

MS

Scale Base

Technical Manual and
User's Guide

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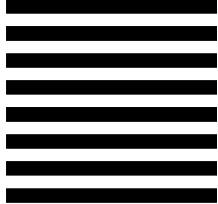
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RESPONSE: Include Root Cause Analysis and Corrective Action Taken.

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INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
1900 Polaris Parkway
Columbus, Ohio 43240
(614) 438-4511

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR
CHANGES WITHOUT NOTICE.**

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

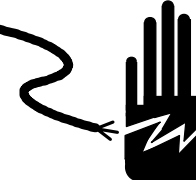

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.


Note: If the unit has been stored or transported in below freezing temperatures, allow the unit to warm up to room temperature before turning on AC power.

| | |
|---|--|
|  |  WARNING |
| | DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE. |

| | |
|---|---|
|  |  CAUTION |
| | OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES. |

| | |
|--|---|
|  |  WARNING |
| | ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM. |

| | |
|---|--|
|  |  WARNING |
| | FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG. |

| |
|---|
|  CAUTION |
| BEFORE CONNECTING OR DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTION'S ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT, OR BODILY HARM. |

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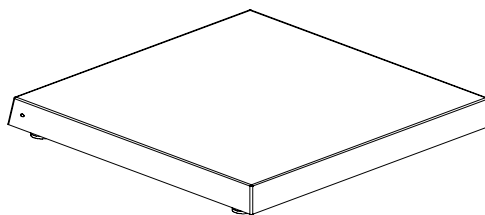
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Introduction

The MS scale base is a rugged, reliable scale base designed for industrial and commercial applications in a variety of environments. It can be connected with a variety of METTLER TOLEDO terminals, providing maximum flexibility for customizing a system.

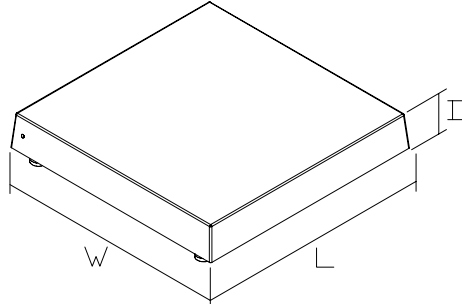
Please review the material contained in this manual carefully. It provides information for installing, adjusting, and trouble-shooting the MS scale base. Additional information may be found in the manual(s) for the terminal which you are connecting to the MS scale base.

If you encounter problems not covered in the manual, please return the **Publication Evaluation Form** found in the back of this manual. Should you need further assistance, please contact your authorized METTLER TOLEDO representative.



Model Specifications

The MS scale base has the following specifications:



| L | W | D |
|----|----|-----|
| 12 | 12 | 3.4 |
| 18 | 18 | 3.6 |
| 24 | 24 | 5.8 |

| MODEL | MS010P | MS025P | MS050P | MS075P | MS150P | MS250P |
|---------------------------------------|--|--------------------------------|---|--------------------------------|--|--------------------------------|
| Dimensions* | 12 in x 12 in x 3.4 in (300 mm x 300 mm x 86 mm) | | 18 in x 18 in x 3.6 in (450 mm x 450 mm x 91 mm) | | 24 in x 24 in x 5.8 in (600 mm x 600 mm x 148 mm) | |
| Maximum Capacity | 20 lb (10 kg) | 50 lb (25 kg) | 125 lb (50 kg) | 150 lb (75 kg) | 300 lb (150 kg) | 500 lb (250 kg) |
| Minimum Graduations (eMin) | 0.005 kg / 0.01 lb | 0.01 kg / 0.02 lb | 0.02 kg / 0.05 lb | 0.02 kg / 0.05 lb | 0.05 kg / 0.1 lb | 0.1 kg / 0.2 lb |
| Maximum Divisions (nMAX) | 2000 | 2500 | 2500 | 3000 | 2500 | 2500 |
| Recommended Build | 10 x 0.005 kg (20 x 0.01 lb) | 25 x 0.01 kg (50 x 0.02 lb) | 50 x 0.02 kg (125 x 0.05 lb) | 75 x 0.05 kg (150 x 0.1 lb) | 125 x 0.05 kg (250 x 0.1 lb) | 250 x 0.1 kg (500 x 0.2 lb) |
| Operating Temperature | -10°C to 40°C with 10 to 95% relative humidity, non-condensing | | | | | |
| Storage Temperature | -20°C to 60°C with 10 to 95% relative humidity, non-condensing | | | | | |
| Construction | Mild steel painted base; Stainless steel platter | | | | | |
| Shipping Weight | 13 lb (6 kg) | | 42 lb (19 kg) | | 82 lb (37 kg) | |
| Weights and Measures Approvals | NTEP COC pending | | | | | |

*The load cell cables for all models are two meters.

2

Installation Procedures

Preparation

The MS base is a scale base only and does not include a terminal or accessories. The MS scale base should remain in its shipping carton until it reaches the location where it is to be installed for maximum protection during transit.

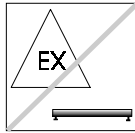
Inspection and Setup

The following general instructions apply in terms of unpacking and assembling any of the MS scale bases:

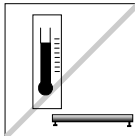
1. If the shipping container showed signs of damage at delivery, file a freight claim with the carrier if necessary.
2. If you have not already done so, remove the scale base from the packing material. Use care not to drop the MS base. Store the packaging and carton for future use should you need to transport or ship the MS base.
3. Inspect the base for damage. Never install an MS base if damage is apparent.
4. Make sure all components are included. The MS scale base should contain:
 - The weighing platform and platter.
 - MS Scale Base Technical Manual and User's Guide
 - Contact your authorized METTLER TOLEDO representative if the MS base is damaged or missing parts.
 - Remove the Phillips pan head shipping screws located on the top and bottom of the scale base.

Selecting the Location

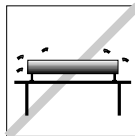
For optimum weighing performance and safety, please keep the following in mind when selecting a location for the MS scale base:



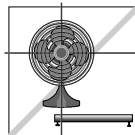
Never operate the MS base in a hazardous environment.



Maintain a temperature range of -10°C to 40°C (-18°F to 104°F). Avoid areas where the temperature is rapidly changing.



Select a firm, level, and vibration-free surface on which to place the MS scale base.



Avoid excessive drafts, such as from fans and open windows.

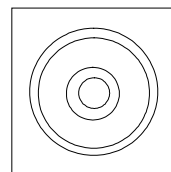
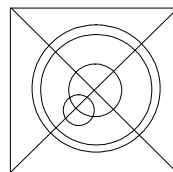
Level the Base

Once the MS scale base is in place, level it by performing these steps:

- Turn the leveling feet of the weighing platform until the scale is horizontal. The leveling feet should each touch the surface on which the MS scale base is placed, and the MS scale base should not rock or teeter.
- Remove the platform from the top of the scale base to expose the circular spirit level mounted in the top of the frame.
- If the bubble is not centered in the scribed circle of the spirit level, loosen the locking nuts and adjust the leveling feet, either by hand or using an open ended wrench, until the bubble is centered.

Note: The MS base is equipped with leveling feet which have provisions for using a wrench. This allows the scale base to be leveled without raising it to gain access to the leveling feet.

- Tighten the locking nuts and replace the platform.



← LEVEL

- You must re-level the MS base after every location change.

Wiring Connections

To connect the MS base to a terminal, please refer to the technical manual provided with the specific terminal with which you are working. If the terminal does not have sense capability, connect the +sense to +excitation and the –sense to –excitation.

The wiring color code for the base may vary. Refer to the label on the load cell or the cable for signal description and wire colors.

Calibration

Refer to the calibration procedure outlined in the technical manual for the terminal you are using.

To guarantee reliable service from the MS base, a regular calibration schedule should be implemented. In addition, the base should always be calibrated after repairs of any type are performed. Contact your authorized METTLER TOLEDO representative for more information.

NOTES

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Operating Instructions

The operating instructions for the MS base depend on the terminal with which it is used, as well as on the specific application for which it is being used. Refer to the operating instructions or technical manual for the terminal being used with the MS base.

However, the following general instructions should be followed for all applications and terminals to ensure the best weighing performance for the scale.

Location.

- The MS base should be placed on a solid surface that is free of excessive vibration and in an area free of drafts and sudden temperature changes.
- The area should be clear of cables, boxes, or anything else that could come in contact with the scale platter.

Accuracy.

For optimum weighing performance, place objects to be weighed towards the center of the platform.

Calibration.

Contact your authorized METTLER TOLEDO representative to arrange scheduled calibration visits by factory-trained service technicians. You may also purchase certified weights from METTLER TOLEDO to perform your own calibration checks.

Large Temperature Fluctuations.

When connected to a METTLER TOLEDO terminal, the MS base automatically compensates for normal changes in ambient temperature. If the scale base is used in areas where large or fast temperature changes occur, weighing accuracy may be affected. In these situations, wait approximately 30 minutes to allow the MS base to adjust to temperature changes before weighing anything.

Weighing Practices.

- Avoid sliding heavy items across the platter to help prevent scuffing.
- Always use proper lifting devices and practices for loading and unloading the scale. Avoid moving heavy items to the edge of the platter to get a better grip for lifting. Edge loading can tip the platter and lead to personal injury.
- When using the Tare function to remove a container's weight from the total weight on the scale, tare each container separately. Variations in materials thickness and other factors can affect the containers' weight.

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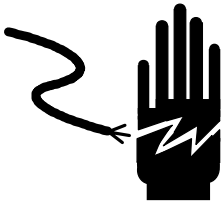

Service and Maintenance

Maintenance Reminders

Calibration tests should be performed any time major mechanical components are replaced or adjusted. The MS base must be re-leveled after any move.

Load Cell Replacement

| Model | Inside (2) | Outside (2) |
|--------|------------|-------------|
| MS010P | 0.025" | 0.080" |
| MS025P | 0.030" | 0.160" |
| MS050P | 0.030" | 0.413" |
| MS075P | 0.040" | 0.500" |
| MS150P | 0.015" | 0.250" |
| MS250P | 0.015" | 0.250" |

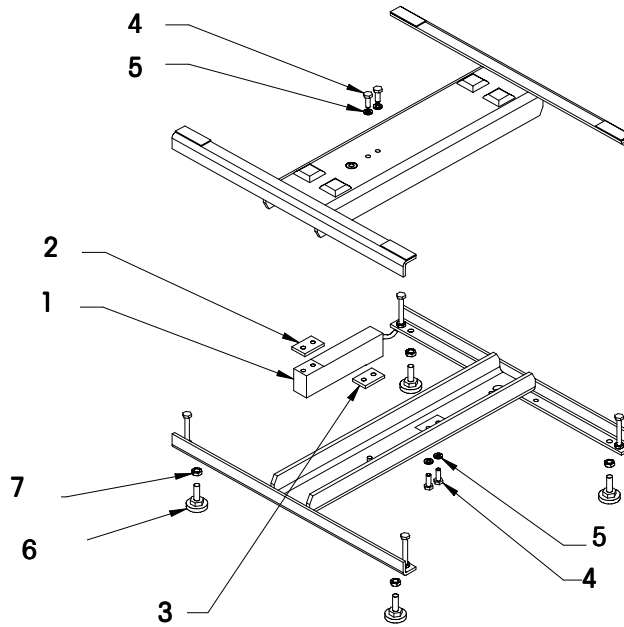
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|  |  | <h3>WARNING</h3> |
| | <p>ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.</p> | |

NOTES

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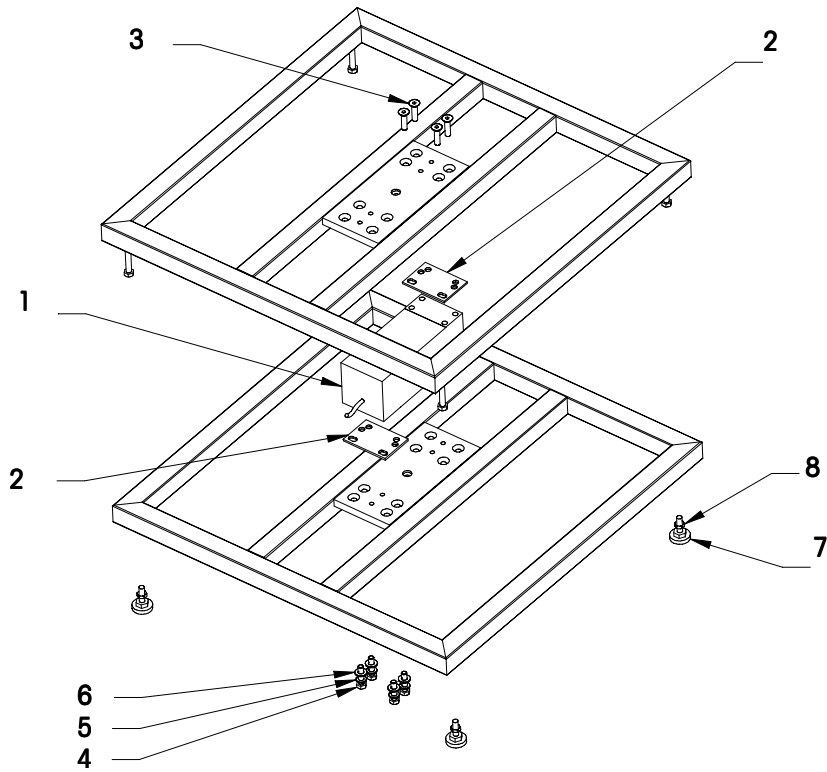
Parts List

MS Scale Base (MS010P, MS025P, MS050P, MS075P)



| MS010P and MS025P | | | |
|-------------------|-------------|----------------------------|----------|
| Item | Part Number | Description | Quantity |
| 1 | 15253000A | Load Cell, 15 kg (MS010P) | 1 |
| 1 | 15253100A | Load Cell, 30 kg (MS025P) | 1 |
| 2 | 15252400A | Spacer, Load Cell | 1 |
| 3 | 15252400A | Spacer, Load Cell | 1 |
| 4 | R0364900A | Screw, 1/4-20 x 3/4 Hex HD | 4 |
| 5 | R0233400A | Washer, Lock | 4 |
| 6 | 15253700A | Foot, Adjusting, 5/16-18 | 4 |
| 7 | R0365600A | Nut, Hex 5/16-18 | 4 |
| MS050P and MS075P | | | |
| 1 | 15253200A | Load Cell, 75 kg (MS050P) | 1 |
| 1 | 15253100A | Load Cell, 100 kg (MS075P) | 1 |
| 2 | 13510500A | Spacer, Load Cell | 1 |
| 3 | 12259100A | Spacer, Load Cell | 1 |
| 4 | R0364900A | Screw, 1/4-2 x 3/4 Hex HD | 4 |
| 5 | R0233400A | Washer, Lock | 4 |
| 6 | 15253700A | Foot, Adjusting, 5/16-18 | 4 |
| 7 | R0365600A | Nut, Hex 5/16-18 | 4 |

MS Scale Base (MS150P, MS250P)



| MS150P and MS250P | | | |
|-------------------|-------------|------------------------------------|----------|
| Item | Part Number | Description | Quantity |
| 1 | 15253400A | Load Cell, 200 kg (MS150P) | 1 |
| 1 | 15253500A | Load Cell, 300 kg (MS250P) | 1 |
| 2 | 15252500A | Spacer, Load Cell | 2 |
| 3 | R0537100a | Screw, FL HD, HS, 5/16-18 x 1.25 | 4 |
| 4 | R0221500A | Screw, Hex Head, 5/16 – 18 x 1 1/4 | 4 |
| 5 | R0233500A | Washer, Lock | 4 |
| 6 | R0537200A | Washer, Plain, 5/16 | 4 |
| 7 | 15253700A | Foot, Adjusting, 5/16-18 | 4 |
| 8 | R0365600A | Nut, Hex 5/16-18 | 4 |

METTLER TOLEDO

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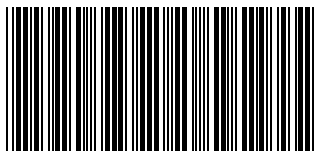
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