



PTC® INSTRUMENTS

2301 Federal Ave • Los Angeles • CA • 90064

Phone: 310.478.1134 www.ptc1.com



## Model 500 Automatic Operating Stand Type 3

**The Model 500 ASTM D2240 Type 3 indenter to specimen automatic operating stand** provides constant load, controlled rate-of-descent, and application velocity, through a geared electric motor and braking mechanism that alternately lowers the durometer onto the specimen and then raises it in preparation for the next testing cycle.

The electronic timer adjusts the amount of time the durometer remains in the lowered position (dwell time), allowing time recording of test determinations. The stand can perform high volume testing compared to hand-held or manually operated stands.

The versatile Model 500 is compatible with all PTC® 300 (Classic) and 400 (Ergo) series durometers and most other top mounted durometers, optional mounting adapters are required for the PTC® (Pencil) 200 and (e2000™) 500 series.



*Model 500 Automatic Operating Stand*



Model 500 Automatic Operating Stand Type 3

FEATURES:

- Precision aluminum frame provides strength, weight savings, and corrosion resistance;
- Precision machined aluminum base provides a stable, lightweight platform;
- Gloss black hybrid powder coated aluminum base, top plate, and specimen platform provide ease-of-maintenance, durability, and superior service life;
- High quality, heavy duty, electric drive motor and servos provide smooth, reliable, long-term maintenance-free operation;
- Dual, precision ground, stainless steel guide rods provide the durometer support arm and carriage assembly with the most accurate, precise, and stable application of the durometer of any operating stand;
- Dual, precision, long-reach, linear bearings allow for smooth, positive, wobble free, operational motion;
- Durometer mounting device is designed with dual conical spacers to allow for squaring the durometer to the specimen platform to assure accurate and precise test determinations;
- Additional optional mass allow for the use of this operating stand with all ASTM D2240, ISO 7619-1, and DIN 53 505 durometers except Type M (micro);
- Stainless steel housing provides ease-of-maintenance, durability, corrosion resistance, and industrial grade service life.

Model 500 Specifications

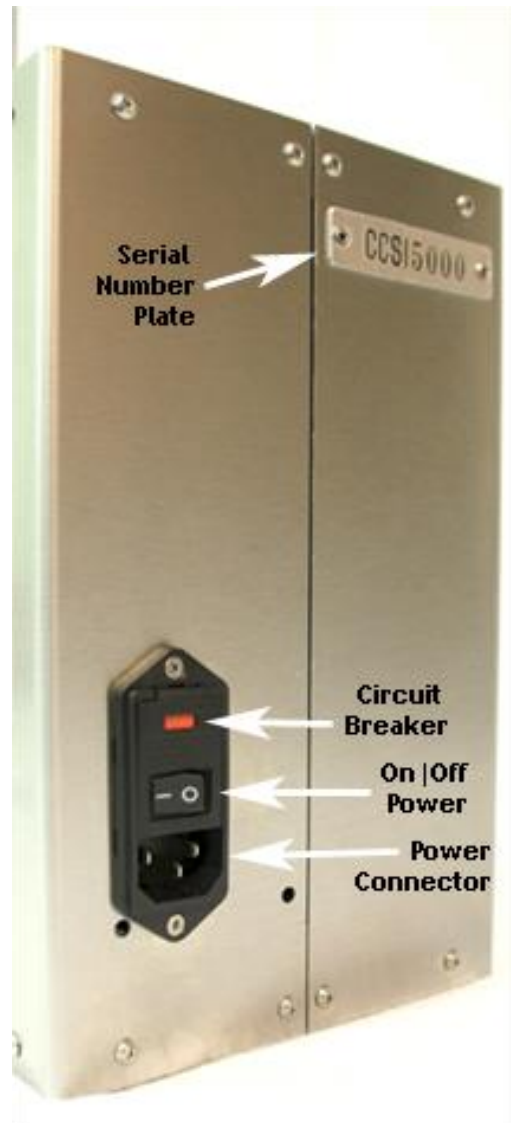
| Specification   | Description   Value  |
|---|--|
| Accommodates these durometer scales (both analog and digital, must specify durometer Model and Type): | ASTM Type OO, OOO, & OOO-S<br>ASTM Type A, B, E, & O<br>ASTM Type C, D, & DO |
| Overall Dimensions (D x W x H):   | 356 x 156 x 248 mm (14 x 6.125 x 9.75 in.)                                   |
| Specimen Table Dimensions:  | 177 x 182 mm (7 x 6 in.)   |
| Throat Depth:   | 83 mm (3.25 in.)   |
| Throat Height:  | 79 mm (3.125 in.)  |
| Weight (without additional mass)  | 16 kg (35 lb.)   |
| Minimum Specimen Thickness  | 6 mm (0.240 in.) per ASTM D2240  |
| Maximum Specimen Thickness  | Varies with durometer model; ~75 mm (3 in.)                                  |
| Timer Operation   | 0 through 9999 seconds   |
| Power Requirements  | 120 VAC 60 Hz   240 VAC 50 Hz optional                                       |
| Operating Temperature   | 23.0 ± 2.0 °C (73.4 ± 3.6 °F)  |



## Model 500 Automatic Operating Stand Type 3

### Components and Controls – Rear View

The following diagram shows the components and controls on the rear of the Model 500 automatic operating stand.



*Fig. 2. Main Components and Controls of the Model 500 – Rear View*



## Model 500 Automatic Operating Stand Type 3

### Mounting and Aligning for Top Mount Durometers

**This section describes how to mount the durometer on the operating stand and align the instrument so that the presser foot is parallel to the specimen platform.**

1. Plug in the power cord to the back of the 500 in a properly grounded wall outlet.
2. Turn on the power switch.
3. The 500 will begin to alternately raise and lower the durometer mounting bracket. When the bracket reaches the lowest position (down delay), turn the power switch to off.
4. Turn the durometer height adjustment knob until the bottom of the durometer mounting bracket is approximately 4" above the top of the specimen platform.
5. Align the operating stand's durometer mounting screw with the thread at the top of the durometer and gently tighten the screw to secure the durometer to the mounting arm.
6. Ensure that the tapered faces of the conical spacers are placed into the orifice of the mounting arm. This will position the flat surfaces in contact with the durometer and the mounting knob.
7. Loosen the durometer mounting screw one-quarter turn.
8. Using the height adjustment knob, raise the durometer approximately 1"
9. Place the metal alignment plate on the table with the center hole directly below the durometer's indenter.  
**Note:** Always position the alignment plate directly below the indenter before lowering the durometer to the specimen platform. Contacting the specimen platform with the indenter may damage the indenter.
10. Turn the durometer height adjustment knob to lower the durometer until the presser foot firmly contacts the alignment plate.
11. Be sure to position the indenter in the alignment plate hole
12. Grasping the top of the durometer between your thumb and forefinger, apply a gentle constant downward pressure on the alignment plate
13. Maneuver the durometer until the instrument reads zero ( never more than +1)
14. Firmly, but gently, tighten the durometer mounting screw. Do Not Overtighten. Over tightening may damage the conical spacers, durometer mounting threads, and mounting knob.
15. Turn on the power switch. When the durometer reaches the highest position, turn off the power switch.
16. Remove the alignment plate from the specimen table.



## Model 500 Automatic Operating Stand Type 3

### Instructions for Front Loading Mounting Adapters

1. Remove the set screws from the front mounting bracket. Place the durometer in the rear of the mounting bracket. Position the durometer in the mounting bracket under the digital or analog head. Replace the front of the bracket and screws. Snug the set screws with the hex key gently to prevent slipping.
2. After the durometer has been secured in the adapter, follow the mounting instructions 1-16.

### Mounting Adapters and Deadweights for All ASTM D2240 Types

500.2 Mounting Adapter for Pencil Style 1/2" Diameter Body (201, 202, 211 or 212)

500.5 Mounting Adapter for PTC® e2000™ Series Analog or Digital (501, 502, 511 or 512)

500.6 Small Weight with Polymer Knob for ASTM D2240 Type A, B, E, or O or Metal Knob (no additional weight needed).

500.7 Large Weight for ASTM D2240 Type C, D, or DO with Metallic Knob

500.8 Small Weight with Polymer Knob for ASTM Type OO, OOO or OOO-S





## Model 500 Automatic Operating Stand Type 3

### Performing ASTM D2240 Test Determinations

This section outlines the procedure for performing ASTM D2240 test determinations using the Model 500 automatic operating stand and does not address those of ISO 7619-1, Din 53 505 or other methods

1. Obtain a copy of ASTM D2240-15 Standard Test Method for Rubber Property-Durometer Hardness.
2. Failure to follow the procedures outlined in ASTM D2240 will lead to incorrect test determinations;
3. Turn the power switch on. (I is depressed);
4. When the durometer mounting arm reaches the highest position (up delay), turn the power switch off (O is depressed);
5. Turn the durometer height knob until the bottom of the durometer is approximately 1" above the specimen;
6. Turn the power switch on. When the durometer reaches its lowest position (down delay), turn the power switch off or use the cycle switch (Fig. 3) to halt the movement;
7. If needed, adjust the durometer mounting knob and durometer height knob to ensure positive contact with the specimen
8. Performing test for Type A, B, E, or O with the polymer height adjustment knob require an additional small mass or the metallic height adjustment knob with no mass.
9. Performing test for Type C, D, or DO scale durometer require the large stainless steel mass with the metallic height adjustment knob.
10. Performing test for Type OO, OOO, OOO-S durometer requires a small mass and the polymer height adjustment knob. ( Do Not use Metallic Knob for Type OO, OOO or OOO-S.
11. Adjust the dwell timer to meet your testing requirements. ASTM D2240 specifies a time interval of 1 s, between initial indenter travel cessation and the recording of the indicated reading, shall be considered standard. Other time intervals when agreed upon among laboratories or user, may be used and reported.
12. When the durometer returns to the uppermost position it will begin the next test cycle by actuating the cycle switch located on the side of the 500;
13. Record each reading for at least five cycles;
14. When employing a durometer with an analogue maximum indicating hand or digital maximum reading hold feature, reset it at each up delay cycle;
15. Calculate the average or the mean (refer to ASTM D2240) of the readings to obtain the test result.

#### CAUTION

---

**Turn off (cycle switch or power switch) the Model 500 only when it is in the up delay or down delay position.** If the Model 500 is turned off while the stand is in motion, it may stall the motor.

If the motor stalls or slows severely, remove any optional mass, turn the power switch off and on, then use the cycle switch to halt/resume travel until the normal cycle resumes. This may take several repetitions.