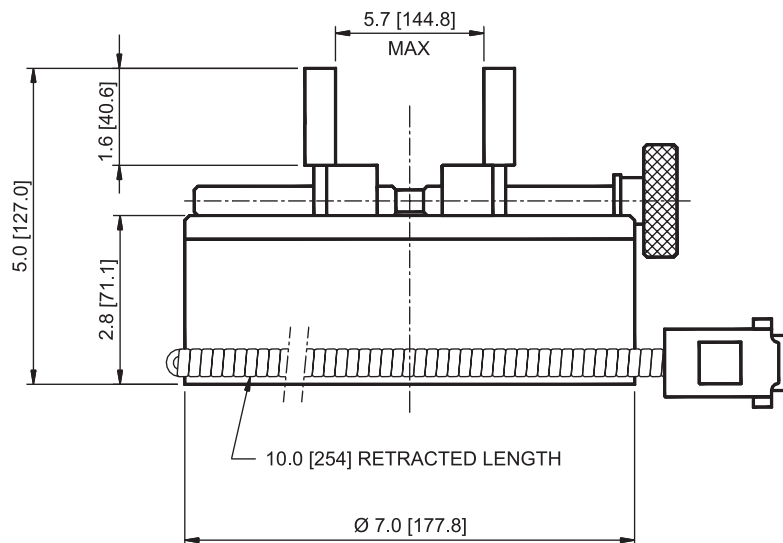
Series STC



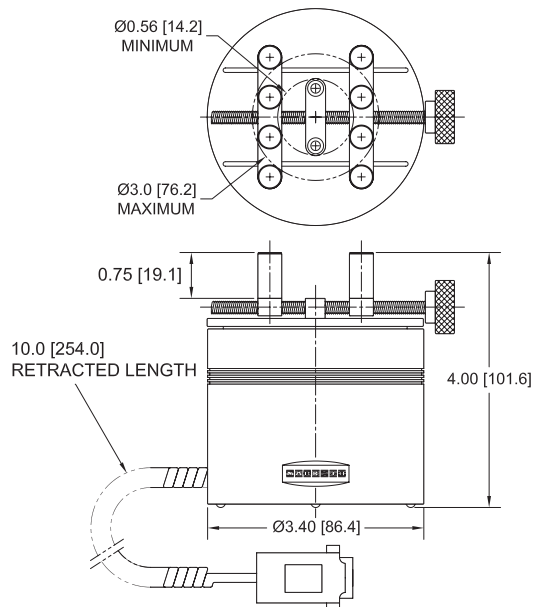


BGI force and torque remote sensors

Series STB

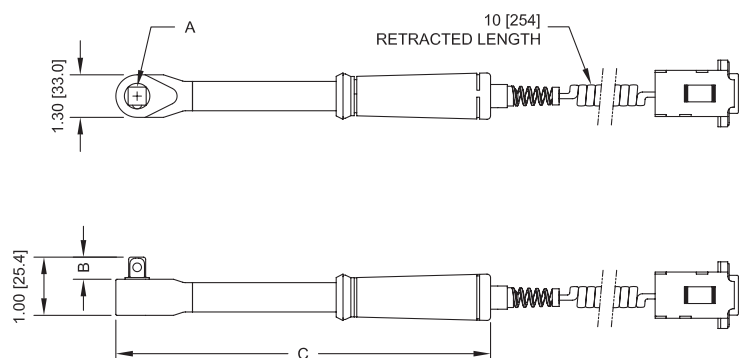


STB12 - STB100



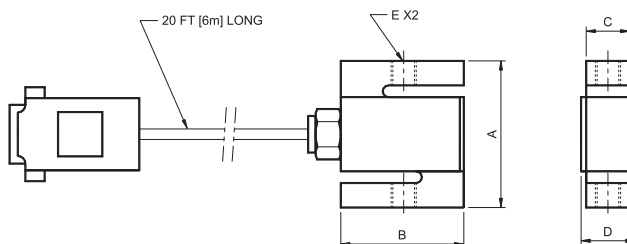
STB10Z - STB50Z

Series STW



Model	A	B	C
STW100	3/8" SQUARE	0.50 [12.7]	11.00 [280.0]
STW500	3/8" SQUARE	0.50 [12.7]	14.00 [355.0]
STW1000	1/2" SQUARE	0.70 [17.8]	20.00 [508.0]

Series SS



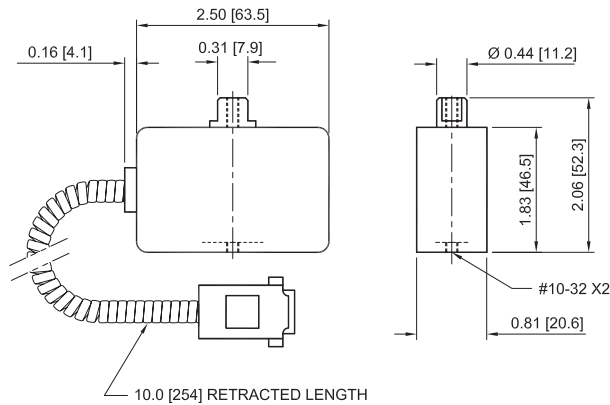
Model	A	B	C	D	E
SS50			0.46 [11.7]	0.65 [16.5]	1/4-28 UNF
SS100					
SS200	2.40 [61.0]	2.00 [50.8]	0.71 [18.0]	0.90 [22.9]	1/2-20 UNF
SS500					
SS1000					
SS2000					
SS5000	3.90 [99.1]	3.00 [76.2]	0.96 [24.4]	1.15 [29.2]	3/4-16 UNF
SS10000					



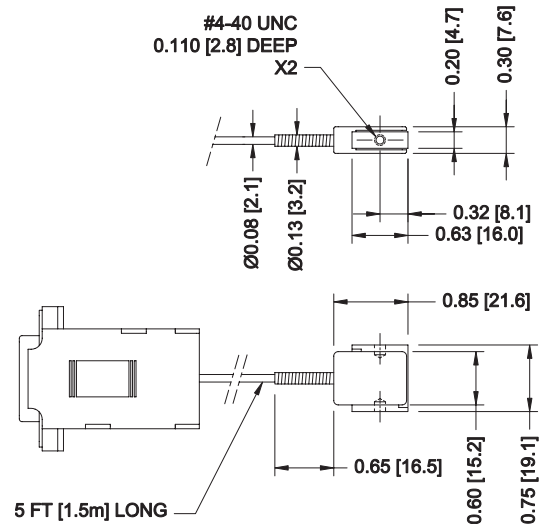
Dimensional Drawings IN [MM]

BGI force and torque remote sensors

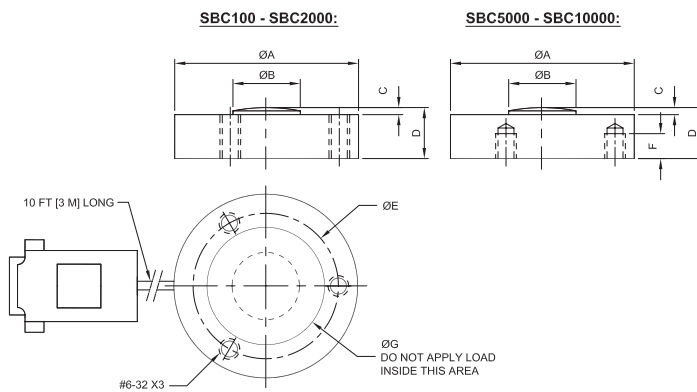
Series SSM



Series SJR

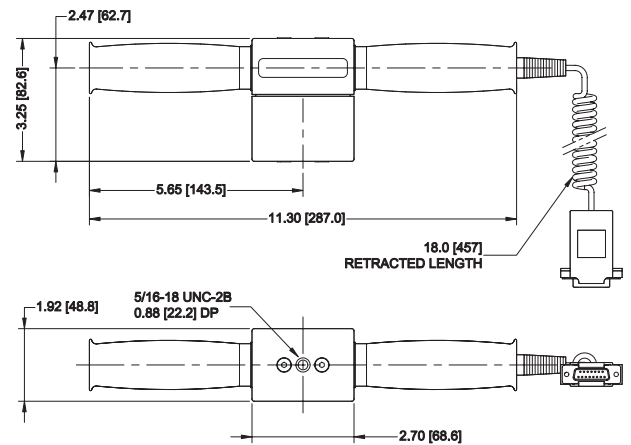


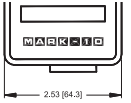
Series SBC



Model	ØA	ØB	C	D	ØE	F	ØG
SBC100 - SBC2000	1.23 [31.3]	0.32 [8.1]	0.05 [1.3]	0.39 [9.9]	1.0 [25.4]	THRU	0.83 [21.1]
SBC5000 - SBC10000	1.48 [37.6]	0.43 [10.9]	0.07 [1.8]	0.62 [15.8]	1.25 [31.8]	0.25 [6.4]	1.08 [27.4]

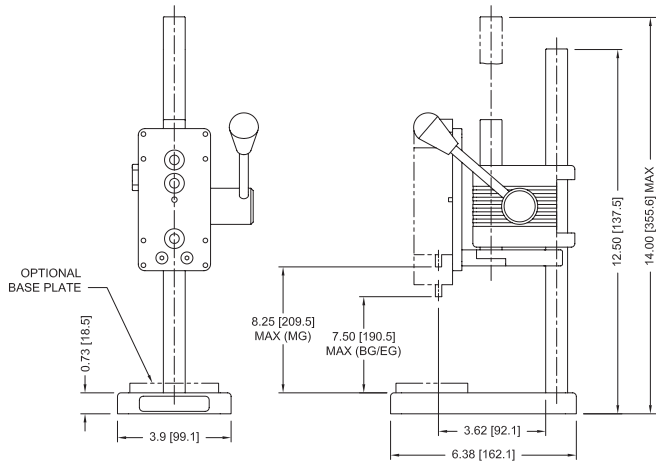
Series SHP



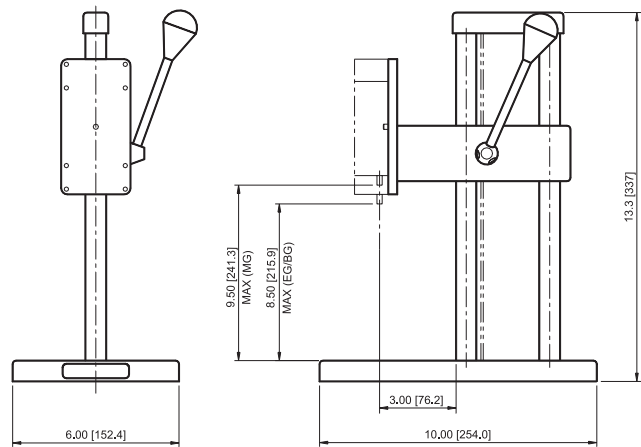


Test stands

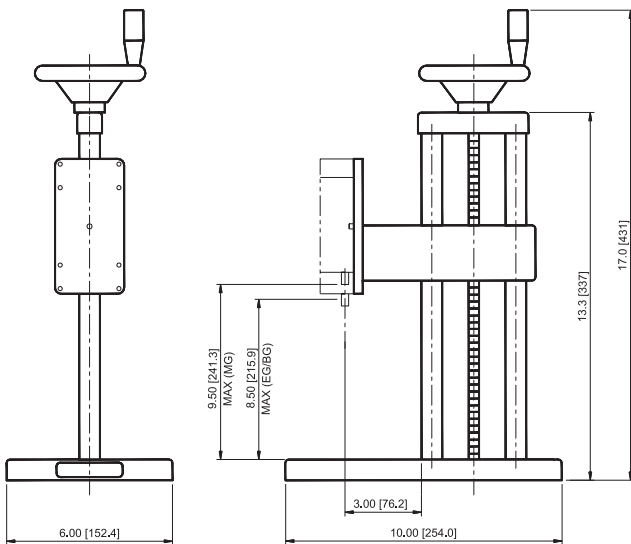
Model ES05



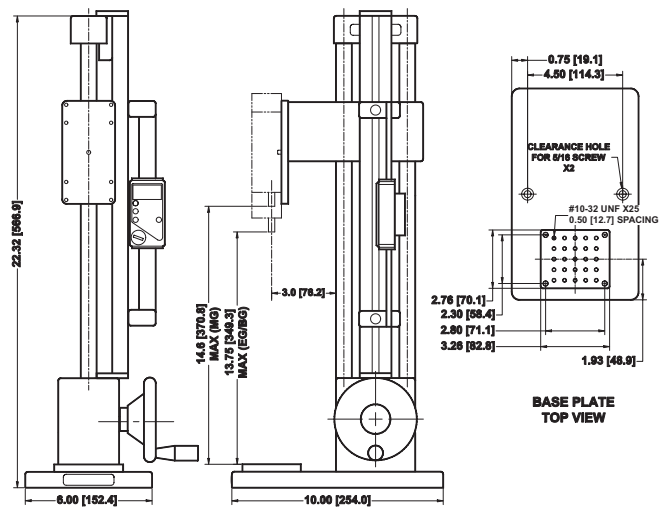
Model ES10



Model ES20



Model ES30

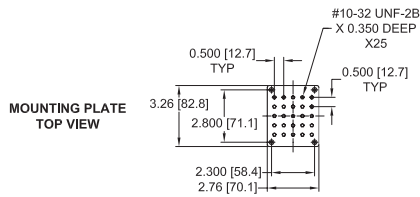
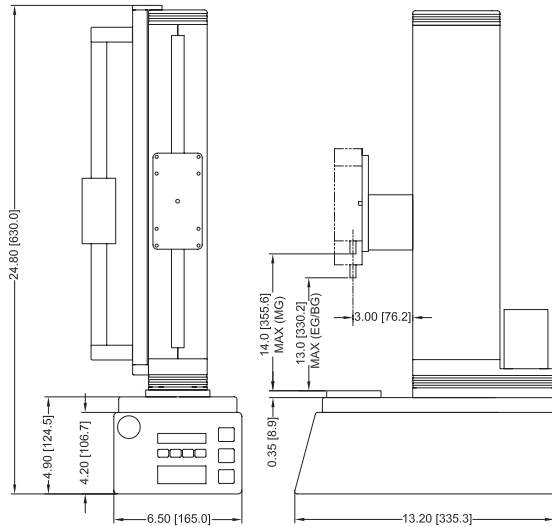




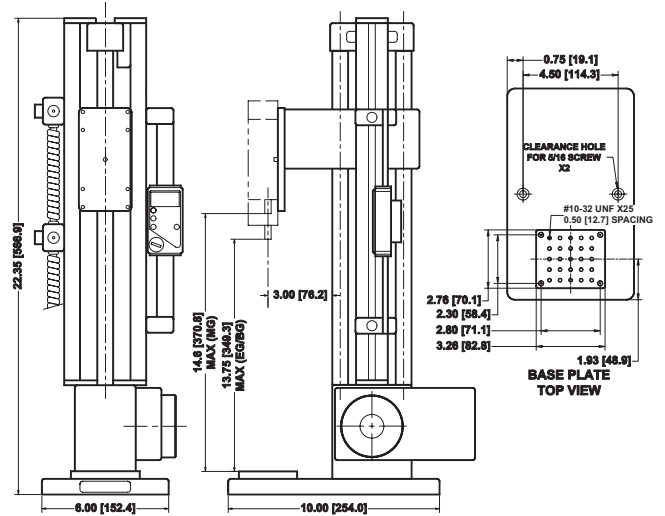
Dimensional Drawings IN [MM]

Test stands

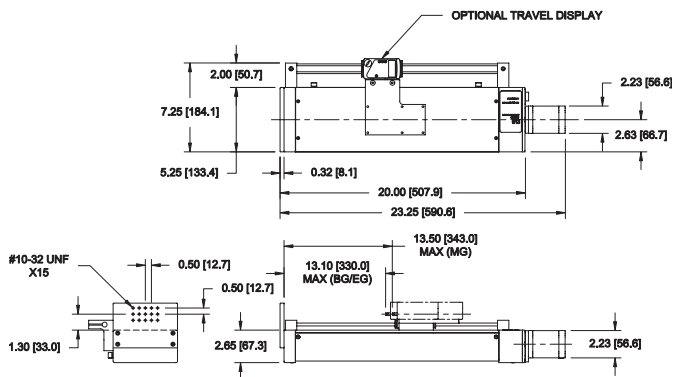
Model ESM300



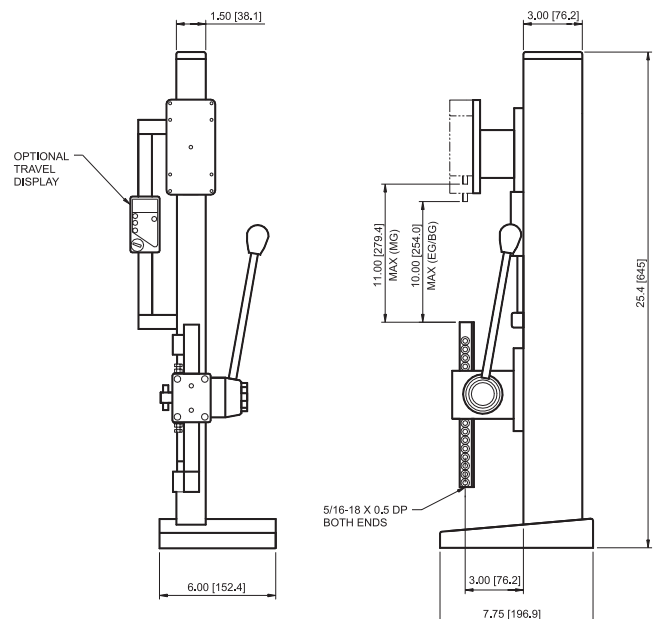
Model ESM

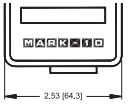


Model ESMH



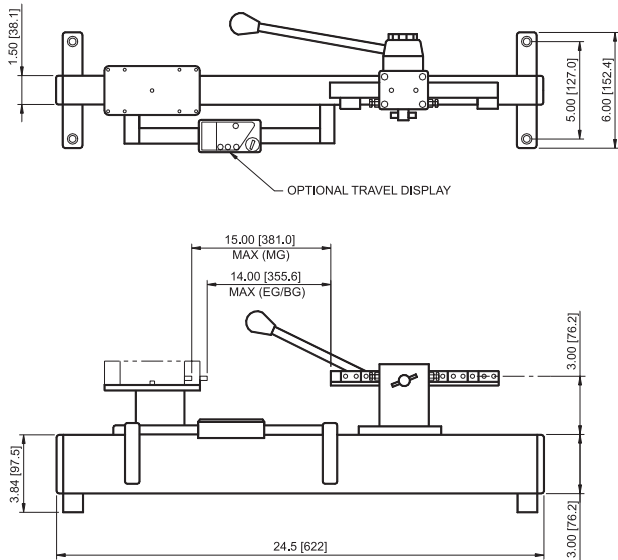
Model TSA



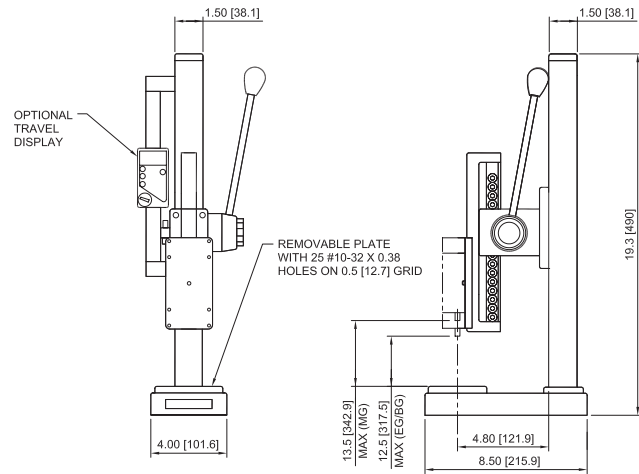


Test stands

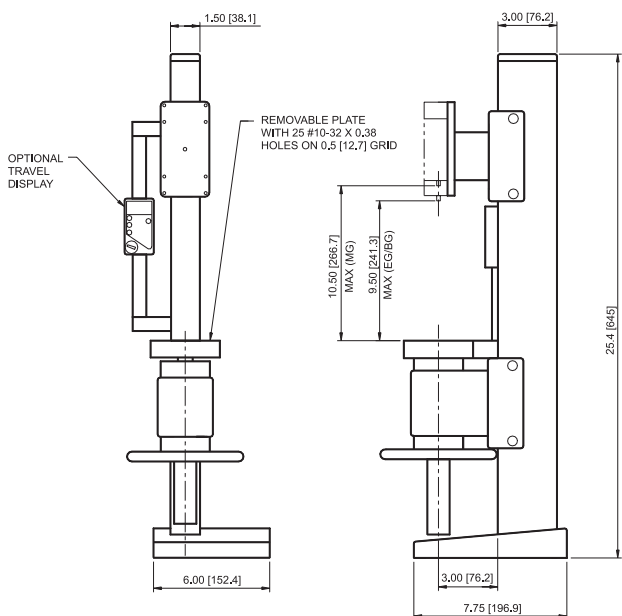
Model TSAH



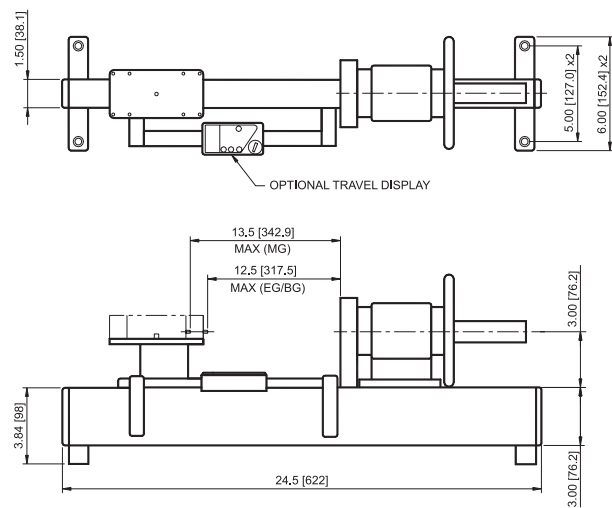
Model TSB

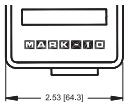


Model TSC



Model TSCH

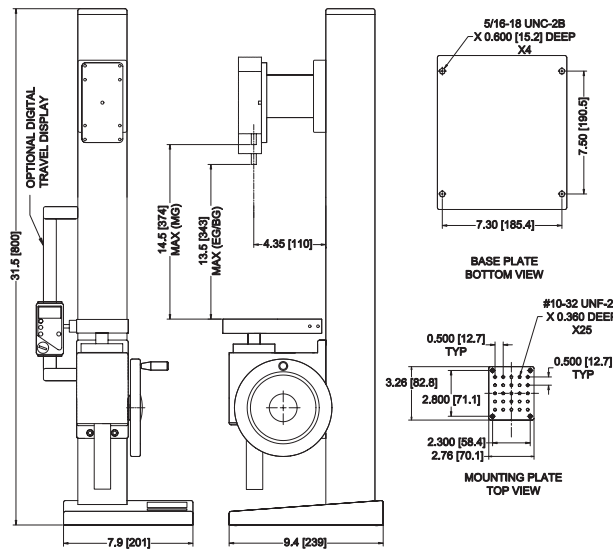




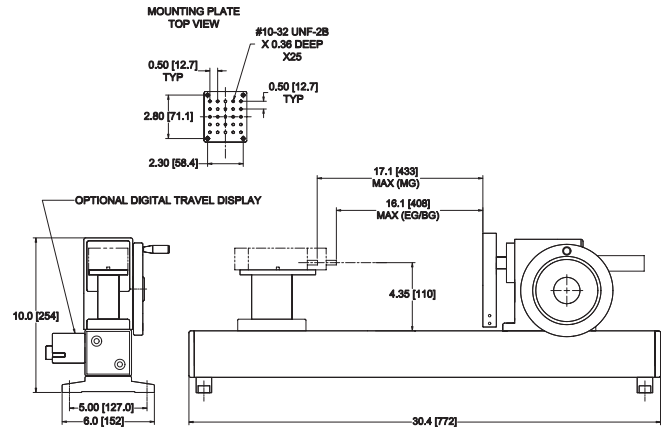
Dimensional Drawings IN [MM]

Test stands

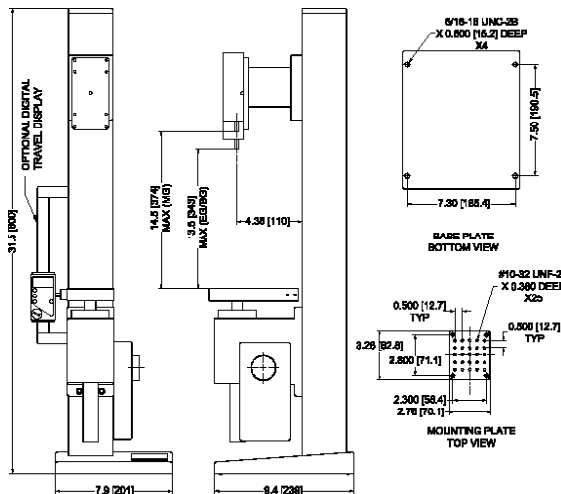
Model TSF



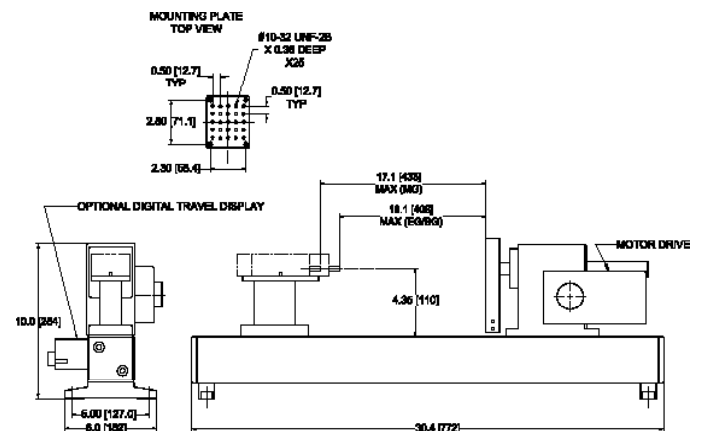
Model TSFH

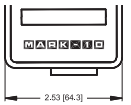


Model TSFM500



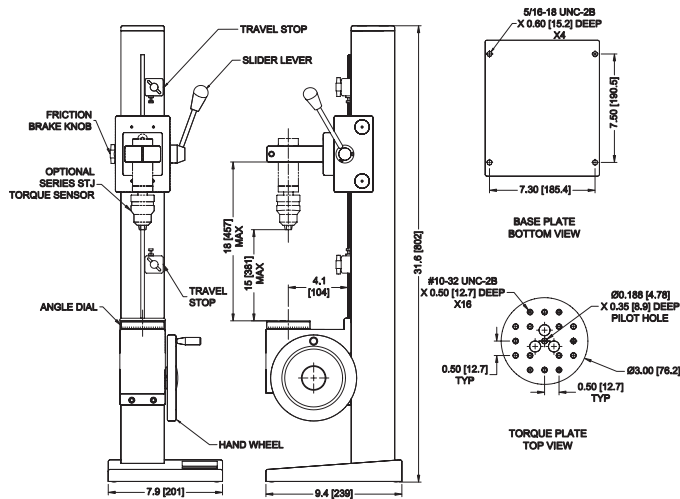
Model TSFM500H



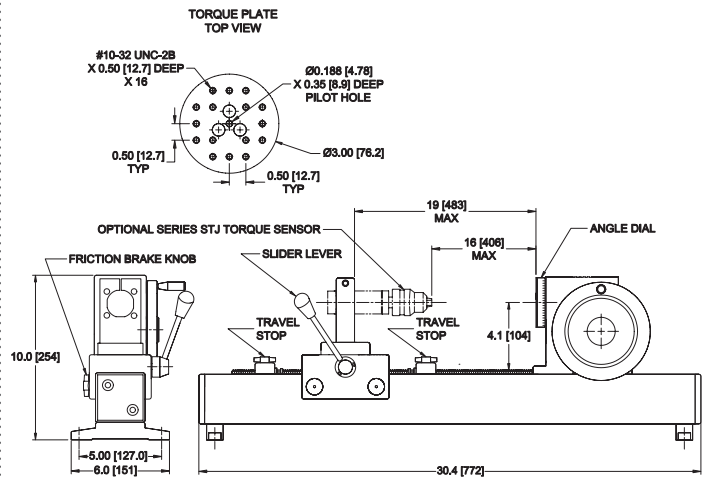


Test stands

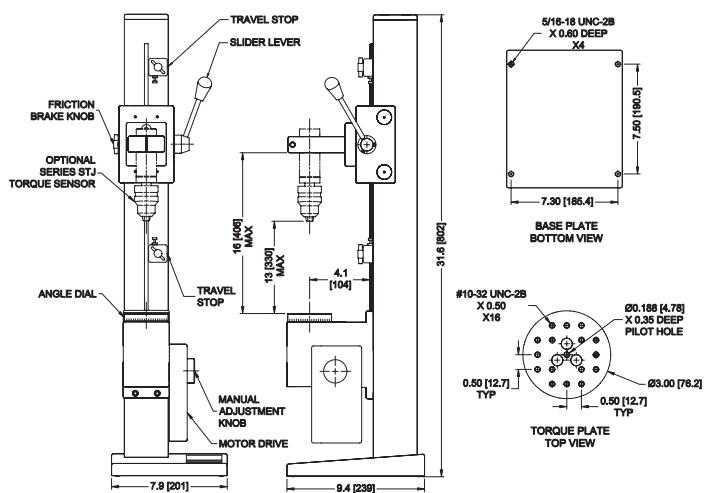
Model TST



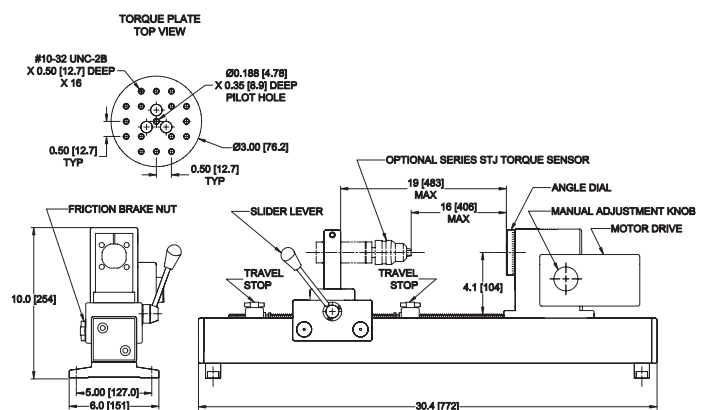
Model TSTH

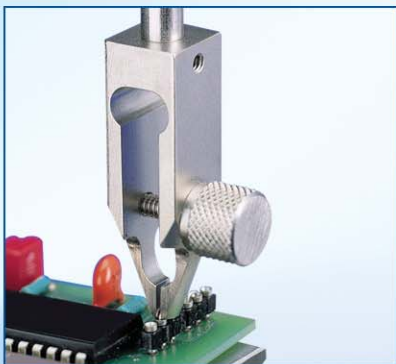


Model TSTM



Model TSTMH





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