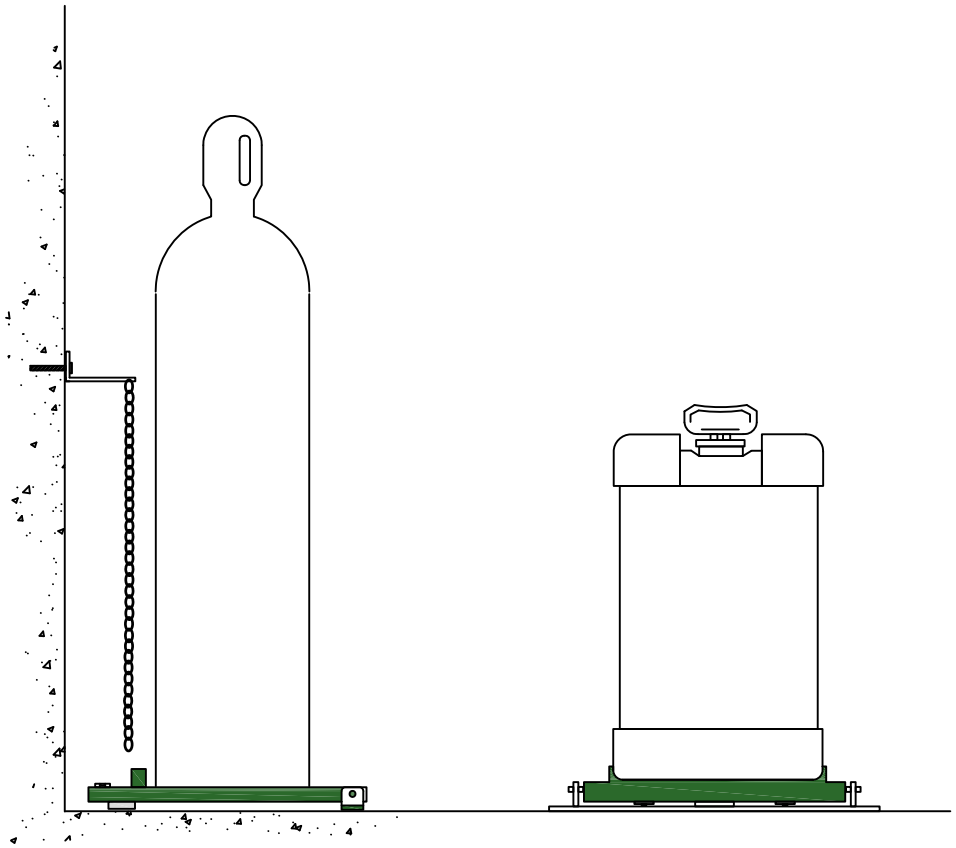
FORCE FLOW

CYLINDER & CARBOY SCALES (ELECTRONIC)

PLACE MODEL STICKER HERE

INSTALLATION & OPERATION MANUAL



WARNING!

REVIEW THIS ENTIRE MANUAL BEFORE INSTALLING THIS PRODUCT!

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CYLINDER & CARBOY SCALES (ELECTRONIC)

INSTALLATION & OPERATION MANUAL

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FOR SCALES WITH ADJUSTABLE BACKSTOP PLATFORM(S) ONLY !

IMPORTANT ! To insure accurate weight readings, it is critical that the load is properly centered within the "CALIBRATION RING" prior to anchoring platform to the floor.

NOTE: This does not apply to USA standard 150# cylinder scales.

CALIBRATE YOUR ADJUSTABLE BACKSTOP SCALE NOW !

SCALE CALIBRATION

1) Loosen the backstop hold-down nuts and slide the backstop toward the edge of the platform.

2) Place the container that is to be weighed (or an empty container that is the same diameter of the container to be weighed) on the platform.

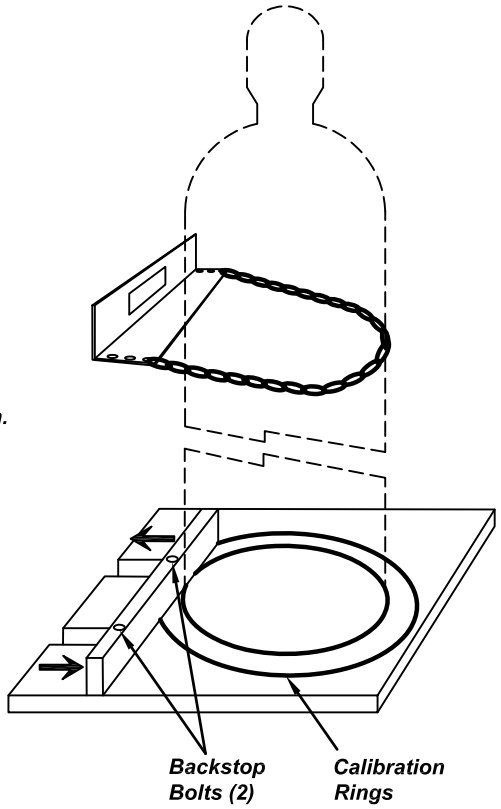
   Using the CALIBRATION RINGS on the platform as the "target", center the container within the calibration rings.

3) Slide the backstop against the container and tighten the backstop

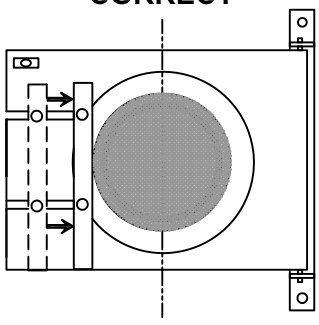
STEP 1:
Loosen backstop bolts and slide backstop toward edge of platform.

STEP 2:
Place container on platform and CENTER it within the calibration rings.

STEP 3:
Slide backstop against container and tighten bolts.

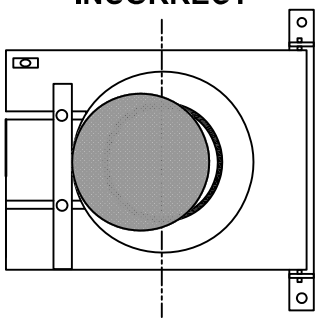


CORRECT



Container CENTERED in Calibrating Rings

INCORRECT



Container OFF CENTERED in Calibrating Rings

DAILY OPERATION

When using containers with the same diameter there is no need to readjust the backstop. Simply slide the new container against the backstop making sure the container is centered in the Calibration Rings.

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INSTALLATION NOTES:

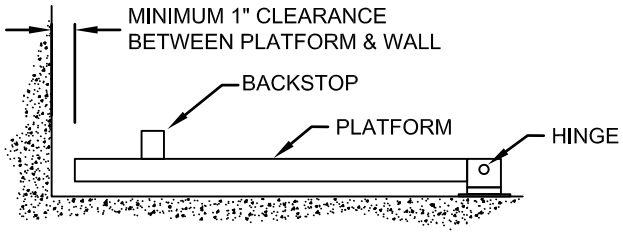
CAUTION: For proper operation and to avoid possible damage to the scale or injury to yourself, you MUST install these items in the following Step-by-Step manner. The standard CYLINDER or CARBOY Scale is meant to be installed in close proximity to a wall or other upright structure. If this is not possible, please consult factory for proper installation. Each of these scales is designed to accommodate a specific cylinder only (consult factory if you are in doubt).

REMOVE ALL ITEMS FROM BOX:

1) Load Cell and Cable
2) PVC Platform with hinge, Backstop and Leveling Shims
3) Chaining device with Equipment Hooks, Chain and Spring Loaded Bolt Snap (Cylinder Scale only)

THE LOAD CELL SYSTEM IS WIRED AND CALIBRATED AT THE FACTORY.

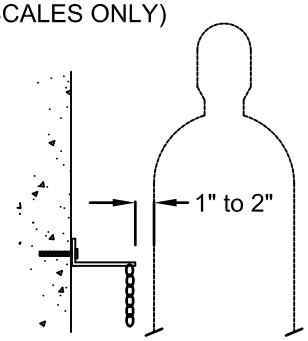
STEP 1: PLACE PLATFORM ON FLOOR



Place the platform on the floor with the backstop side of the platform at the wall. DO NOT ANCHOR PLATFORM TO FLOOR UNTIL STEP 4.

STEP 2: ADJUSTING CYLINDER DISTANCE FROM CHAINING BRACKET

(CYLINDER SCALES ONLY)



NOTES:

1) Carboy Scales DO NOT have chaining brackets.

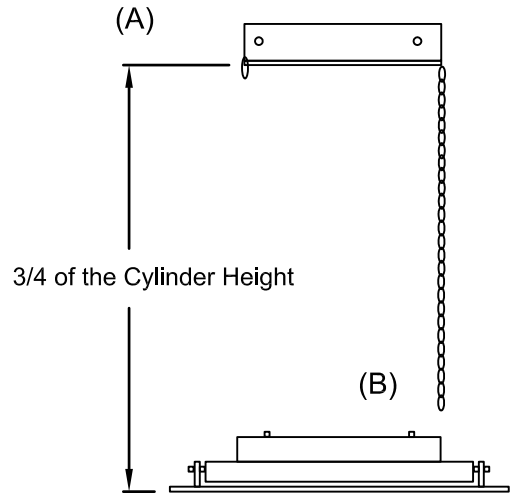
2) Cylinder MUST NOT touch chaining bracket.

3) Calibrate adjustable backstop prior to anchoring platform.

Adjust the platform distance from the wall so that a correctly positioned cylinder touching the platform backstop is proximately 1" to 2" from the front edge of the chaining bracket.

STEP 3: ALIGNING & MOUNTING THE CHAINING BRACKET

(CYLINDER SCALES ONLY)



NOTE: Carboy Scales DO NOT have chaining bracket.

(A) The chaining bracket should be mounted at approximately 3/4 the height of the cylinder.

(B) To align the chaining bracket with the platform, adjust bracket until the hanging chain aligns with the right-hand side of the backstop. Be sure the bracket is level, mark holes and anchor the bracket to the wall. Make sure your anchor bolts are properly sized and are compatible with your wall material !!

NOTE: If the Foot of your wall protrudes, it may be necessary to put a spacer between the wall and the chaining bracket to assure no more than 1" to 2" space between cylinder and front edge of chaining bracket. (See Step 2)

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INSTALLATION cont...

STEP 4: ANCHORING THE PLATFORM

Platform must not touch wall or scale will not function properly. Mark mounting holes on the floor. Anchor scale to the floor using two anchors. Make sure your anchor bolts are properly sized and compatible with your floor material !!

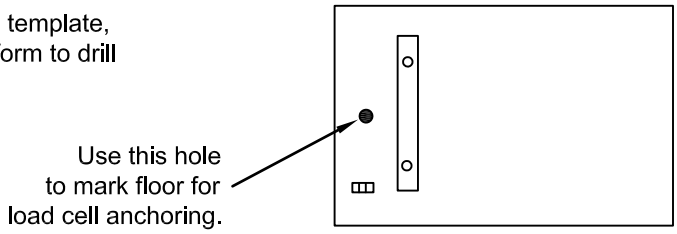
CAUTION:
To avoid injury caused by tipping cylinder, DO NOT use until platform is bolted to floor.

NOTE:
1) Verify that the cylinder is not touching the chaining bracket or scale will not work properly.

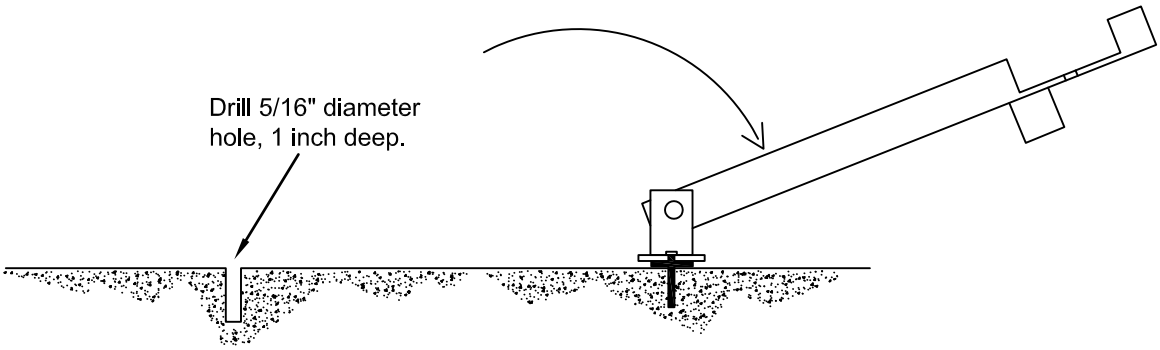
2) Calibrate scales with adjustable backstops prior to anchoring platform so when the cylinder is centered in the calibration ring, it does not touch the chaining bracket.

STEP 5: INSTALLING THE LOAD CELL

(A) Using the HOLE IN THE PLATFORM as a template, mark the floor through the hole in the platform to drill Load Cell anchoring hole.



(B) After mark is established on the floor, pivot Platform out of the way. Centerpunch the mark to ensure accurate hole location. Drill a 5/16" hole using an appropriate bit. Drill the hole approximately 1 inch deep.



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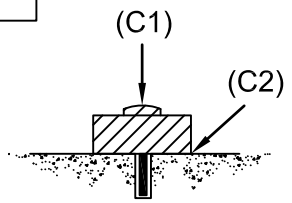
INSTALLATION cont...

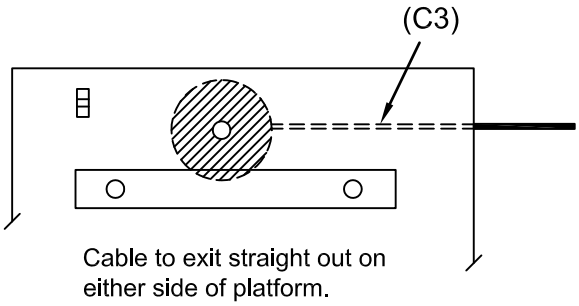
STEP 5: INSTALLING THE LOAD CELL cont...

(C) 1. Insert Load Cell Stud into hole in the floor.

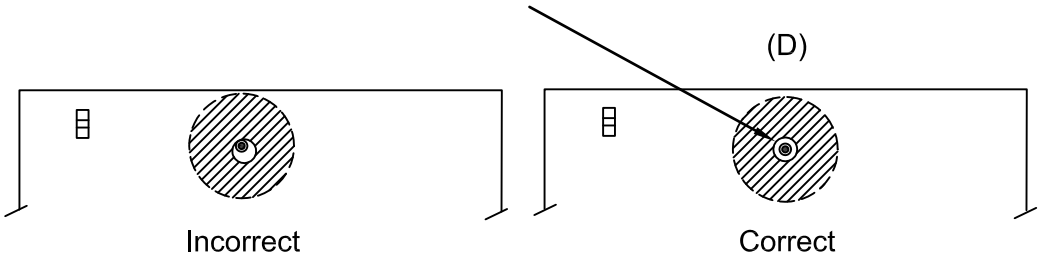
2. Be certain that the Load Cell is seated on the floor.



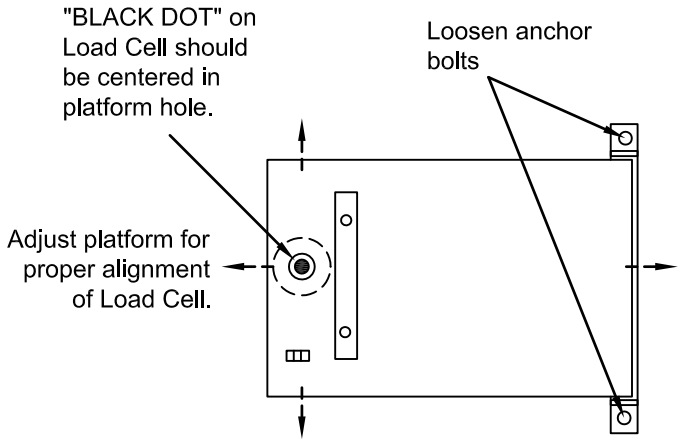
3. Position Load Cell so that the cable runs straight out to either side of the platform.



(D) Pivot Platform back into place. Site through the mounting hole on the platform to ensure that the "BLACK DOT" on the Load Cell button is centered in the hole on the platform.



(E) If the "BLACK DOT" on the Load Cell Button is not centered in the hole on the platform loosen the floor anchor bolts slightly and adjust platform as needed. Once proper alignment is achieved, tighten the anchor bolts.



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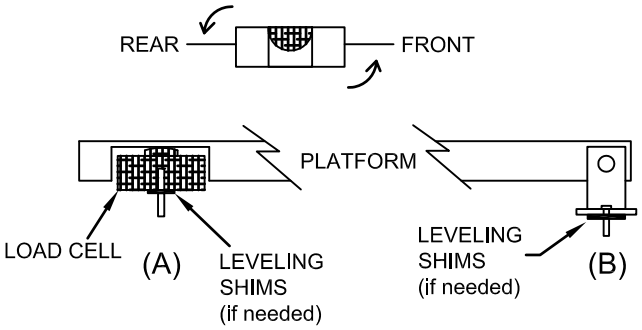
INSTALLATION cont...

STEP 6: LEVEL PLATFORM

Check the platform-mounted level to assure that the scale is level from FRONT to REAR. If the platform is not level, either:

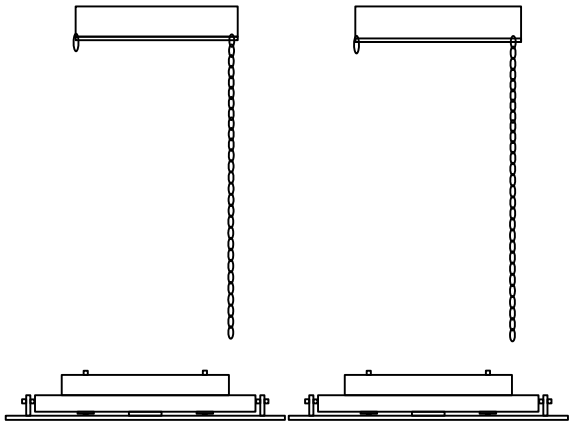
(A) RAISE REAR of platform by placing shim(s) UNDERNEATH the LOAD CELL,

or (B) RAISE FRONT by placing shim(s) UNDERNEATH the HINGE on the ANCHOR BOLTS (shims provided with scale).



STEP 7: MOUNTING ADDITIONAL SCALES

To mount additional scales side-by-side, be sure to allow for the frame hinge when determining the distance between platforms (if minimizing floor area) and repeat Step 1 - 7.



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INSTALLATION CHECKLIST

☐ **1. SCALE PLATFORM (Pg 2)**

- Scale platform properly anchored to floor.
- Leveled properly.
- Not touching wall.

☐ **2. LOAD CELL (Pg 3)**

- Load Cell properly installed.
- Load Cell Cable properly installed.
- Load Cell "Black Dot" centered in mounting hole.

☐ **3. CYLINDER or CARBOY (Pg 4)**

- Cylinder or Carboy properly centered on platform.

☐ **4. ADJUSTABLE BACKSTOPS ONLY:**

- For accurate measurement, vessel/cylinder must be centered in calibration rings.

☐ **5. CYLINDER SCALES ONLY:**

- Minimum 1" (25.4mm) clearance between cylinder and chaining bracket.

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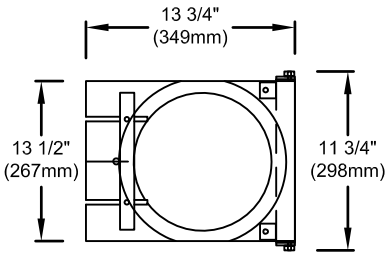
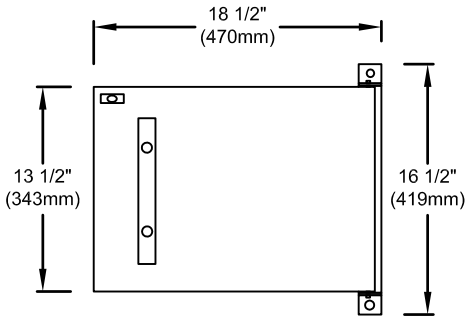
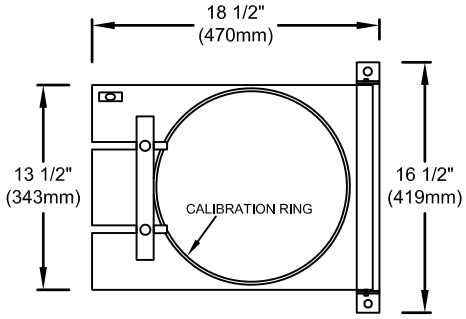
CYLINDER & CARBOY PLATFORM DIMENSIONS



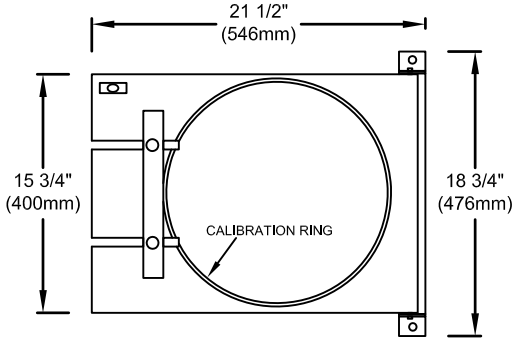
- 150# CYLINDER (Inside a Gas Cabinet)
  (150# Max. Capacity)



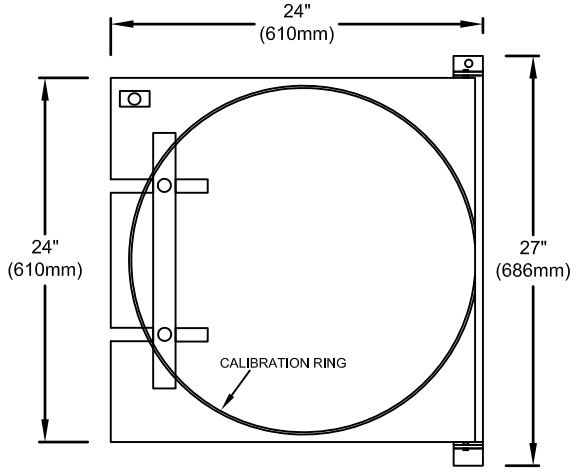
- 150# Standard Platform for USA Cylinders
  (150# Max. Capacity)
- Non-Adjustable backstop



- 200# LIQUEFIED GAS
- 150# INTERNATIONAL CYLINDERS
- 200# CARBOY
  (200# Max. Capacity)



- 400# AMMONIA
- 400# CARBOY
  (400# Max. Capacity)



- 600# CARBOYS
  (600# Max. Capacity)

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CYLINDER & CARBOY SCALE PLATFORMS

WARNING / TOOLS REQUIRED

If you have any questions regarding the installation or operation of your CYLINDER or CARBOY Scale, please do not hesitate to call our.... HELP HOTLINE 1-800-893-6723.

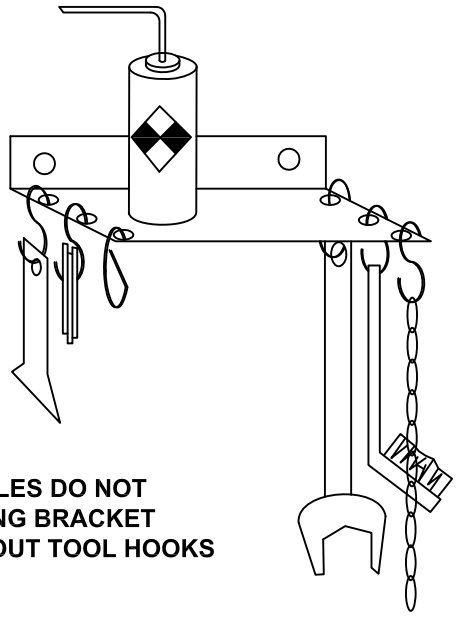
WARNING: To prevent possible personal injury or damage to the equipment through misuse, this equipment should be installed, operated and serviced only by trained, qualified personnel who are thoroughly familiar with the entire contents of this Instruction Manual, which should be thoroughly reviewed and understood prior to installing and operating the equipment.

ITEMS REQUIRED FOR INSTALLATION:

- Power Drill and Drill Bits
- Two (2) 1/4" properly chosen Anchors (for platform)
- Wrenches (to tighten anchors)
- Two (2) properly chosen Anchors (Chaining Bracket)
- (No Chaining Bracket on Carboy Scale)
- Screw Driver
- Tape Measure
- Cylinder/Carboy (for aligning platform)

ITEMS REQUIRED FOR INSTALLATION:

(Cylinder Scale only)
Change-out Tool Hooks have been added to the Chaining Bracket to keep frequently used tools needed to change cylinders.



NOTE: CARBOY SCALES DO NOT HAVE CHAINING BRACKET OR CHANGE-OUT TOOL HOOKS

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OPERATION

If you have any questions regarding the installation, operation or maintenance of your scale,
PLEASE DO NOT HESITATE TO CALL OUR HELP HOTLINE 1-800-893-6723;
email us at info @forceflow.com, or Fax us 1-925-686-6713

"PORTABLE" TANK APPLICATIONS

("PORTABLE" means: Empty tank is REPLACED)

LOAD CONTIANER

Load a FULL container on scale platform.

PROCESS CONNECTIONS

Verify all necessary process connections to container are FLEXIBLE, so as not to restrain the vessel from freely resting on the scale and platform movement is not restrained.

DETERMINE TARE

To determine tare weight:

1) Check container to see if the tare weight is marked on it (ie. stamped on chine or top of cylinder).

2) On containers and tanks that are not marked, begin by zeroing the scale. Place an empty container and any applicable process connections. The value displayed is the tare weight. Record this weight in a visible location for future reference.

TARE ADJUSTMENT

Adjust the tare as directed in the instrument manual.

NOTE: When loading a PARTIALLY full container, start by zeroing the empty scale, then place the container on the scale and make process connections. Use the tare adjustment listed in the instrument manual to display the correct net weight.

"FIXED" TANK APPLICATIONS

("FIXED" means: Empty tank is REFILLED)

PRIOR TO FILLING TANK:

CENTER TANK

Load an EMPTY container on scale platform.

PROCESS CONNECTIONS

Verify all necessary process connections to container are FLEXIBLE, so as not to restrain the vessel from freely resting on the scale and platform movement is not restrained.

TARE ADJUSTMENT

WITH NO CHEMICAL IN TANK... ZERO the scale using the manual supplied with the instrument.

FILL TANK

Fill tank to desired level.

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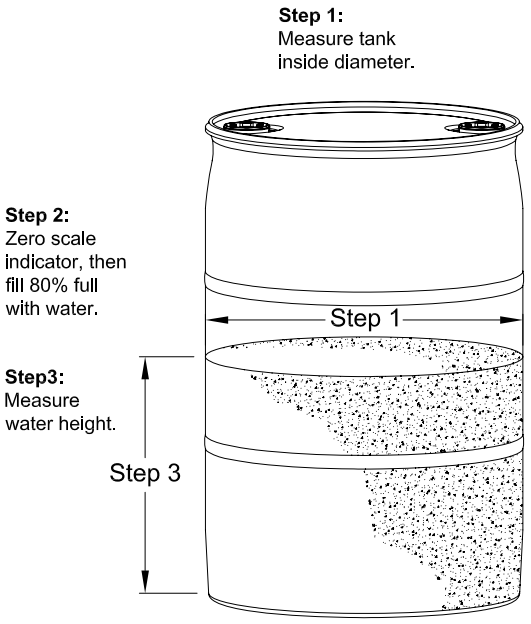
CHECKING SCALE CALIBRATION via the "WATER TEST" on VERTICAL ROUND TANKS



TO DETERMINE TANK MEASUREMENTS:

To calculate volume, you need to make 2 basic measurements with a tape measure: TANK "RADIUS" and WATER "HEIGHT".

STEP 1: With NO WATER in the tank, measure the inside diameter (I.D.) of the tank to the nearest 1/16 of an inch. Take care when measuring so that your tape measure is "level" and you are measuring across the MIDDLE of the tank.

STEP 2: ZERO scale indicator, then fill the tank with water approximately 80% full.

STEP 3: Put tape measure down through the water and measure the water level to the nearest 1/16 of an inch. This value represents your "HEIGHT".

TO DETERMINE VOLUME:

The volume (in gallons) of your container can be determined by this simple formula:

FORMULA: (3.1416 x Drum Radius x Drum Radius x Water Height) divided by 231 = Gallons

Example: (3.1416 x 11.281" x 11.281" x 35.187") divided by 231 = 60.89 Gallons

3.1416 = PI (constant)
231 = Cubic inches in 1 gallon (constant)
Drum Radius is half of drum inner diameter:
Example: 22 9/16: (22.562") divided by 2 = 11.281" Drum Radius
Water Height = 35 3/16" (35.1870")

TO DETERMINE WEIGHT:

Once the volume is determined, multiply the total gallons times the weight per gallon of water (which is 8.34 lbs. Per gallon). The weight of water is the same universally.

FORMULA: Gallons x Lbs. per gallon = Total lbs.

Example: 60.89 x 8.3 lbs/gallon = 507.9 lbs. Total

60.89 = Gallons as determined above
231 = Cubic inches in 1 gallon (constant)
Drum Radius is half of drum inner diameter:
Example: 22 9/16: (22.562") divided by 2 = 11.281" Drum Radius
Water Height = 35 3/16" (35.1870")

IMPORTANT NOTE:

Minimum test sample: 20 gallons.
All measurements should be made to + or - 1/16".
All calculations should be made to 3 decimal places (i.e. 7.225)
DO NOT GIVE CREDENCE TO "GALLON" MARKINGS ON TANK!!
THEY PROBABLY ARE NOT ACCURATE!!

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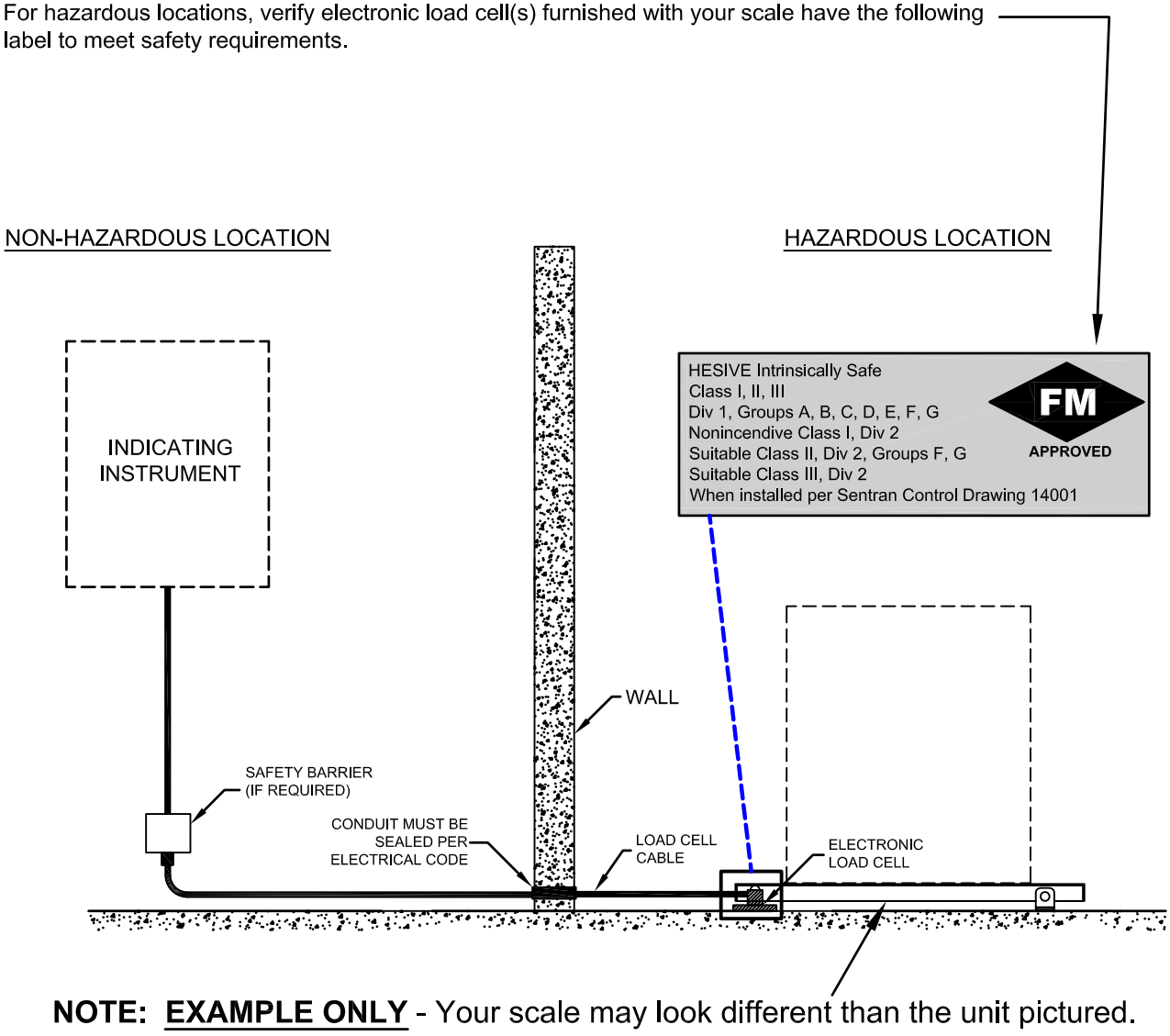
WARNINGS & CAUTIONS

- **Refer to local building codes for hazardous location restrictions.**
- **Anchor platform in level location.**
- **Anchor platform with building code approved fasteners.**

Indicator is not approved for use in hazardous locations. If your installation constitutes an explosive or combustible environment, please consult factory for safety precautions.

For further technical information or for applications engineering assistance, please contact Force Flow at 925-686-6700, 1-800-893-6723, info@forceflow.com.

For hazardous locations, verify electronic load cell(s) furnished with your scale have the following label to meet safety requirements.



NOTE: <u>EXAMPLE ONLY</u> - Your scale may look different than the unit pictured.

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COMMITTED TO CUSTOMER SERVICE & PRODUCT SUPPORT

From the initial writing of a specification through the installation and operation of the equipment,100% satisfaction is our goal. At Force Flow, we know that a superior customer service and support team is crucial to the success of our company.

PERFORMANCE GUARANTEE

With the purchase of every Force Flow product comes our performance guarantee. If you are unhappy about the performance of one of our products in your chlorination or chemical feed application, you may request a performance guarantee from the selling distributor. Under the performance guarantee, if within 30 days of the original installation you are not completely satisfied with the performance of the Force Flow product, you may return or exchange it for the full purchase price. To qualify, all performance guarantees must be pre-approved by the factory service manager before returning the equipment to the factory.

WARRANTY

Force Flow warrants all scales, ultrasonic sensors and indicators against defects in materials and workmanship under normal use for a period of FIVE (5) YEARS from the date the product ships from Force Flow. If a defect arises and a valid claim is received within the warranty period, at its option, Force Flow will either (1) repair the defective equipment at no charge, or (2) exchange the product with a product that is new or (3) refund the purchase price of the product. All warranty claims must be returned to factory. Contact factory for Return Merchandise Authorization (RMA#).

TECHNICAL & APPLICATION SUPPORT

Force Flow factory engineers have strong technical backgrounds with many years of chlorine and chemical feed application experience. If you require technical information, application support or help with a custom project, please contact an application engineer on our HELP HOTLINE 1-800-893-6723 USA/Canada or email info@forceflow.com. Also, see our website at www.forceflow.com.

SERVICE

Our policy is to get all repairs, warranty work and retrofits completed and shipped within 48 hours of their arrival at the factory. Trained technicians and a large parts inventory make this happen. We understand that there is nothing more frustrating than sending something back to the manufacturer and wondering when you will see it again. 2-Day turnaround on repairs--that is our policy! For prompt service, call our TOLL FREE HELP HOTLINE at 1-800-893-6723.

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