

Force Test Stands Series **TS**

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TSA750 | TSA750H | TSB100 | TSC1000 | TSC1000H | TSF | TSFH

## **User's Guide**



## Thank you...

Thank you for purchasing a Mark-10 Series TS Force Measurement Test Stand. We are confident that you will get many years of great service from this product.

Mark-10 test stands are ruggedly built for many years of service in laboratory and industrial environments.

This User's Guide provides unpacking, setup, and operator instructions, along with dimensions and specifications. For additional information or answers to your questions, our technical support and engineering teams are eager to help you.

Thank you again for your purchase and happy testing!

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## TSA750 / TSA750H

### 1 UNPACKING AND SETTING UP

1. Carefully unpack the stand and inspect for any damage. Check to make sure that you have received a complete test stand with all accessories – see **List of Included Items**. Save original packaging materials in case future transportation is required.
2. Install the loading lever. The position of the loading lever can be adjusted as required – see the **Operation** section for your particular model.
3. Place the stand on a firm, flat and level working surface free from vibration to ensure accurate readings. It is recommended that the test stand be secured to a work bench – see **Operation** section.

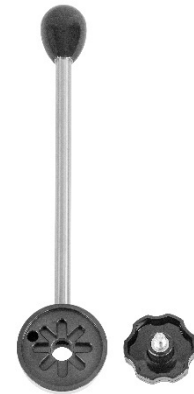
### 2 LIST OF INCLUDED ITEMS

| Quantity | Item                                                         |
|----------|--------------------------------------------------------------|
| 1        | G1009 compression plate, 2" dia.                             |
| 1        | G1028 small hook                                             |
| 1        | G1030 thread adapter, 5/16-18M to #10-32F                    |
| 1        | G1035 large hook                                             |
| 1        | G1038 medium hook                                            |
| 1        | G1041 thread adapter, 5/16-18M to #1/2-20M                   |
| 1        | G1042 extra large hook                                       |
| 1        | G1091 thread coupler, 1/2-20F, 1/2-20F                       |
| 1        | 5/16-18 stud with jam nuts                                   |
| 1        | #10-32 stud with jam nuts                                    |
| 1        | Wrench, 5/16-3/8                                             |
| 1        | Base (Model TSA750)                                          |
| 2        | Mounting leg with hardware (TSA750H)                         |
| 1        | Additional column cap with hardware (TSA750H)                |
| 4        | Thumb screw for force gauges with 0.12 - 500 lbF capacities  |
| 4        | Thumb screw for force gauges with 750 - 2,000 lbF capacities |
| 1        | Allen wrench set                                             |



### 3 OPERATION

1. Mount the test stand to a firm, flat, and level working surface for maximum safety and accuracy using four 5/16 screws (not included). Use the included mounting hole drill template to accurately drill the holes. Testing can take place without securing the test stand in such a manner, however, it is strongly recommended that the stand be secured, especially for large forces.
2. Install a force gauge onto the gauge plate with four thumb screws. Mark-10 force gauges mount directly to the stand without adapters.
3. Install any needed attachments, including grips, adapters, and other materials necessary for your test sample. Make sure these items are set up in a secure and safe manner.
4. Zero out the force gauge, then begin the test by rotating the lever clockwise for compression or counter-clockwise for tension.



Adjustable loading lever

The loading lever can be adjusted to allow for ease of operation. Reposition the loading lever by removing the knob and realigning the lever pin in the mounting hub.

The rack brake can be set by loosening the wing nut, positioning the rack to the desired location and re-tightening the wing nut.

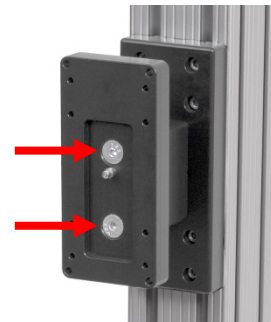
The clearance on the rack can be set by adjusting the four set screws using the tools provided.

The travel stops can be adjusted in 0.5" [12.7 mm] increments along the rack by moving the blocks to the desired location and tightening two screws. Fine adjustments can be made using adjusting screws on the housing and locking the jam nuts.

**Note:** To maintain smooth functioning of the stand, avoid overloads and repetitive shock loads.

#### 3.1 Reversible Gauge Mounting Plate

The gauge mounting plate is reversible for compatibility with force gauges of all capacities. Reverse the plate by removing two screws, then flip it around and reinstall.



#### 3.2 Optional Equipment

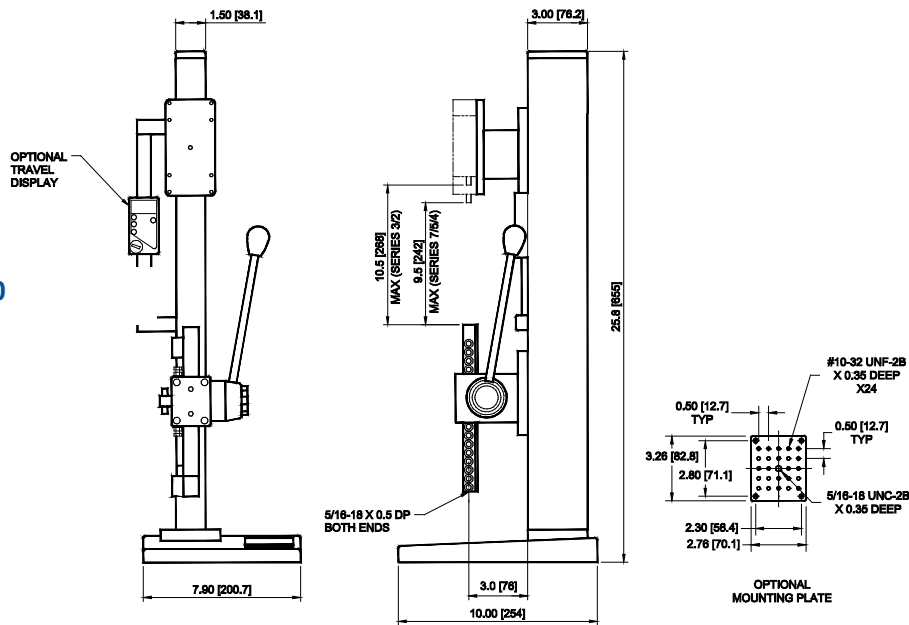
##### *Digital Travel Display Kit*

6" [150 mm] travel, 0.0005" [0.01 mm] resolution, SPC output for automated data collection. Requires travel stops kit. To output data to a PC via USB, use communication adapter part no. MU100 and 09-1066 cable.

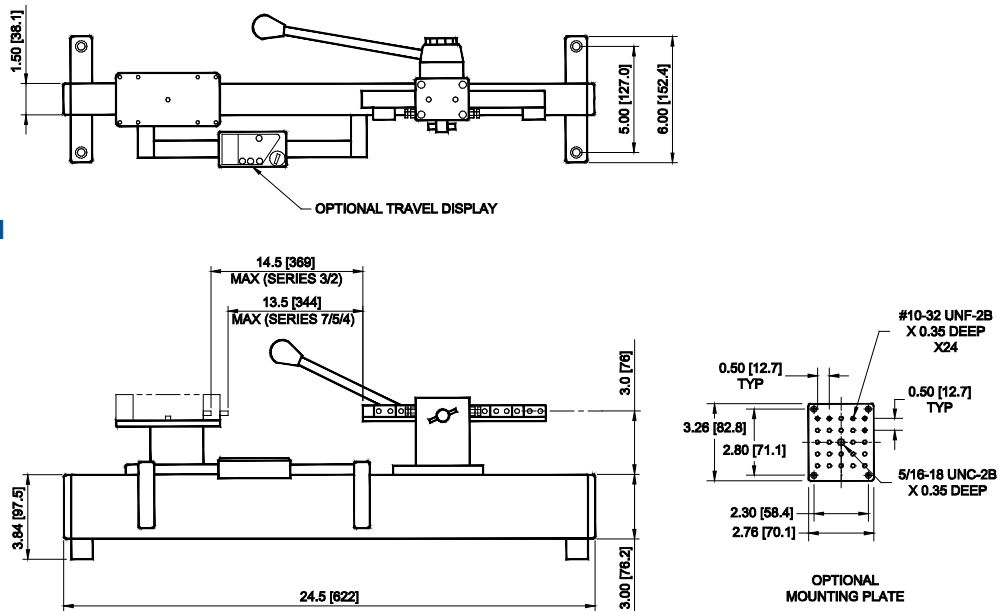


## 4 DIMENSIONS in [mm]

TSA750



TSA750H



## 5 SPECIFICATIONS

|                                            |                                               |
|--------------------------------------------|-----------------------------------------------|
| Maximum force                              | 750 lbF [3.75 kN]                             |
| Maximum travel, with stops                 | 3.75" [95 mm]                                 |
| Maximum travel, without stops              | 6" [152 mm]                                   |
| Travel rate                                | 3" [76.2 mm] / lever revolution               |
| Weight (test stand, only)                  | TSA750: 6 lb [7.3 kg], TSA750H: 3 lb [5.9 kg] |
| Optional digital travel display resolution | 0.0005" [0.01 mm]                             |

## TSB100

### 1 UNPACKING AND SETTING-UP

1. Carefully unpack the stand and inspect for any damage. Check to make sure that you have received a complete test stand with all accessories – see **List of Included Items**. Save original packaging materials in case future transportation is required.
2. Install the loading lever. The position of the loading lever can be adjusted as required – see **Operation** section.
3. Place the stand on a firm, flat and level working surface free from vibration to ensure accurate readings. It is recommended that the test stand be secured to a work bench – see **Operation** section.

### 2 LIST OF INCLUDED ITEMS

| Quantity | Item                                      |
|----------|-------------------------------------------|
| 1        | G1030 thread adapter, 5/16-18M to #10-32F |
| 4        | Thumb screw for force gauge               |
| 1        | Allen wrench set                          |



### 3 OPERATION

1. Mount the test stand to a firm, flat, and level working surface for maximum safety and accuracy using four 5/16 screws (not included). Use the included mounting hole drill template to accurately drill the holes. Testing can take place without securing the test stand in such a manner, however, it is recommended that the stand be secured.
2. Install a force gauge onto the gauge plate with four thumb screws. Mark-10 force gauges mount directly to the stand without adapters.
3. Install any needed attachments, including grips, adapters, and other materials necessary for your test sample. Make sure these items are set up in a secure and safe manner.
4. Zero out the force gauge, then rotate the lever clockwise for tension or counter-clockwise for compression.

The loading lever can be adjusted to allow for ease of operation. Reposition the loading lever by removing the knob and realigning the lever pin in the mounting hub.

The rack brake can be set by loosening the wing nut, positioning the rack to the desired location and re-tightening the wing nut.

The clearance on the rack can be adjusted by removing the gauge plate, aligning the C-bracket holes with the set screws and adjusting as necessary.

**Note:** To maintain smooth functioning of the stand, avoid overloads and repetitive shock loads.



Adjustable loading lever

#### 3.1 Optional Equipment

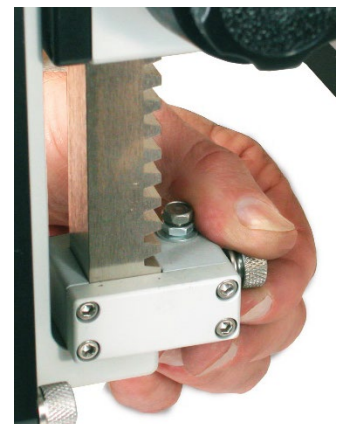
##### *Digital Travel Display Kit*

6" [150 mm] travel, 0.0005" [0.01 mm] resolution, SPC output for automated data collection. Requires travel stops kit. To output data to a PC via USB, use communication adapter part no. MU100 and 09-1066 cable.

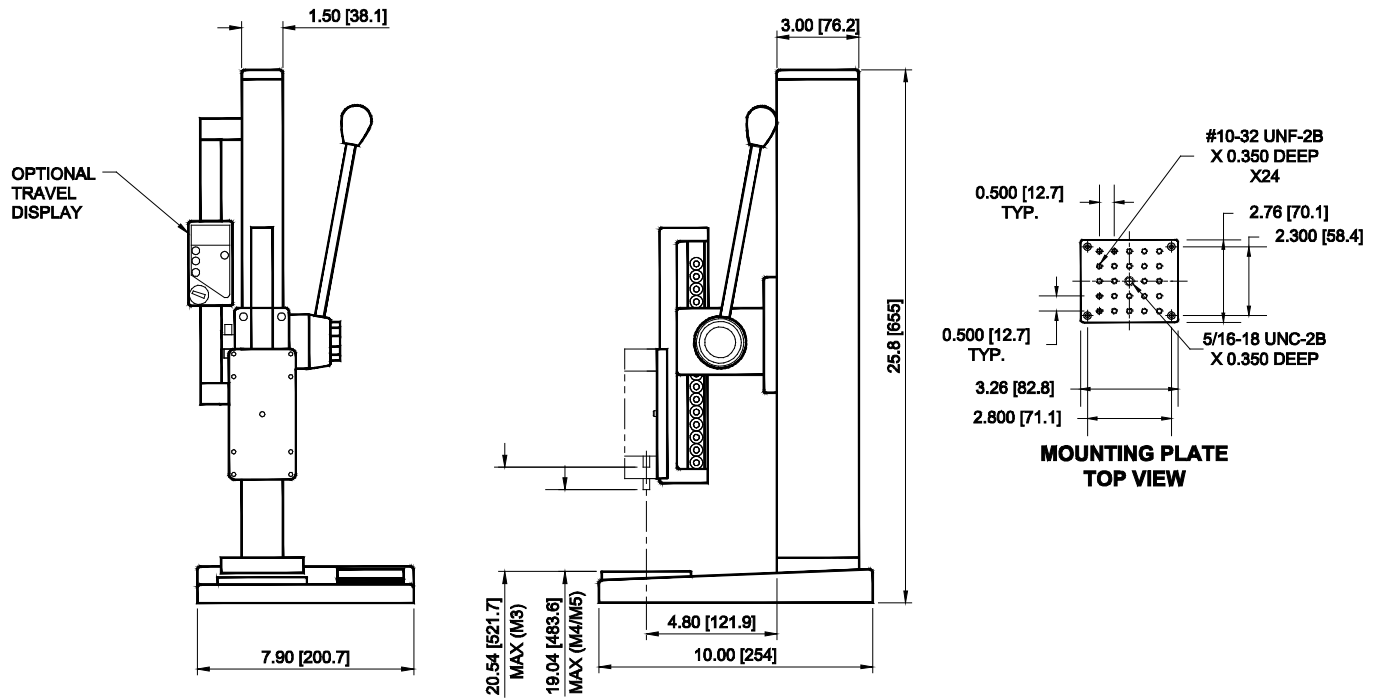


##### *Travel Stops Kit*

The travel stops can be adjusted in 0.5" [12.7 mm] increments along the rack by moving the blocks to the desired location and tightening two screws. Fine adjustments can be made using adjusting screws on the housing and locking the jam nuts.



## 4 DIMENSIONS in [mm]



## 5 SPECIFICATIONS

|                                            |                                 |
|--------------------------------------------|---------------------------------|
| Maximum force                              | 100 lbf [500 N]                 |
| Maximum travel, with stops                 | 3.75" [95 mm]                   |
| Maximum travel, without stops              | 6" [150 mm]                     |
| Travel rate                                | 3" [76.2 mm] / lever revolution |
| Optional digital travel display resolution | 0.0005" [0.01 mm]               |



## TSC1000 / TSC1000H

### 1 UNPACKING AND SETTING-UP

1. Carefully unpack the stand and inspect for any damage. Check to make sure that you have received a complete test stand with all accessories – see **List of Included Items**. Save original packaging materials in case future transportation is required.
2. Place the stand on a firm, flat and level working surface free from vibration to ensure accurate readings. It is recommended that the test stand be secured to a work bench – see **Operation** section.

### 2 LIST OF INCLUDED ITEMS

| Quantity | Item                                                         |
|----------|--------------------------------------------------------------|
| 1        | G1009 – compression plate, 2" dia.                           |
| 1        | G1009-1 – compression plate, 3" dia.                         |
| 1        | G1028 – small hook                                           |
| 1        | G1030 – thread adapter, 5/16-18M to #10-32F                  |
| 1        | G1035 – large hook                                           |
| 1        | G1037 – coupling, 5/16-18 F/F                                |
| 1        | G1038 – medium hook                                          |
| 1        | G1039 – coupling, #10-32 F/F                                 |
| 1        | G1041 – thread adapter, 5/16-18M to #1/2-20M                 |
| 1        | G1042 – extra large hook                                     |
| 1        | G1044 – 1/2-20F adapter plate with mounting hardware         |
| 1        | 5/16-18 stud with jam nuts                                   |
| 1        | #10-32 stud with jam nuts                                    |
| 1        | Base (TSC1000H)                                              |
| 2        | Mounting leg with hardware (TSC1000H)                        |
| 1        | Additional column cap with hardware (TSC1000H)               |
| 4        | Thumb screw for force gauges with 0.12 - 500 lbF capacities  |
| 4        | Thumb screw for force gauges with 750 - 2,000 lbF capacities |
| 1        | Allen wrench set                                             |



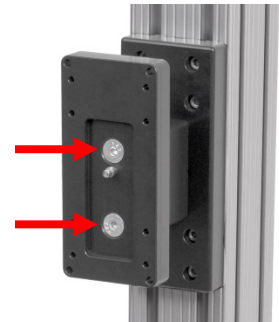
### 3 OPERATION

1. Mount the test stand to a firm, flat, and level working surface for maximum safety and accuracy using four 5/16 screws (not included). Use the included mounting hole drill template to accurately drill the holes (TSC1000, only). Testing can take place without securing the test stand in such a manner, however, it is strongly recommended that the stand be secured, especially for large forces.
2. Install a force gauge onto the gauge plate with four thumb screws. Mark-10 force gauges mount directly to the stand without adapters.
3. Install any needed attachments, including grips, adapters, and other materials necessary for your test sample. Make sure these items are set up in a secure and safe manner.
4. Zero out the force gauge, then begin the test by turning the hand wheel clockwise for compression or counter-clockwise for tension.

**Note:** To maintain smooth functioning of the stand, avoid overloads and repetitive shock loads.

#### 3.1 Reversible Gauge Mounting Plate

The gauge mounting plate is reversible for compatibility with force gauges of all capacities. Reverse the plate by removing two screws, then flip it around and reinstall.



#### 3.2 Optional Equipment

##### *Digital Travel Display Kit*

6" [150 mm] travel, 0.0005" [0.01 mm] resolution, SPC output for automated data collection. Requires travel stops kit. To output data to a PC via USB, use communication adapter part no. MU100 and 09-1066 cable.

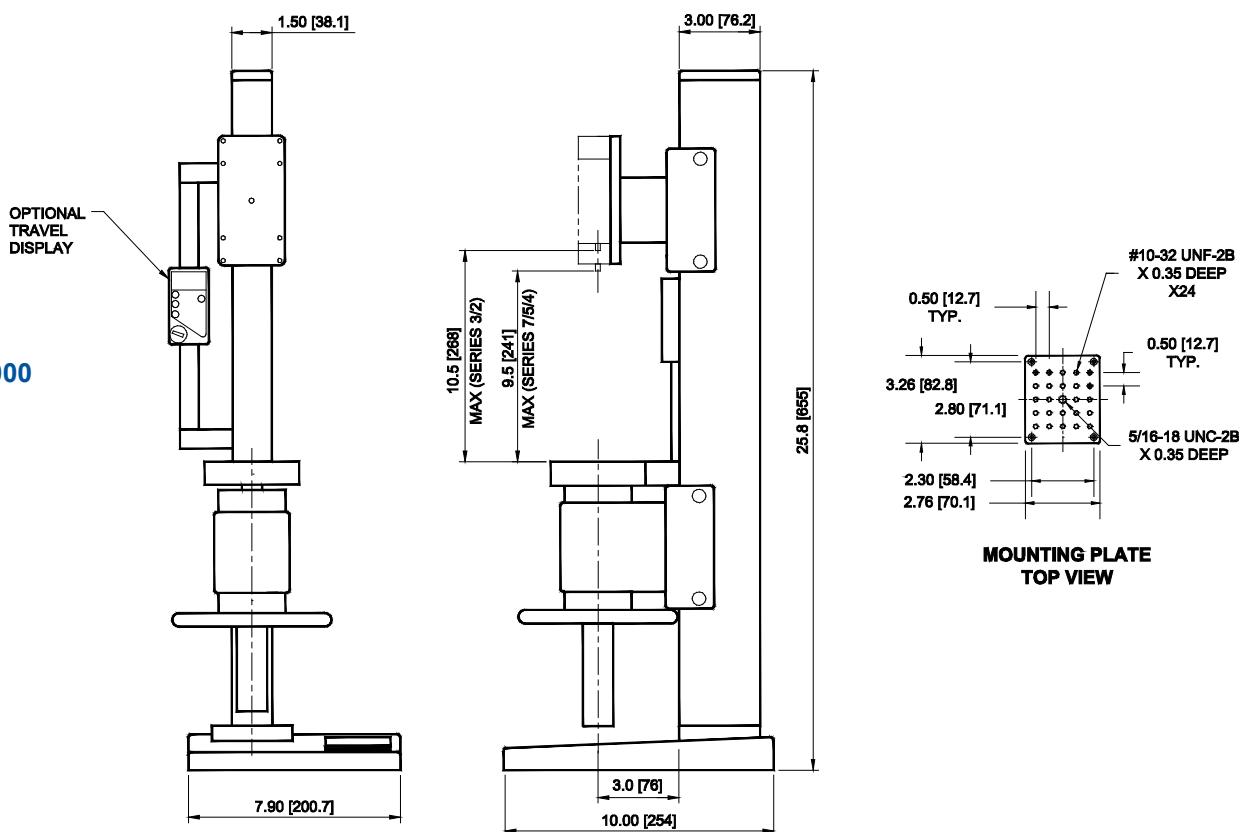


### 4 SPECIFICATIONS

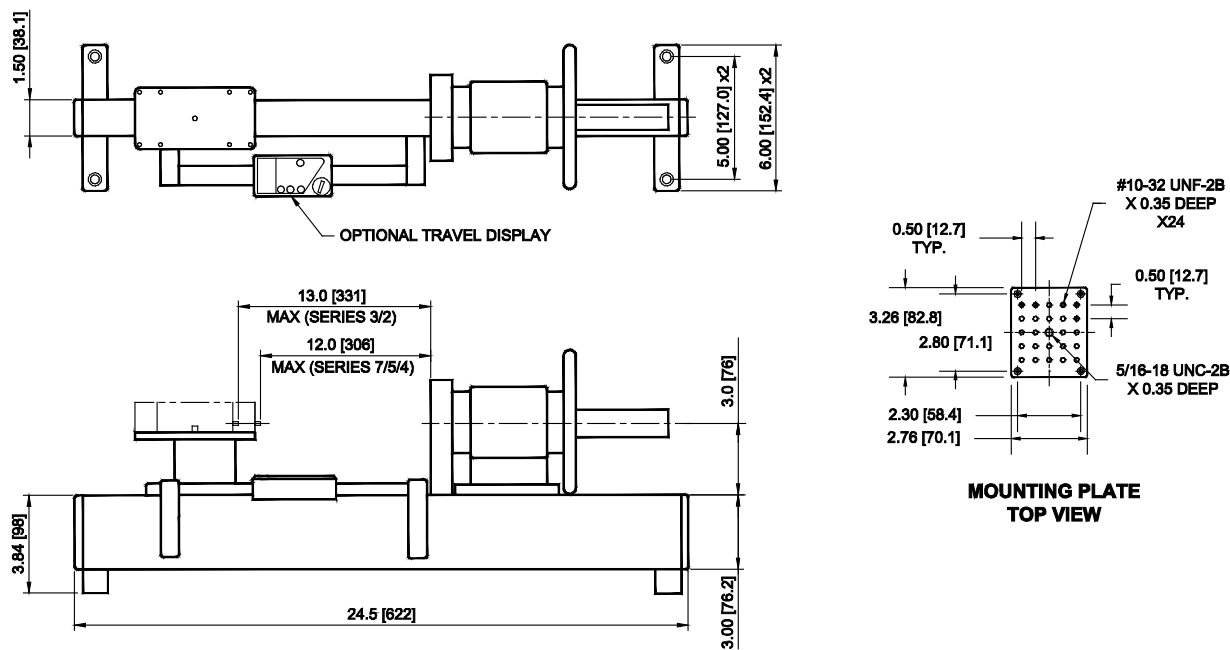
|                                                   |                                                      |
|---------------------------------------------------|------------------------------------------------------|
| <b>Maximum force</b>                              | 1,000 lb [5000 N]                                    |
| <b>Maximum travel</b>                             | 3.5" [88.9 mm]                                       |
| <b>Travel rate</b>                                | 0.1" [2.54 mm] / handwheel rev.                      |
| <b>Weight (test stand, only)</b>                  | TSC1000: 25 lb [9.0 kg]<br>TSC1000H: 20 lb [11.3 kg] |
| <b>Optional digital travel display resolution</b> | 0.0005" [0.01 mm]                                    |

## 5 DIMENSIONS in [mm]

TSC1000



TSC1000H



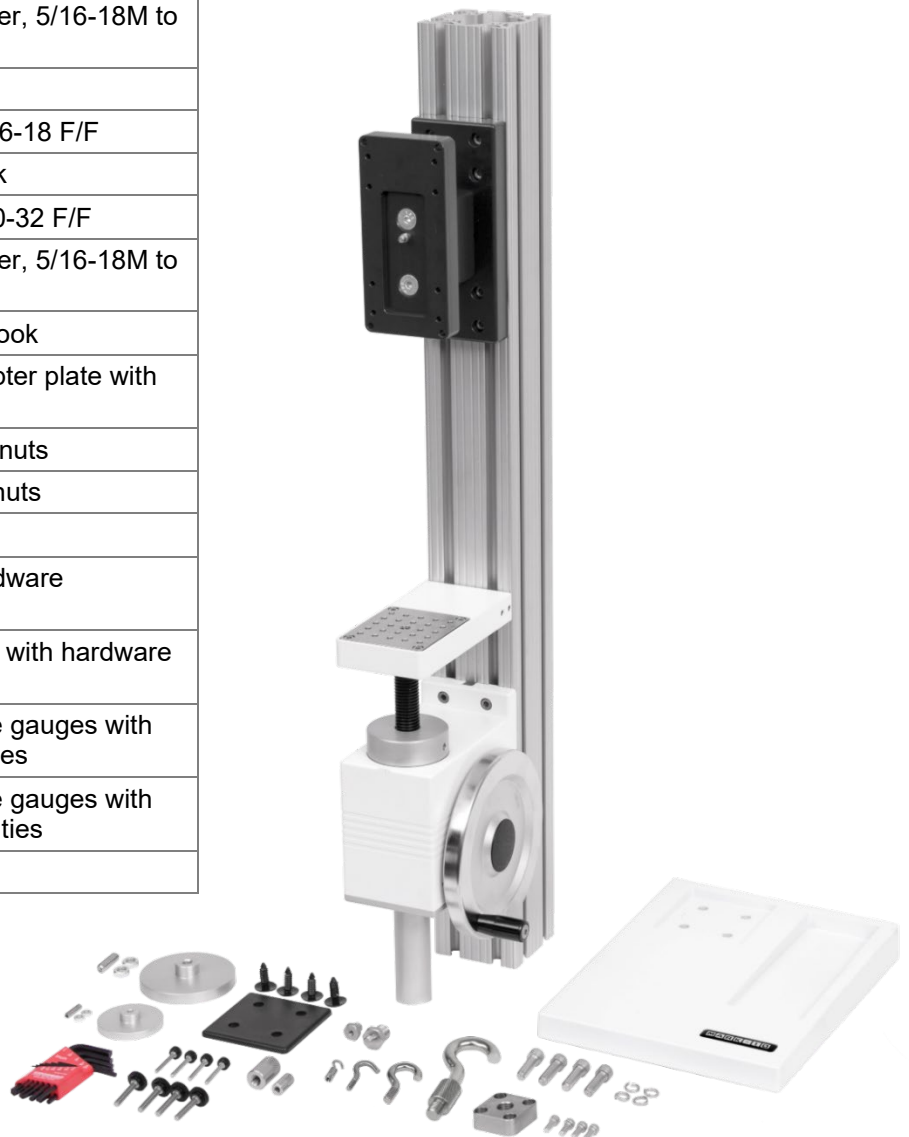
## TSF / TSFH

### 1 UNPACKING AND SETTING-UP

1. Carefully unpack the stand and inspect for any damage. Check to make sure that you have received a complete test stand with all accessories – see **List of Included Items**. Save original packaging materials in case future transportation is required.
2. Place the stand on a firm, flat and level working surface free from vibration to ensure accurate readings. It is recommended that the test stand be secured to a work bench – see **Operation** section.

### 2 LIST OF INCLUDED ITEMS

| Quantity | Item                                                         |
|----------|--------------------------------------------------------------|
| 1        | G1009 – compression plate, 2" dia.                           |
| 1        | G1009-1 – compression plate, 3" dia.                         |
| 1        | G1028 – small hook                                           |
| 1        | G1030 – thread adapter, 5/16-18M to #10-32F                  |
| 1        | G1035 – large hook                                           |
| 1        | G1037 – coupling, 5/16-18 F/F                                |
| 1        | G1038 – medium hook                                          |
| 1        | G1039 – coupling, #10-32 F/F                                 |
| 1        | G1041 – thread adapter, 5/16-18M to #1/2-20M                 |
| 1        | G1042 – extra large hook                                     |
| 1        | G1044 – 1/2-20F adapter plate with mounting hardware         |
| 1        | 5/16-18 stud with jam nuts                                   |
| 1        | #10-32 stud with jam nuts                                    |
| 1        | Base (TSC1000H)                                              |
| 2        | Mounting leg with hardware (TSC1000H)                        |
| 1        | Additional column cap with hardware (TSC1000H)               |
| 4        | Thumb screw for force gauges with 0.12 - 500 lbF capacities  |
| 4        | Thumb screw for force gauges with 750 - 2,000 lbF capacities |
| 1        | Allen wrench set                                             |



### 3 OPERATION

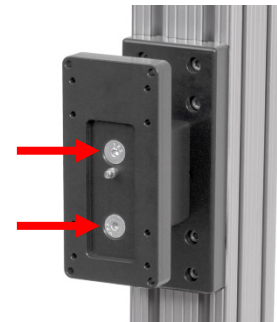
1. Mount the test stand to a firm, flat, and level working surface for maximum safety and accuracy using four 5/16 screws (not included). Use the included mounting hole drill template to accurately drill the holes. Testing can take place without securing the test stand in such a manner, however, it is strongly recommended that the stand be secured, especially for large forces.
2. Install a force gauge onto the gauge plate with four thumb screws. All Mark-10 force gauges mount directly to the stand without adapters.
3. Install any required attachments, including grips, adapters, and other materials necessary for your test sample. Make sure these items are set up in a secure and safe manner.
4. Begin the test by turning the hand wheel clockwise for compression or counter-clockwise for tension.

The gauge bracket's height can be adjusted along the column. Loosen the four screws that secure the bracket to the column, adjust to the desired height, and retighten the screws.

**Note:** To maintain smooth operation of the test stand, avoid overloads and repetitive shock loads.

#### 3.1 Reversible Gauge Mounting Plate

The gauge mounting plate is reversible for compatibility with force gauges of all capacities. Reverse the plate by removing two screws, then flip it around and reinstall.



#### 3.2 Optional Equipment

##### *Digital Travel Display Kit*

6" [150 mm] travel, 0.0005" [0.01 mm] resolution, SPC output for automated data collection. Requires travel stops kit. To output data to a PC via USB, use communication adapter part no. MU100 and 09-1066 cable.



### 4 SPECIFICATIONS

|                                            |                                               |
|--------------------------------------------|-----------------------------------------------|
| Maximum force                              | 1,000 lb [5,000 N]                            |
| Maximum travel                             | 4" [102 mm]                                   |
| Travel rate                                | 0.013" [0.34 mm] / handwheel rev.             |
| Weight (test stand, only)                  | TSF: 33 lb [14.5 kg]<br>TSFH: 27 lb [12.3 kg] |
| Optional digital travel display resolution | 0.0005" [0.01 mm]                             |

## 5 DIMENSIONS in [mm]

