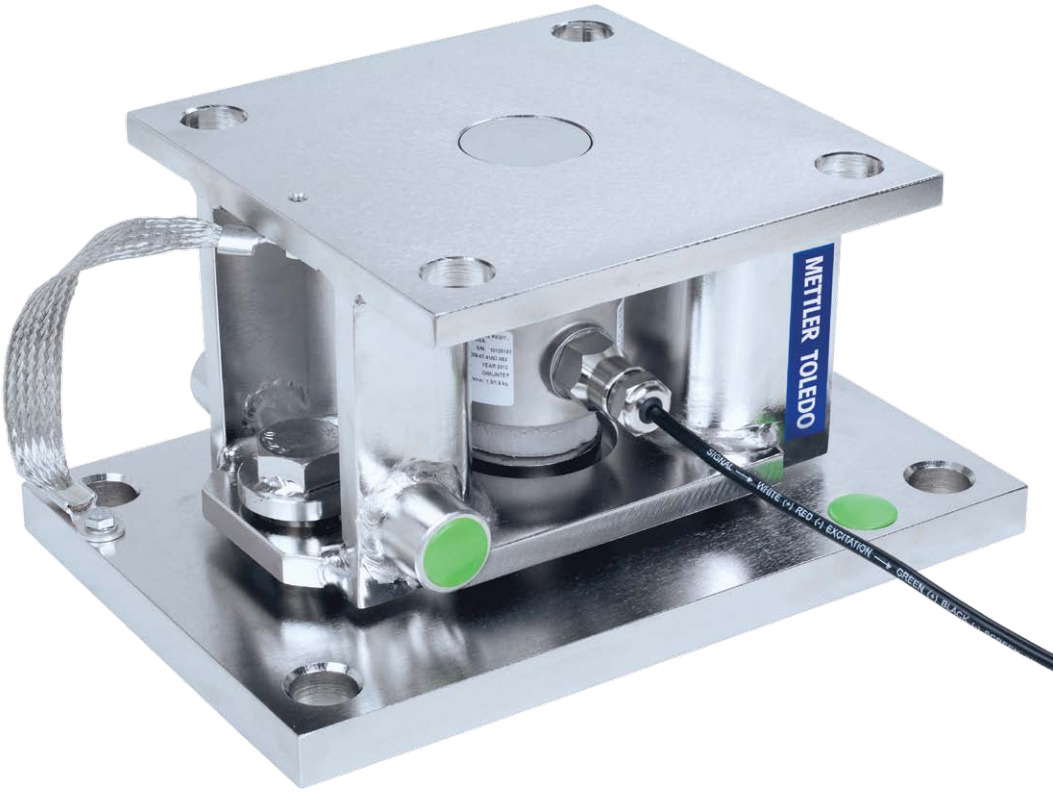
Installation Guide

SWC515 PinMount™ Weigh Module

Assembly and Installation Guide



METTLER TOLEDO

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1 Installation

1.1 SWC515 PinMount™ Weigh Modules

This is a brief guide. For complete installation instructions, refer to the "SWC515 PinMount™ Weigh Module Installation and Service Manual." Each SWC515 PinMount™ weigh module includes one of the following load cells: model SLC610, 0782, or the digital POWERCELL® PDX® load cell. Figure 1-1 shows the weigh module assembly with a model SLC610 load cell.

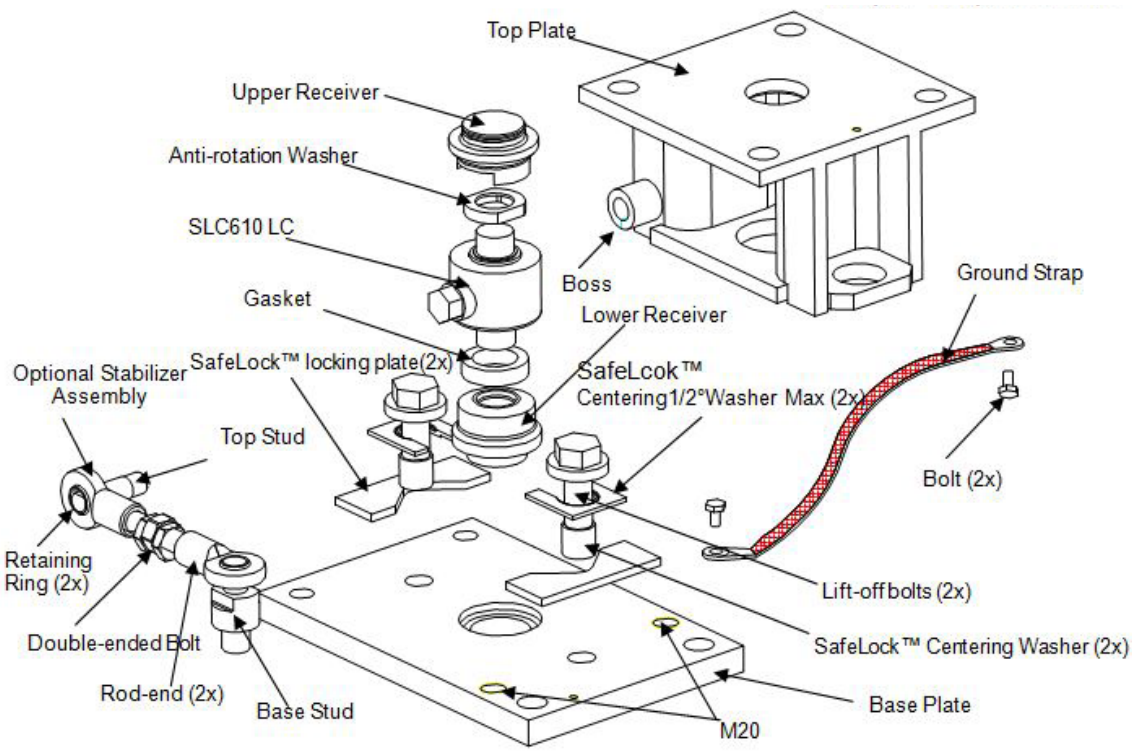

Figure 1-1: Model SWC515 PinMount™ Weigh Module Assembly (capacity 7.5-22.5)

1.2 Assembly

Weigh Module Assembly Instructions:

The SWC515 PinMount™ weigh module can be installed with or without the load cell in the module. Installing the weigh module without the load cell can help avoid damage to the load cell and its cable. To install the weigh module without the load cell, go directly to the Weigh Module Installation Instructions. Otherwise, use the following assembly instructions to install the load cell in the weigh module and then proceed to the Weigh Module Installation Instructions (refer to Figure 1-1 for part identification).

1. Loosen the lift-off bolts enough to allow you to lift the top plate 15mm (5/8 inch) for an SLC610 load cell, 20mm (1 inch) for an 0782 50t or POWERCELL® PDX® load cell, 30mm (1-3/16 inch)for an 0782 100t. Support the top plate assembly securely at this height.
2. Insert the lower receiver into the hole at the center of the base plate. Insert the upper receiver into the hole at the center of the underside of the top plate. Align the anti-rotation slot in the top receiver as shown in Figure 1-2.

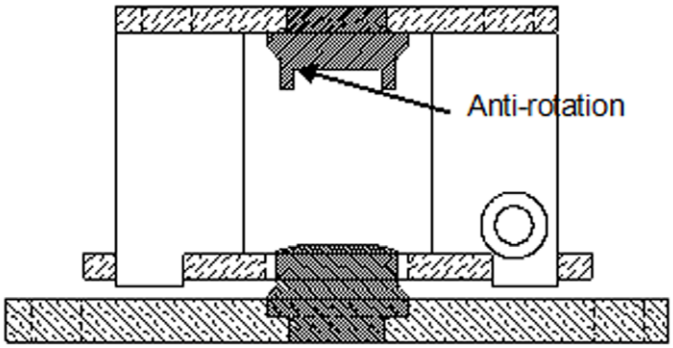

Figure 1-2: Installing receivers (side view)

3. Place the anti-rotation washer on the upper button of the load cell. Rotate the washer until it aligns correctly with the flats on the load cell, and push it down into place. The washer cannot rotate on the load cell when correctly installed. Note: An anti-rotation washer is not used with 0782 and POWERCELL® PDX® load cells.
4. Place the foam gasket over the lower button of the load cell. Note: The lower buttons of the 0782 and POWERCELL® PDX® load cells have a hexagonal shape.
5. Tilt the load cell (with the cable entry fitting down) and insert its lower button into the lower receiver (see Figure 1-3). Stand the load cell upright so that it is aligned with the upper receiver.

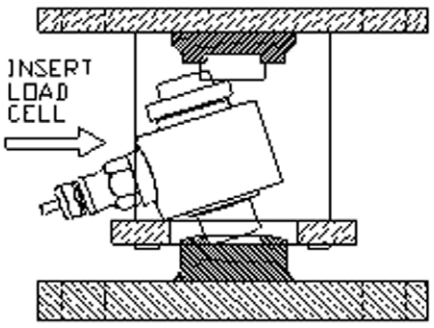

Figure 1-3: Load cell installation (end view)

6. Make sure that the SafeLock™ locking plate are positioned correctly under the top plate assembly and that the load cell and anti-rotation washer are aligned correctly with the upper receiver. Lower the top plate so that it rests on the SafeLock™ locking plate.
7. Make sure that the load cell and anti-rotation washer are seated correctly in the top receiver.
8. Reinstall the two SafeLock™ centering washers and tighten down the lift-off bolts. Make sure that the SafeLock™ centering washers seat correctly in the hole for the lift (see Figure 1-4). This will ensure that the top plate is aligned correctly with the base plate. Make sure that the top plate assembly is supported by the SafeLock™ locking plate, not the load cell.

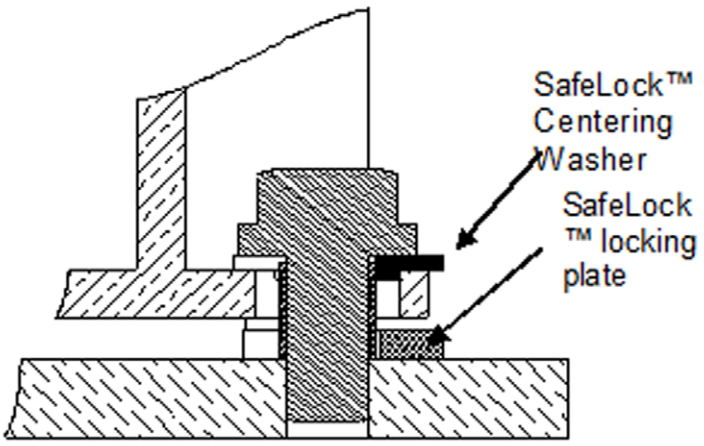

Figure 1-4: Shipping Configuration

9. Check that the ground strap is securely fastened at its ends. The weigh module is now ready for shipping or installation.

1.3 Installation

Weigh Module Installation Instructions:

1. **METTLER TOLEDO recommends installing an optional spacer plate above each weigh module's top plate to simplify future load cell removal.** Removing the spacer plates will allow you to lift the weigh module top plates enough to remove the load cells without having to jack up the tank. This is especially important for tanks with many attached pipes.
2. If you are installing weigh modules without load cells, insert the lower receiver into the base plate hole as shown in Figure 1-2. Make sure that the top plate is properly aligned and locked to the base plate (see Figure 1-4).
3. Position a weigh module under each of the support points for the tank or scale structure. Each weigh module should support an equal portion of the total load and should be oriented as shown in Figure 1-6 (for weigh modules without stabilizers) or Figure 1-7 (for weigh modules with optional stabilizers). Stabilizers are used to stabilize a tank, for example when a mixer will cause the tank to oscillate. If there is a possibility of needing stabilizers in the future, install the weigh modules as shown in Figure 1-7.

4. Level each weigh module's base plate within ± 1/2 degree in both longitudinal and transverse directions (see Figure 3-4). This equals an upward or downward slope of 1mm (1/32inch) per 100mm (4inches). Shim the base plates as necessary to level them. As long as the top plate is properly aligned and locked to the base plate, leveling the base plate should also level the top plate.

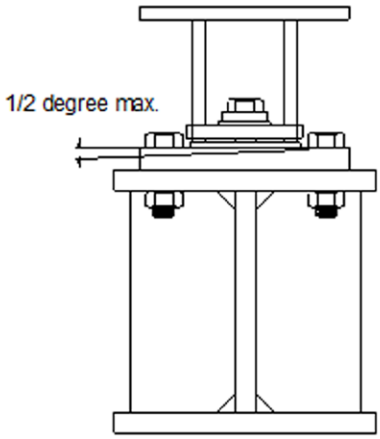

Figure 1-5: Level the Base Plate

5. Slowly lower the scale structure onto the weigh modules. Add shims as needed between the scale structure and top plates to fill any gaps. Do not fix misalignment problems between the scale structure and top plates by adjusting the alignment of the weigh modules; the top and base plates must remain locked together during this phase of the installation.
6. Make sure that the top and base plates make full contact with their mating surfaces and that each base plate is level within 1/2 degree.

⚠ WARNING

THE WEIGH MODULE'S TOP AND BOTTOM PLATES MUST BE SUPPORTED SUFFICIENTLY TO AVOID ANY DEFORMATION OF THESE PLATES UNDER LOAD. YOU CAN FULLY SUPPORT THE BASE PLATE BY GROUTING UNDER IT OR BY SHIMMING AT MULTIPLE LOCATIONS. IT IS PARTICULARLY IMPORTANT TO SUPPORT THE TOP AND BASE PLATES AT THE CENTER IN ORDER TO SUPPORT THE RECEIVERS.

7. Fasten the top and base plates by bolting or welding (before proceeding, make sure that each weigh module is supporting approximately an equal portion of the load):

a. Bolting: Bolt details are given in Table 3-1 (bolts are not supplied by METTLER TOLEDO).
b. Welding for 7.5-22.5t weigh modules: the weld should be a 6mm (0.24inch) fillet, 25mm (1inch) long, and 75mm (3inch) pitch with 50mm (2inches) between welds on all four sides.
c. Welding for 20-50t weigh modules: the weld should be a 8mm (0.32inch) fillet, 25mm (1inch) long, and 75mm (3inch) pitch with 50mm (2inches) between welds on all four sides.
d. Welding for 100t(90t) weigh modules: the weld should be a 12mm (0.32inch) fillet, 45mm (1inch) long, and 75mm (3inch) pitch with 50mm (2inches) between welds on all four sides.

SWC515 Pin-Mount™ Material	Top/Base Plate Bolts Metric (Imperial)		Grade
Mild steel	7.5-22.5t	M20 (3/4inch)	8.8 (Grade 5)
	20-50t	M24 (15/16inch)	
	90t	M30(1-1/4inch)	
	100t	M30(1-1/4inch)	
Stainless Steel	7.5-22.5t	M20 (3/4inch)	A2-70 (Grade 304, 18-8)
	20-50t	M24 (15/16inch)	
	90t	M30(1-1/4inch)	
	100t	M30(1-1/4inch)	

Table 1-1: SWC515 PinMount™ Mounting Bolt Size and Grade

⚠ CAUTION

DO NOT PASS WELDING CURRENT THROUGH THE LOAD CELLS! WHEN WELDING ON A SCALE, ALWAYS GROUND THE WELDING DEVICE AS CLOSE TO THE WORK AS POSSIBLE. NEVER WELD WITHIN 4 FEET (1.2 METERS) OF ANY LOAD CELL WITHOUT REMOVING THE LOAD CELL.

8. If the load cell is already installed in the weigh module, skip to step 9 below. If not, use the following procedure to install the load cell:

a. Loosen the lift-off bolts enough to allow you to lift the top plate 15mm (5/8inch) for an SLC610 load cell or 25mm (1inch) for an 0782 or POWERCELL® PDX® load cell, 30mm for 0782 100t load cell. Support the top plate assembly securely at this height.

b. Insert the lower receiver into the hole at the center of the base plate. Insert the upper receiver into the hole at the center of the underside of the top plate. Align the anti-rotation slot in the top receiver as shown in Figure 3-1.

c. Place the anti-rotation washer on the upper button of the load cell. Rotate the washer until it aligns correctly with the flats on the load cell, and push it down into place. The washer cannot rotate on the load cell when correctly installed. Note: An anti-rotation washer is not used with 0782 and POWERCELL® PDX® load cells.

d. Place the foam gasket over the lower button of the load cell. Note: The lower buttons of the 0782 and POWERCELL® PDX® load cells have a hexagonal shape.

e. Tilt the load cell (with the cable entry fitting down) and insert its lower button into the lower receiver (see Figure 3-2). Stand the load cell upright so that it is aligned with the upper receiver.

f. Make sure that the SafeLock™ locking plate are positioned correctly under the top plate assembly and that the load cell and anti-rotation washer are aligned correctly with the upper receiver. Lower the top plate so that it rests on the SafeLock™ locking plate.

g. Skip to step 10 below.

9. Loosen the lift-off bolts and lift the top plate slightly. Remove the two SafeLock™ locking plate from the top plate assembly. Lower the top plate onto the load cell. Remove the two SafeLock™ centering washers.

10. Tighten down the lift-off bolts screws until they lock against the sleeves.

⚠ WARNING

THE LIFT-OFF BOLTS MUST BE LOCKED IN POSITION AS DESCRIBED FOR THE LIFT-OFF FUNCTION TO OPERATE CORRECTLY. FAILURE TO DO SO MAY RESULT IN BODILY HARM OR DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT.

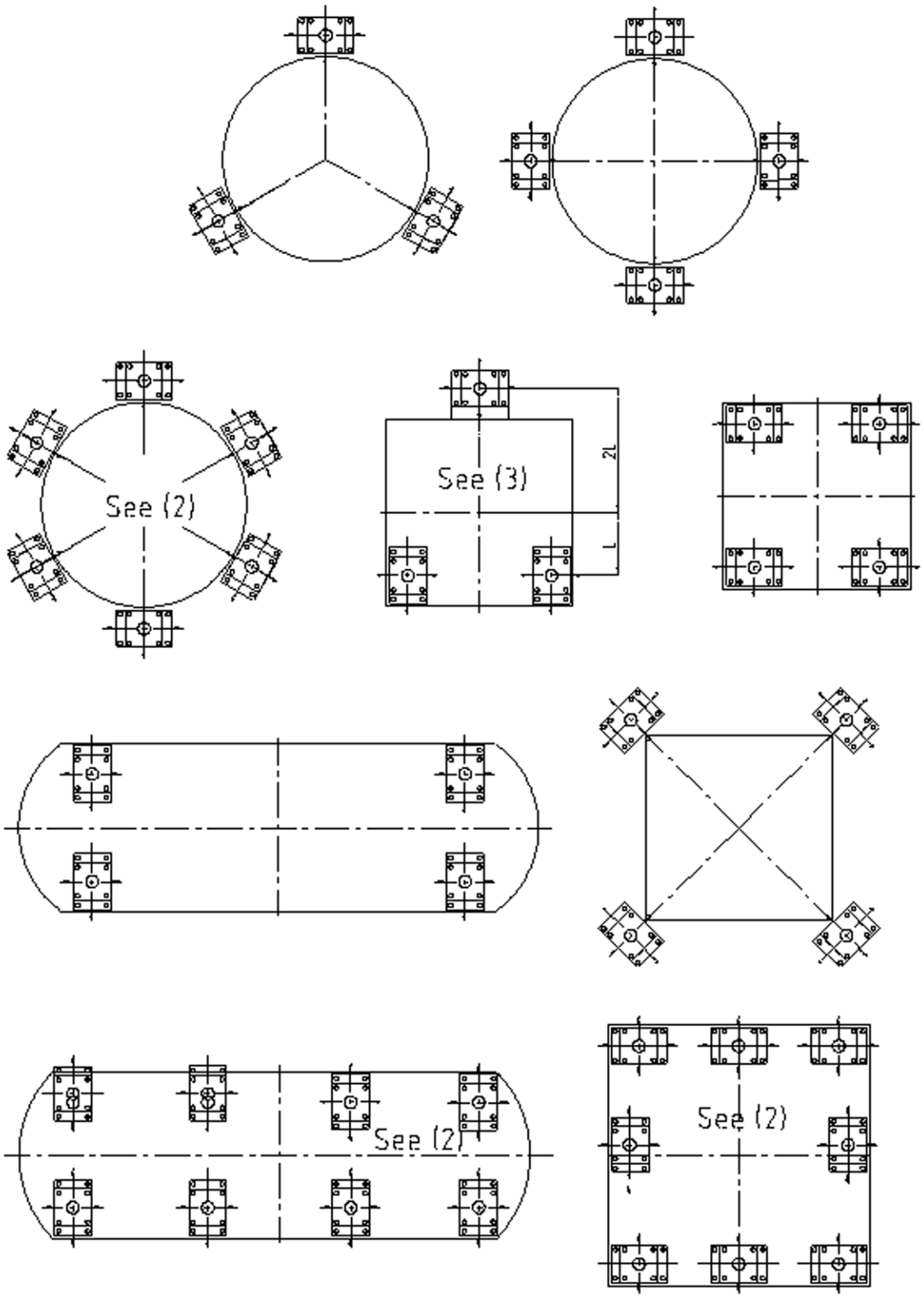

Figure 1-6: Plan View of Mounting Arrangements without Stabilizers

Notes:
(1) All weigh modules may be rotated 1 to 359 degrees about their vertical axis from the orientation shown.
(2) It is best to use 3 or 4 weigh modules. Equal load distribution is increasingly difficult to achieve as the number increases beyond 3.
(3) Provides equal load distribution, but overall stability of this arrangement must be assured.

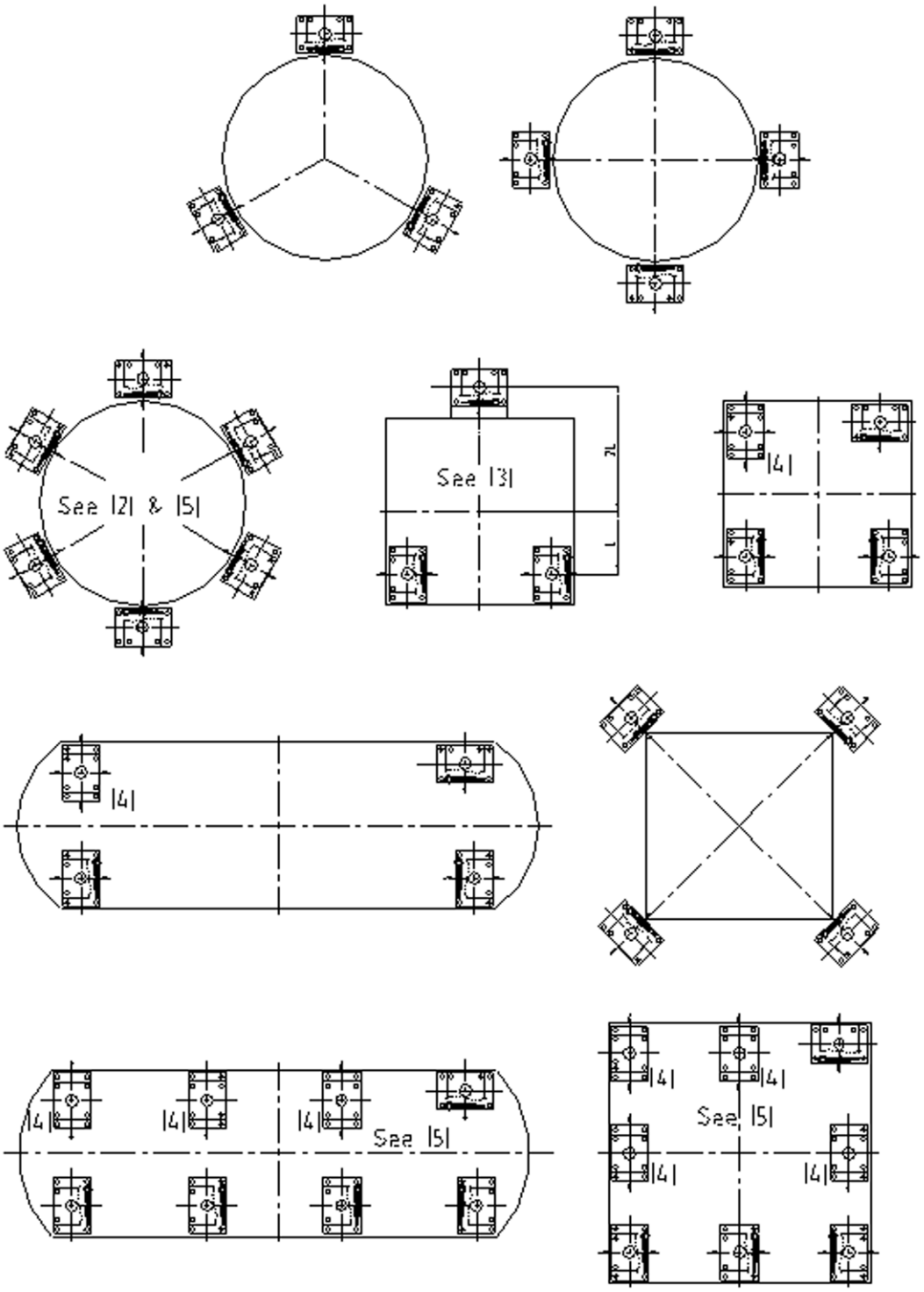

Figure 1-7: Plan View of Mounting Arrangements with Stabilizers

Notes:

(1) Weigh modules with one stabilizer can have a second stabilizer fitted.

(2) Any number of weigh modules (≥ 3) may be used on a circular tank with stabilizers tangential as shown in this 6-leg example.

(3) Provides equal load distribution, but overall stability of this arrangement must be assured.

(4) This weigh module must not have stabilizers to prevent binding; it may be rotated 1 to 359 degrees about its vertical axis from the orientation shown.

(5) It is best to use 3 or 4 weigh modules. Equal load distribution is increasingly difficult to achieve as the number increases beyond 3.

11. Make sure that each weigh module supports approximately an equal portion of the load. This is especially important for scales with a rigid frame and/or four or more weigh modules. It may be necessary to measure the signal from each load cell to confirm this. Shim the lighter positions as necessary to redistribute the load.
12. Make sure that the ground strap is securely fastened at both ends.
13. Assembly of stabilizer option (see Figure 1-1):
    a. The optional stabilizers (one or two per weigh module) can be fitted to the weigh module before or after the weigh module is installed. If you are using one stabilizer per weigh module, it can be fitted to whichever side of the weigh module is most convenient. Note that the weigh modules must be arranged according to Figure 1-7 to avoid binding the scale.
    b. Remove the plastic plug from the hole in the base plate, apply a coat of thread locker to the threads of the base stud, and screw the stud into the hole. Tighten it with a wrench.
    c. Remove the plastic plug from the corresponding boss on the top plate assembly, apply a coat of thread locker to the threads of the top stud, and screw the stud into the boss. Tighten it with a wrench.
    d. Make sure that the top plate is aligned correctly with the base plate. Place the stabilizer assembly on the studs. If necessary, adjust the length of the stabilizer assembly by rotating the double-ended bolt.
    e. Place the retaining rings in the grooves on the studs to secure the stabilizer assembly in place. Make sure that the retaining rings sit securely in the grooves.
    f. Make any final adjustments to the length of the stabilizer assembly and lock the two jam nuts against the rod-ends while preventing the double-ended bolt from rotating.

14. Assembly of heat conduction and anti-vibration pads option:
    a. Anti-vibration pad and heat conduction pad (made out of PEI) pads are shipped as a kit along with the SafeLock™ locking plate.
    b. Install a pad between the SafeLock™ locking plate and the tank's foot plate (see Figure 1-8). Note: Do not install the pad between the SafeLock™ locking plate and the weigh module's top plate.

15. Mount the junction box in a location where the load cell cables can be properly terminated in the junction box. **Do not mount the junction box on the scale**. Note: POWERCELL® PDX® load cells do not use a junction box.
16. Connect the load cell cables to the junction box and terminate the wires according to the color code marked on each load cell.
17. Connect the home run cable from the scale indicator to the junction box.
18. Confirm that all live-to-dead connections (pipes, conduit, etc.) are flexible and securely anchored at both the scale and the dead connection point.

Note:

Consider calibrating the scale before connecting any piping or conduit to the scale. Rechecking the calibration after installing piping or conduit will confirm if they have been installed correctly.

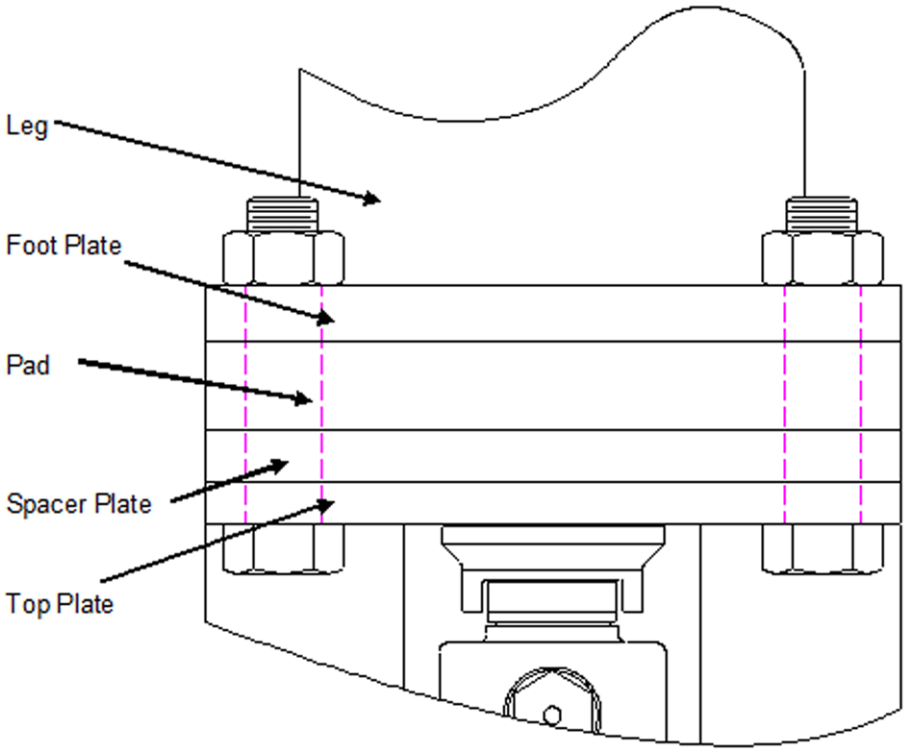

Figure 1-8: Mechanical Pad Installation

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