

Installation Manual

RJB-6/
SiloSenz
Load
Cell



SiloSenz Load /RJB-6 Load Cell

Ag/MIS/UmGb-2838-03/22 Rev 1.2
P/N: 116873

 **Munters**

SiloSenz Load Cell/RJB-6

Installation Manual

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Product Software: N/A

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

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Munters reserves the right to effect modifications to the apparatus in accordance with technical and legal developments.

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1 Introduction

1.1 Disclaimer

Munters reserves the right to make alterations to specifications, quantities, dimensions etc. for production or other reasons, subsequent to publication. The information contained herein has been prepared by qualified experts within Munters. While we believe the information is accurate and complete, we make no warranty or representation for any particular purposes. The information is offered in good faith and with the understanding that any use of the units or accessories in breach of the directions and warnings in this document is at the sole discretion and risk of the user.

1.2 Introduction

Congratulations on your excellent choice of purchasing an RJB and a SiloSenz Load Cell!

In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the unit, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters equipment.

1.3 Notes

Date of release: March 2022

Munters cannot guarantee to inform users about the changes or to distribute new manuals to them.

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2 RJB-6 Installation

Munters RJB-6 enables connecting up to eight load cells to a single controller. This section details how to mount and wire the RJB-6.

1. Remove the four cover screws to open the unit.



Figure 1: Opening the RJB-6 Cover

2. Using a drill and the supplied screws, attach the RJB-6 to a silo leg.

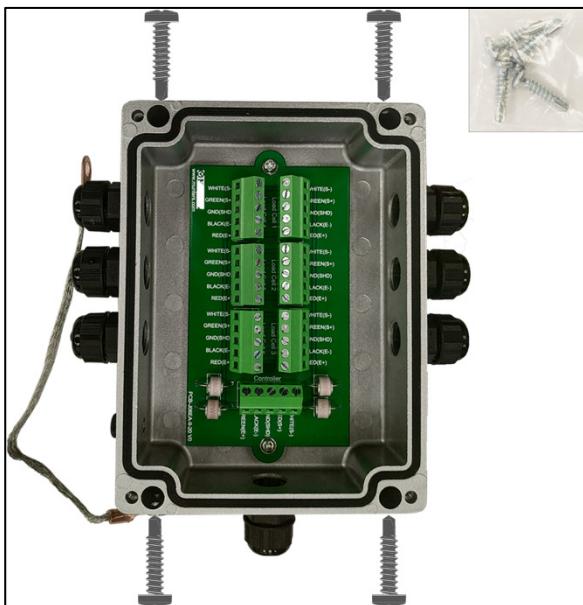
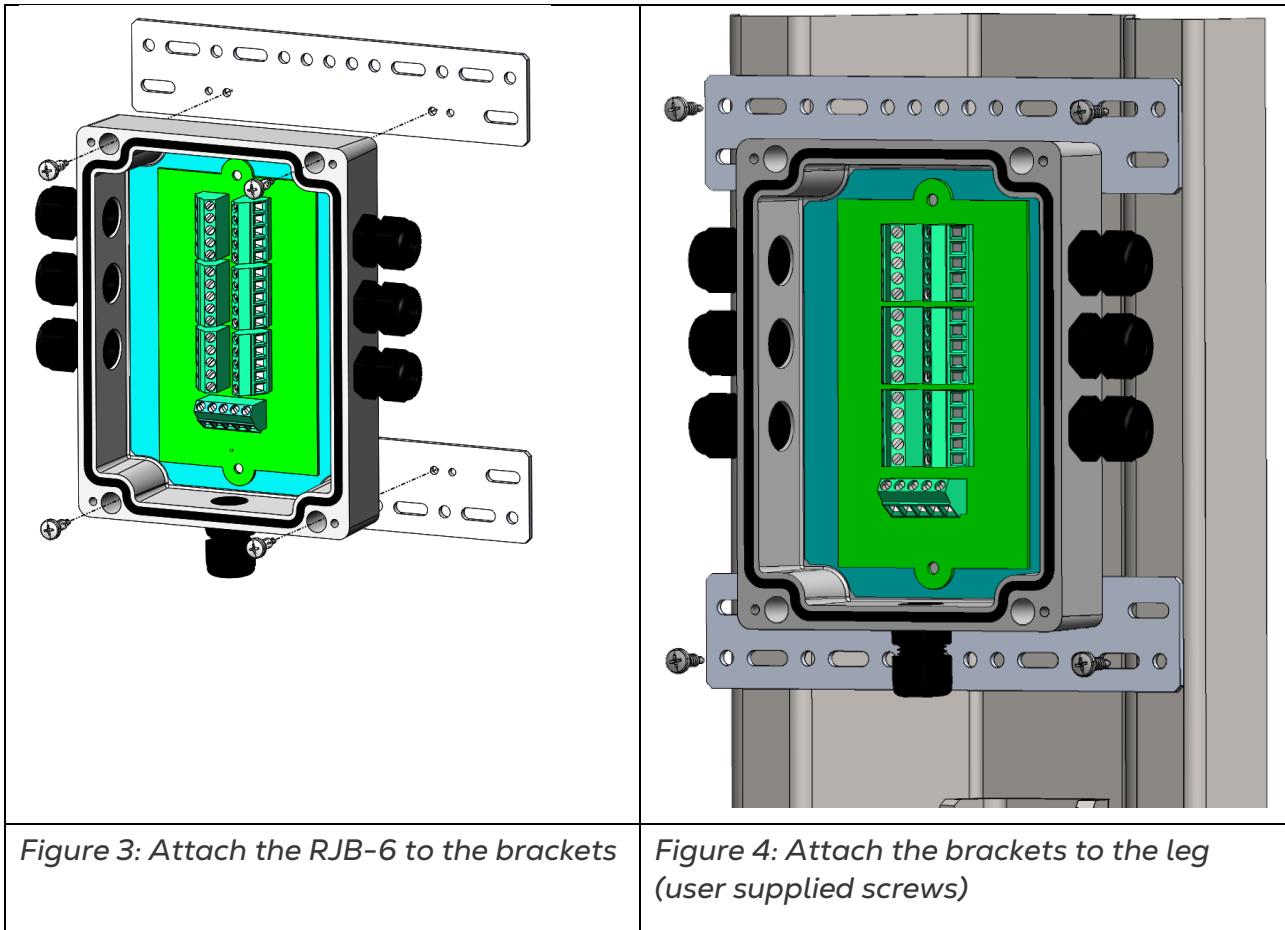


Figure 2: RJB-6 Mounting

- As an option, Munters supplies brackets that can be used to mount the RJB-6 to a leg.



3. Close the unit.
4. Attach the grounding cable to a silo leg.



Figure 5: Grounding the RJB

5. Wire the RJB-6 units to the SiloSenz units. Each SiloSenz (load cell) has four-wire shielded cables plus a shield cable (ground). Connect each load cell to the RJB-6 according to the colors inscribed on the RJB PCB board (Figure 6).

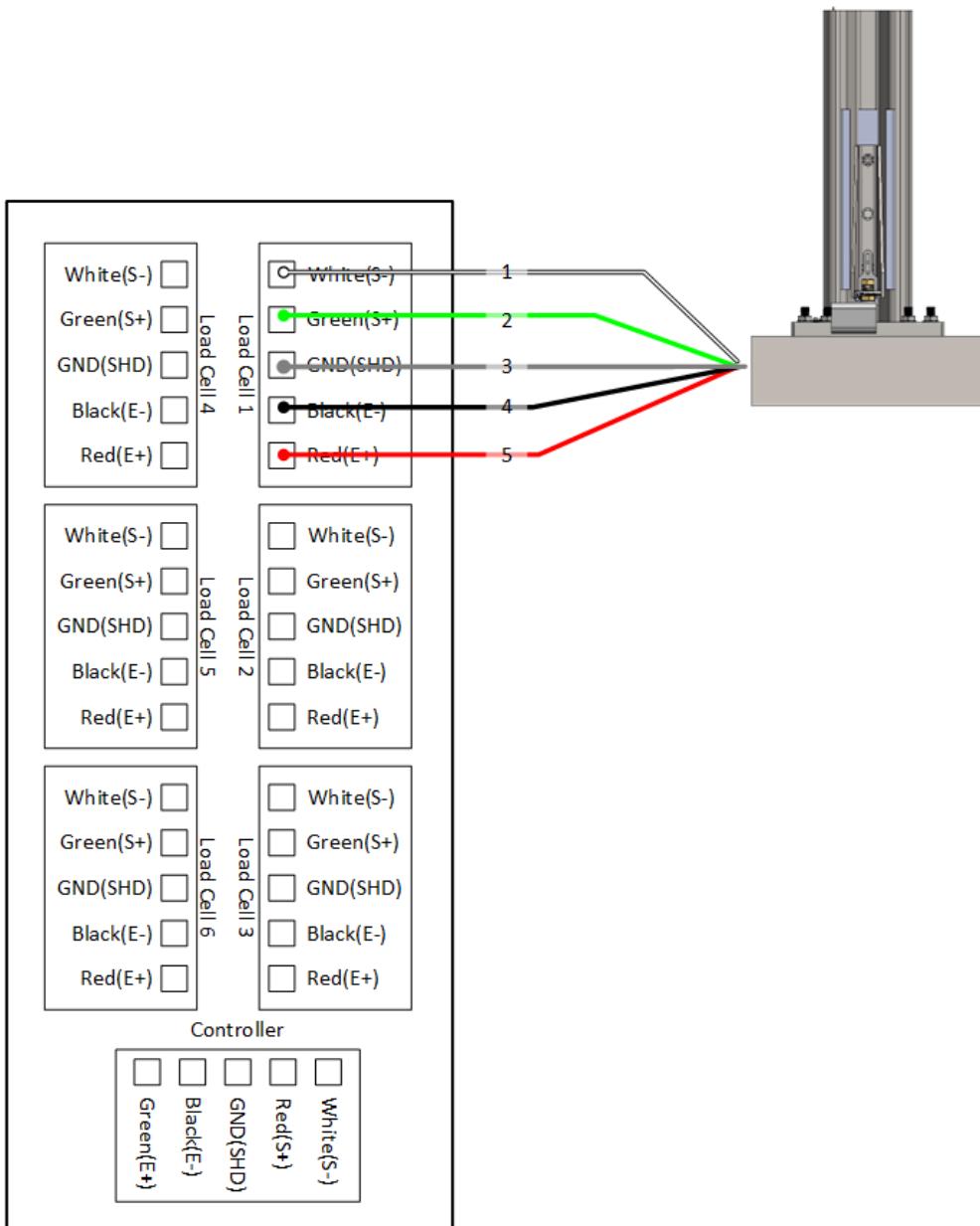


Figure 6: RJB - SiloSenz Wiring

- **Cable: Board**
 - White – White
 - Red – Red
 - Black – Black
 - Green – Green
 - Connect the shield wire to the GND (SHD) port.

6. Connect the relevant controller cables to the “Controller” terminal block within the RJB junction box. The connection colors of this cable are direct connection.

- If there are eight load cells, add the two remaining cells along with load cells 1 and 2.
- If less than six load cells are wired to the RJB-6, seal the unused cable glands (PGs).
- Refer to the specific controller manual for details on wiring the RJB-6 to the controller.

- Cable: Board
 - White – White
 - Red – Red
 - Black – Black
 - Green – Green

The SiloSenz units come with a grounding cable that can be run from one silo leg to a grounding rod.

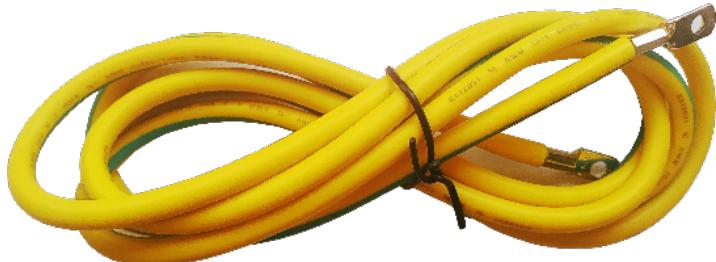


Figure 7: Grounding cable

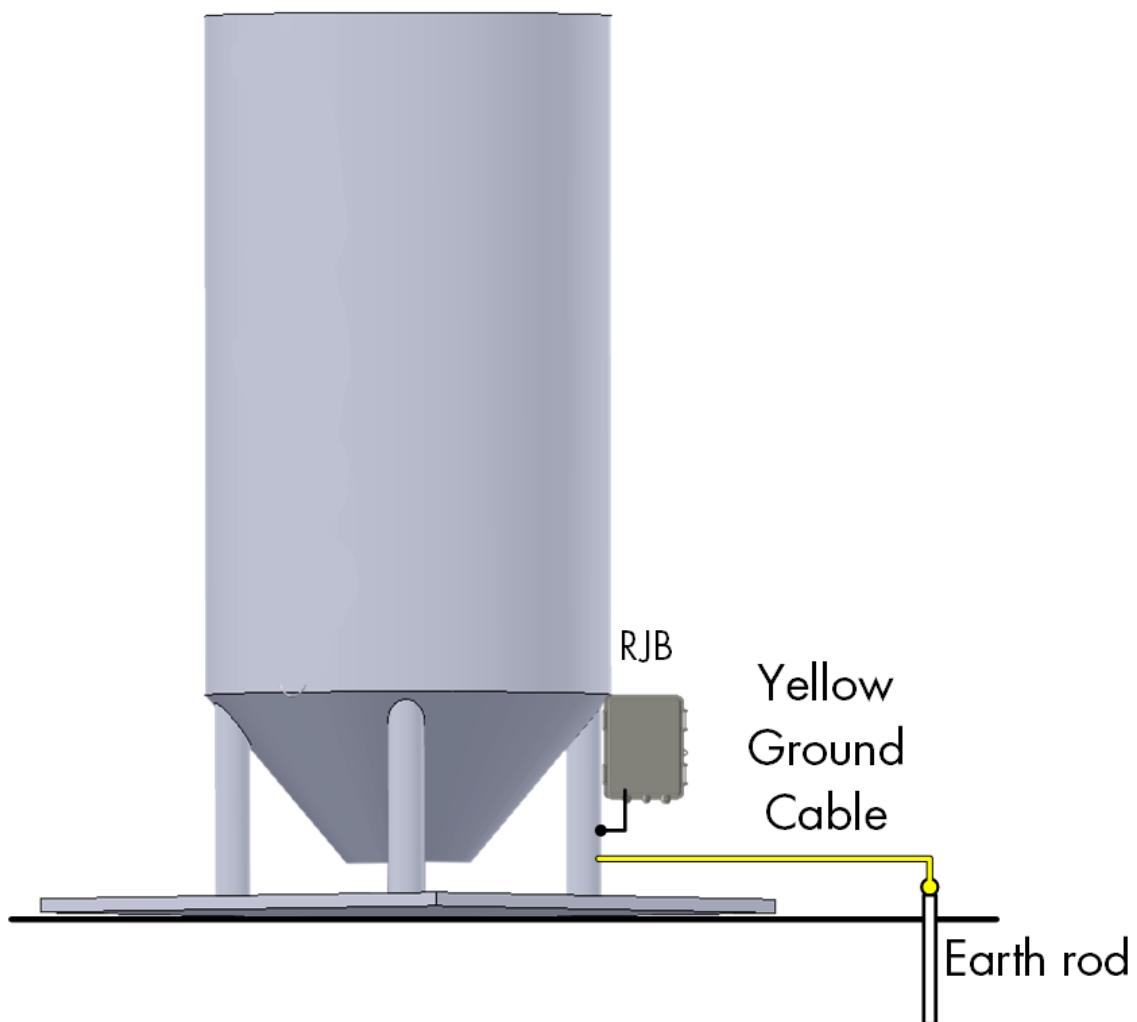


Figure 8: Grounding cable

3 SiloSenz Installation

- Unpacking the Equipment
- Recommended Installation Tools
- Installation Guidelines
- Installation Requirements
- Installing the SiloSenz

3.1 Unpacking the Equipment

- Before beginning installation, check the overall condition of the equipment.
- Remove packing materials and examine all components for signs of shipping damage. Any shipping damage is the customer's responsibility and should be reported immediately to your freight carrier.
- Verify that your order contains the following components (Table 1).
- MSLC-10 supports up to 10,000 pounds (per leg)

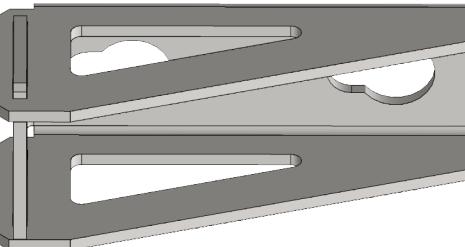
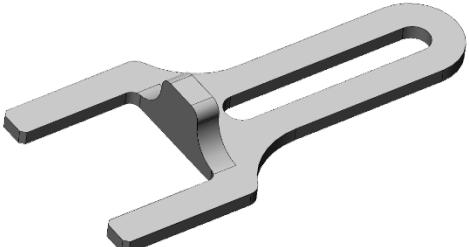
Table 1: Parts List

ID	Qty.	Catalog Number.	Description	
[A]	1	320465	3/4"-16 x 3" hex head bolt	[A]
[B]	1	320078	3/4" double spring washer	[B]
[C]	1	320159	3/4" flat washer	[C]
[D]	3	320467	1/2"-13 x 1.75" hex head bolt	[D]
[E]	3	320468	1/2" flat washer	[E]
[F]	3	320294	1/2" split spring washer	[F]
[G]	3	122529	1/2" hex nut	[G]
[H]	4	-	3/4" x 7" wedge anchor zinc plated steel bolt, GZ Note: The installer must supply this item.	[H]
[I]	1	320463	M6 x 12mm pan head	[I]
[J]	1	320213	1/4" split spring washer	[J]
[K]	1	122535	Leg adapter	[K]
[L]	1	122528	Rear plate	[L]
[M]	1	-	Load cell assembly 10K lb	[M]

One load cell kit is assembled and installed per feed bin leg. The kit includes all hardware items in the installation.

3.2 Recommended Installation Tools

Munters strongly recommends that installers equip themselves with an installation kit (P/N: 911-99-00032). The kit includes the following components:

Qty.	Catalog Number.	Description	
1	122530	Jack adapter P/N: 911-99-00033	
1	122531	SILO LC 10KLB marking plate P/N: 911-99-00034	
1	122536	SP compressed gauge (Temp solution only)	

In addition, the following items will be needed:

- General electrical equipment kit for control wiring
- Rotary hammer drill
- 3/4" concrete drill bit overall L.g 12"
- 5-6 lb. sledge
- 1 1/8" deep impact socket
- 3/4" deep impact socket
- 11/8" HEX socket extensions L=14"
- Cordless impact
- 1/4" drill bits - titanium or cobalt for hardened steel
- 13.0mm drill bit - titanium or cobalt for hardened steel
- Corded/cordless drill
- Wrench 9/16"
- Uni-Bit
- Thread lock loctite 242 or equivalent
- Knee pads
- Black marker
- Wedge anchors
- Pump bottle jack
 - 2-ton capacity (minimum)
 - Maximum height (unit not extended): 20 cm/7.9 inches

- Minimum lifting range: 25 cm/9.8 inches
- The following are examples of pumps that meet these specifications:
 - [2T Bottle Jack \(torin-usa.com\)](http://torin-usa.com)
 - [Omega Lift Equipment 10025B 2 Ton Side Pump Bottle Jack \(shinnfuamerica.com\)](http://shinnfuamerica.com)

3.3 Installation Guidelines

The SiloSenz installation should be according to the following instructions and illustrations, regardless of whether the actual feed bin, barn, or farm layout. The manual takes into account the commonalities found in barns and farms. If you believe that the particularities of your barn design mandate modifying the actual hardware placement (inside the control room, main house, or outside of these buildings), please contact Munters technical support.

WARNING! *Do not install a silo when the wind speed is more than 5 miles per hour / 4.3 knots per hour. Installing a silo when the wind speed is higher than this speed can result in the silo being knocked down.*

3.4 Installation Requirements

- ⇒ The distance between the silo leg to the concrete edge must meet these conditions.

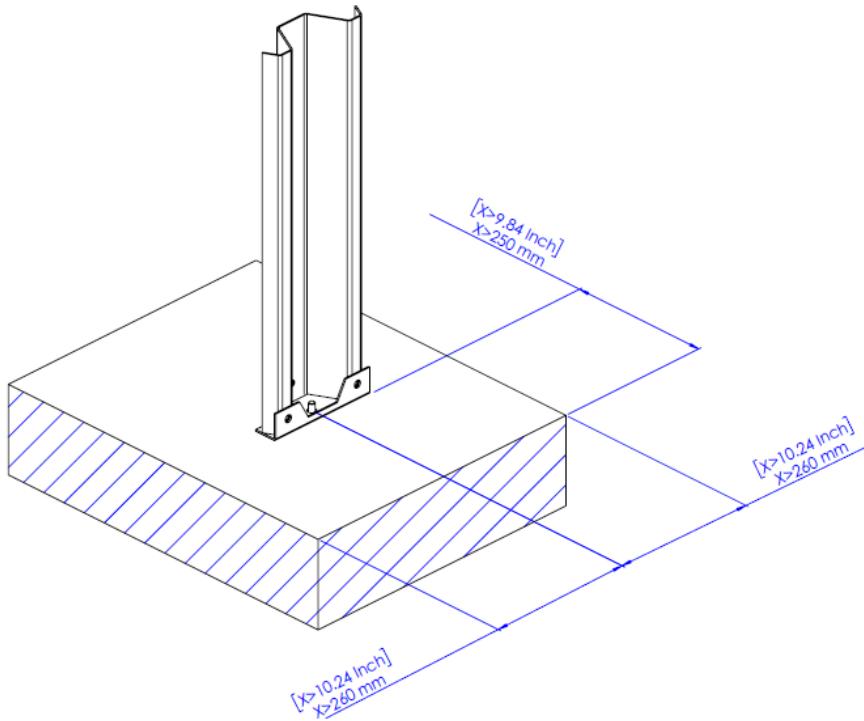


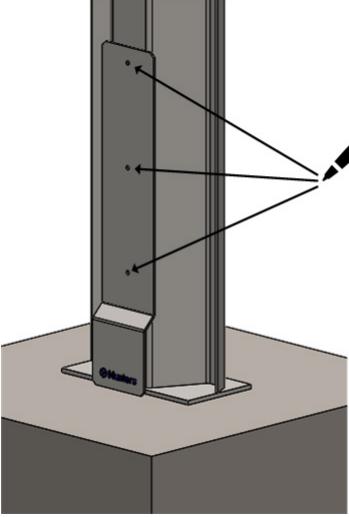
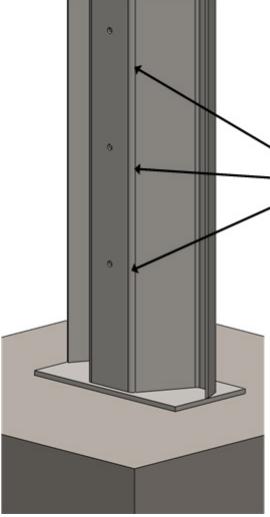
Figure 9: Concrete Edge Dimensions

- ⇒ Empty the silo bin before installing the load cell.

WARNING! *Lifting a silo containing feed can result in damage to the silo and human injury!*

3.5 Installing the SiloSenz

1. Drill holes into the leg:

<p>a. Place the marking plate against the silo leg (in the center of the leg) and mark three holes.</p>	<p>b. Drill 6.0 mm pilot holes into the marks and then drill 13.0 mm holes.</p>
 <p>Figure 10: Mark holes</p>	 <p>Figure 11: Drill holes</p>

CAUTION *The marking plate is used for multiple installations!*

2. Remove the side bolts (Figure 12).

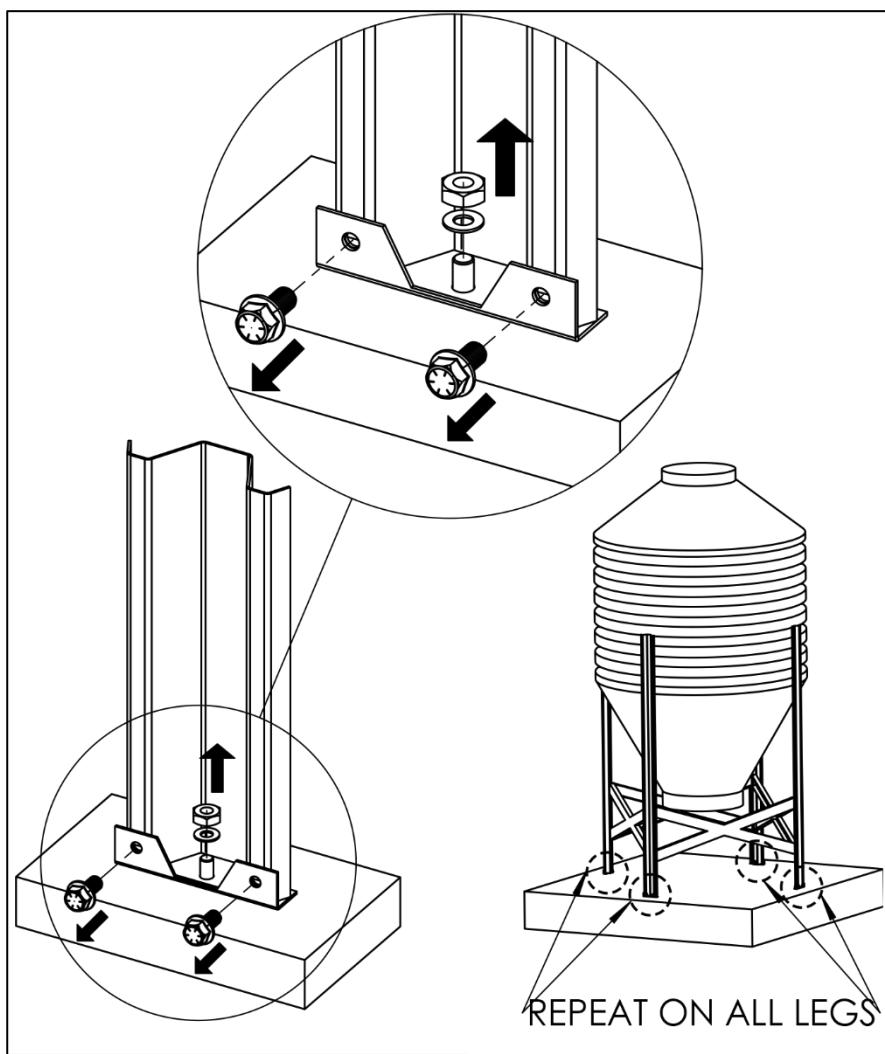


Figure 12: Removing the Side Bolts

- a. Remove nuts from the bottom leg plate and original concrete leg anchor.
- b. Using an impact wrench and wrench 9/16", remove leg anchor base plate side bolts.

NOTE If the plate is welded to the silo leg, carefully cut the plate off.

NOTE For other design legs, follow manufacturer recommendations.

CAUTION Repeat these steps for all bin legs. Failure to release all bolts can cause damage to your silo structure.

3. Aligning leg adapter holes to bin leg holes (Figure 13)

- a. Place the leg adapter (K) against the bin leg.
- b. On the opposite side of the bin, place the rear plate (L).
- c. Attach the adapter to the bin using the bolts (D) and flat washers (E).
- d. Screw the pieces in place using the washers (F) and nuts (G).
- e. Tighten the torque to 100 ft-lb.

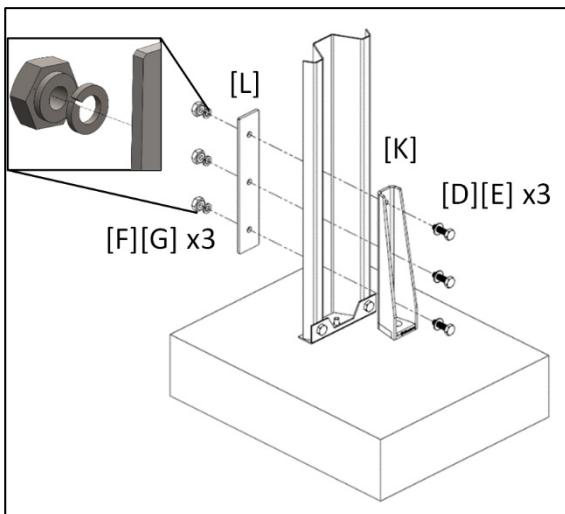


Figure 13: Attaching the leg adapter

4. Align the jack adapter holes to the bin leg holes.

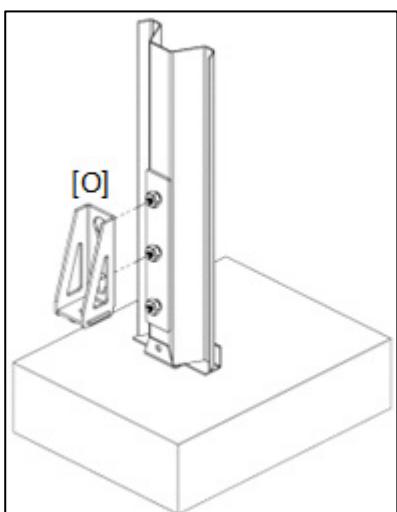


Figure 14: Aligning the jack adapter holes

5. Place the jack under the adapter (Figure 15) and raise it about 1 inch.

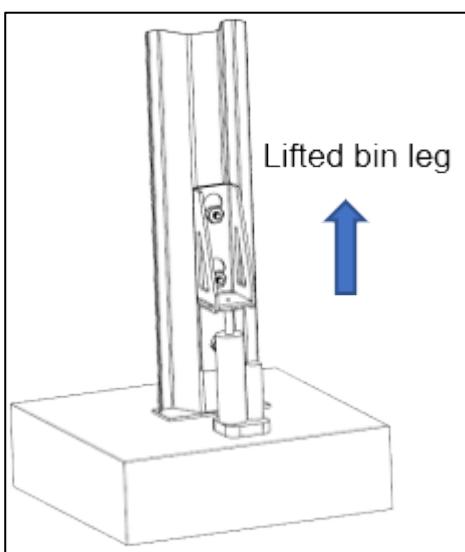


Figure 15: Jack under Adapter

6. Remove the leg anchor base plate (Figure 16).

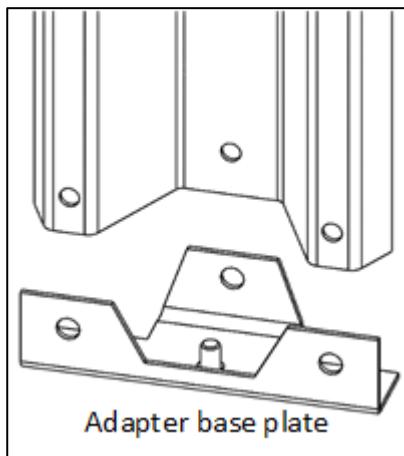


Figure 16: Remove the plate

7. Anchor bolt:

If needed, shorten the anchor bolt. It must not protrude more than 1 inch above the foundation. Using a reciprocating saw, shorten the bolt as required (Figure 17).

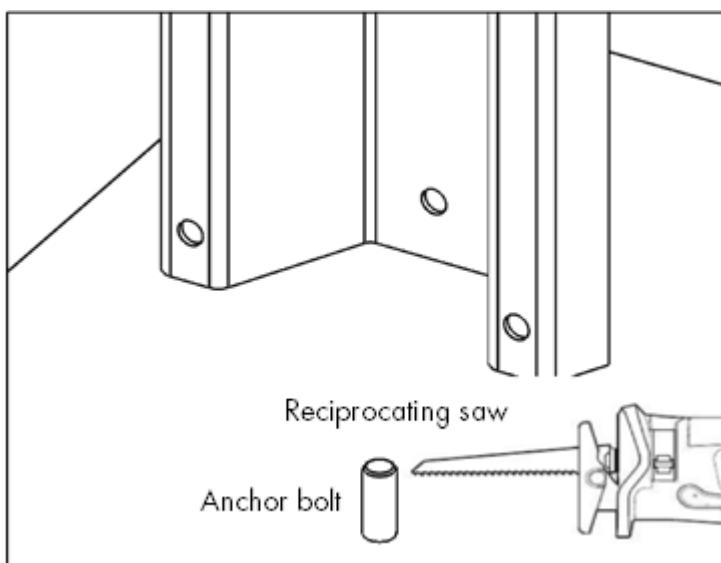


Figure 17: Shorten the bolt (option)

8. Position the Load Cell Assembly [M] under the bin leg; the half ball hole must be under the leg adapter hole (Figure 18).

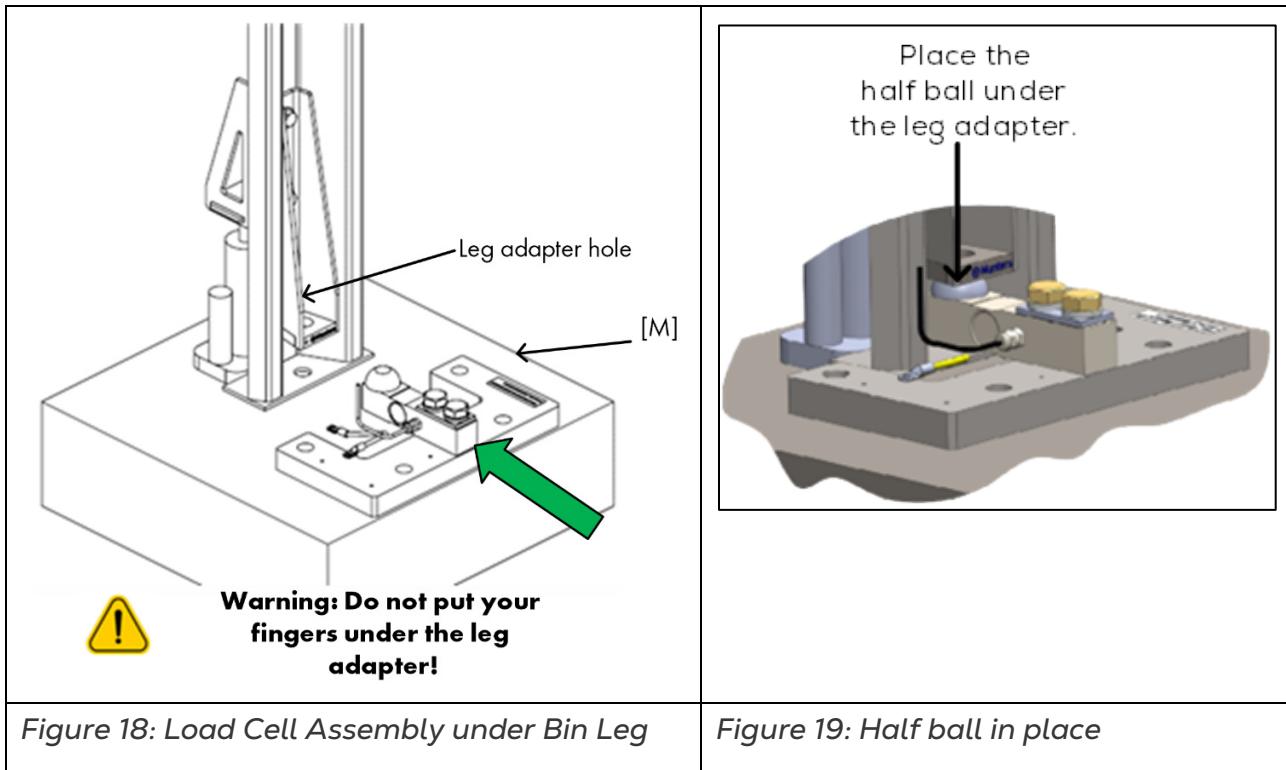


Figure 18: Load Cell Assembly under Bin Leg

Figure 19: Half ball in place

9. Hex bolt assembly (Figure 20):

- a. Place the double spring [B] and flat washer [C] onto the hex bolt [A].
- b. Spread tread lock (Lactite 270 is not included) on the hex bolt [A].
- c. Place the hex bolt in the leg adapter hole.
- d. Tighten the bolt a few turns and then jack down the silo.
- e. Using socket extensions and the gauge tool (Q), fine tune the spring compress. The gauge tool shows when the bolt has been properly tightened; when you place the gauge on the bolt, the fork should just touch the bolt assembly.

CAUTION *Ground the MSLC!*

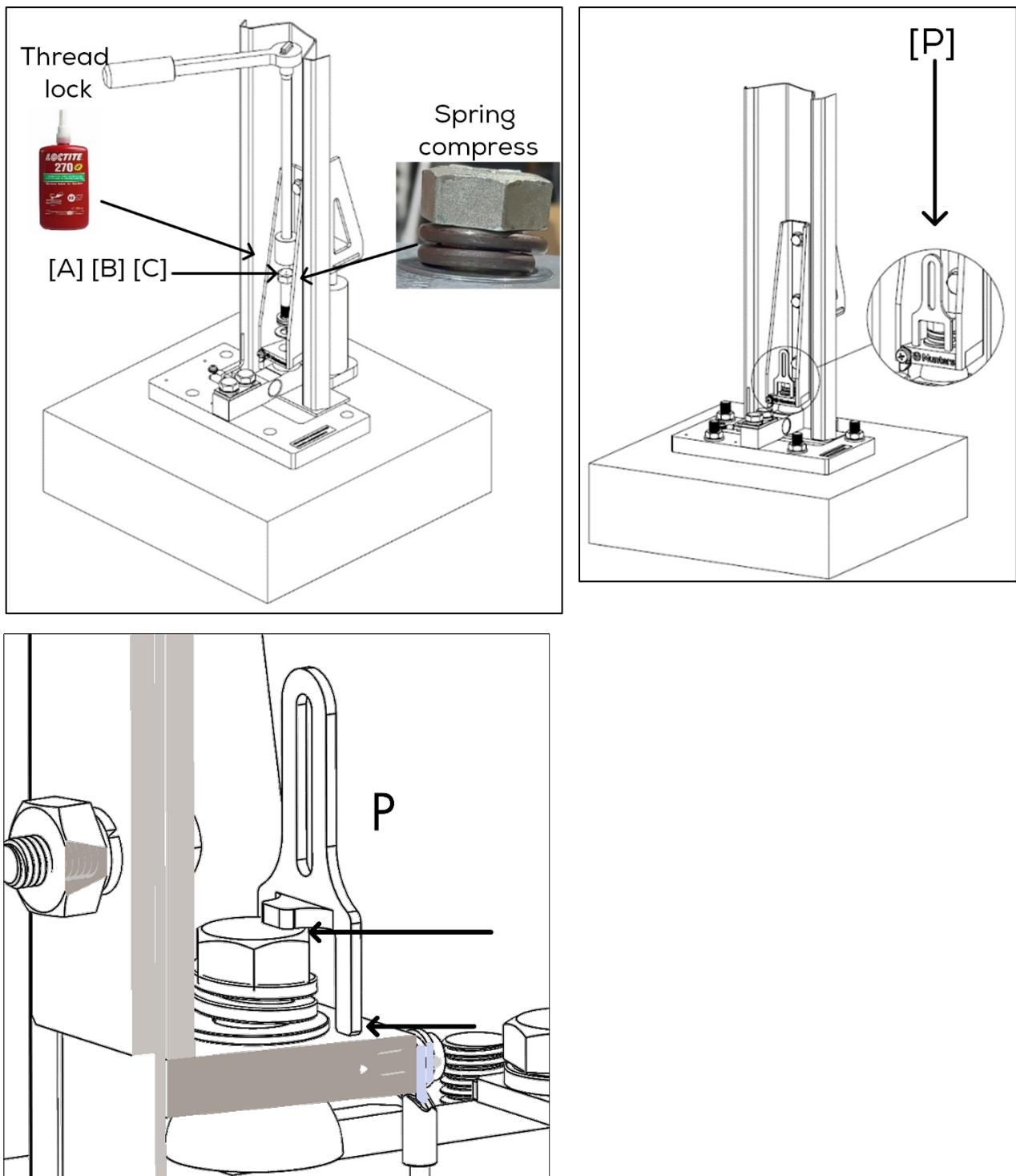


Figure 20: Securing the hex bolt

10. Using a rotary hammer drill with a $\frac{3}{4}$ inch concrete drill bit, drill a 5-inch deep hole on each side of the assembly. Using a brush, clean the area to prevent the concreted powder from entering the holes (Figure 21).

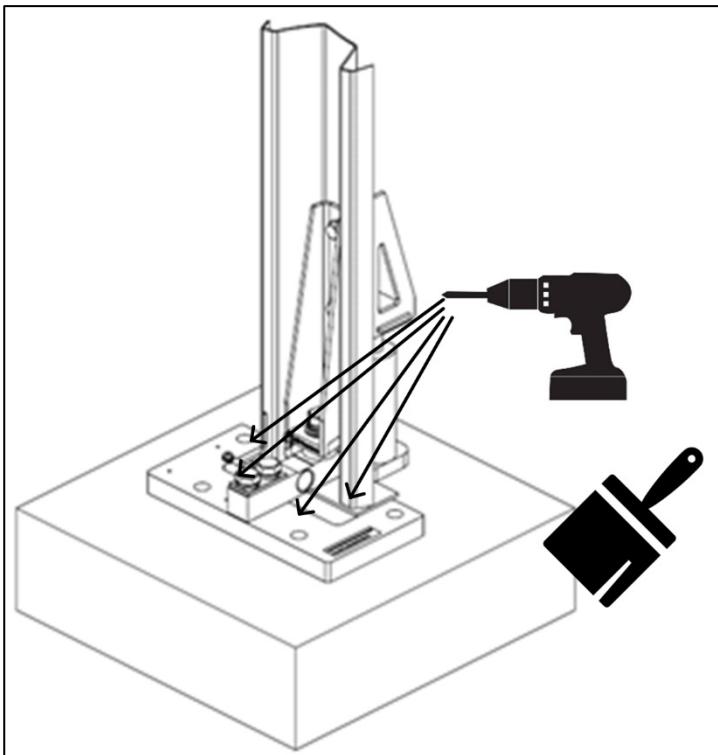


Figure 21: Drilling and cleaning the holes

11. Wedge Anchor (Figure 22):

- a. Thread the nut on the wedge anchor [H] (not included) completely to the end.
- b. Insert the opposite end of the wedge anchor into the drilled hole, through the load cell assembly plate.
- c. Repeat for each hole.
- d. Using a sledge, hammer the wedge anchor as far down as possible. There should be no more than 1.5 inches protuding from the Assembly Base.

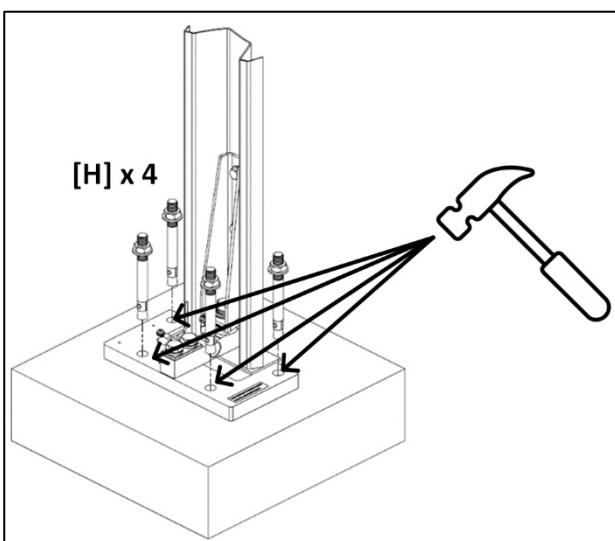


Figure 22: Hammering the bolts

12. Using a cordless impact driver and a deep socket, tighten the wedge anchor nuts to the assembly base. Do this in a diagonal order. The torque should be 200 ft-lb. (Figure 23)

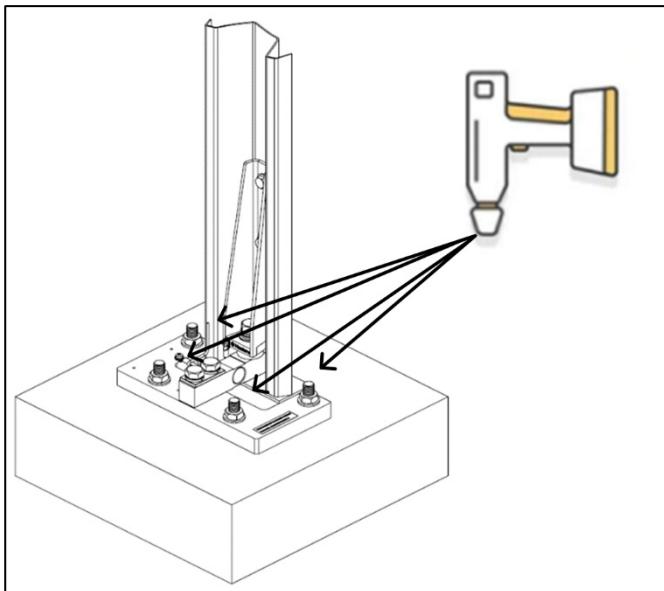


Figure 23: Tightening the wedge assembly nuts

13. Fasten a grounding wire to the leg adapter bolt [I] and spring washer [J]. Apply a clean powder coating for maximum continuity (Figure 24).

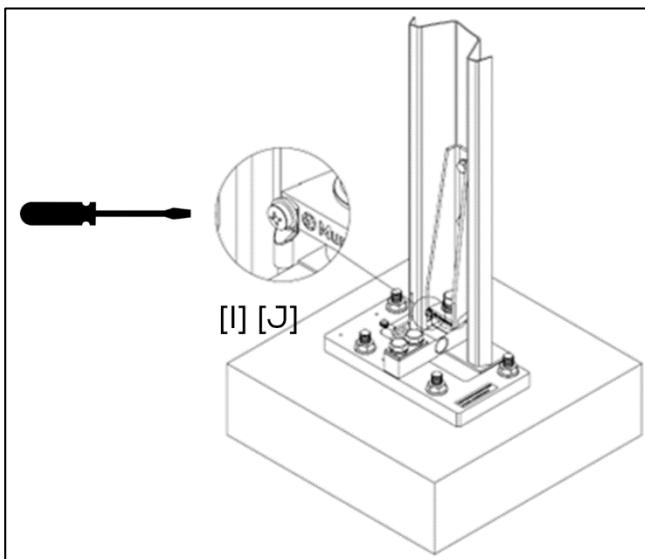


Figure 24: Attaching the ground wire

14. Using wire ties (not included) run a grounding cable from the load cell up the bin leg (Figure 25).

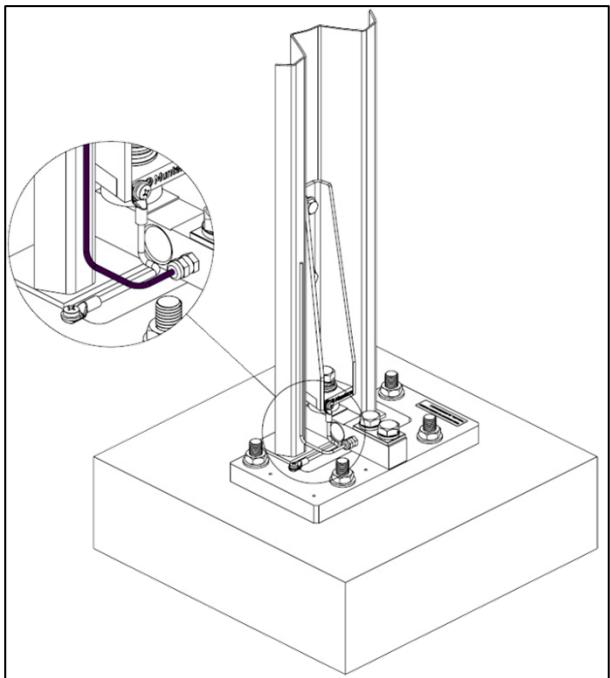


Figure 25: Grounding cable

NOTE Repeat on all bin legs, going in a circular order.

4 Specifications

Table 2: MSLC-10 Specifications

Parameter	Value
Full Scale Output	3.0 mV/V $\pm 0.25\%$
Zero Balance	± 0.02 mV/V
Input Resistance	$400 \Omega \pm 20$ for kg; $350 \Omega \pm 7$ for lb.
Output Resistance	$350 \Omega \pm 3$
Element Material	Alloy Steel, Nickel Plated
Recommended Excitation	10V (15V Maximum)
Insulation Resistance	>2 [50V DC] G Ω
Compensated Temperature Range	-10°C to 50°C / 14°F to 122°F
Safe Overload	150% of full scale
Breaking Overload	300% of full scale
Seal Type / IP Rating	Cap. ≤ 300 kg/500lb: Environmentally Sealed / IP66 Cap. ≥ 500 kg/1Klb: Environmentally Sealed / IP67

5 Warranty

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseeable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorisation from Munters, or repaired in such a way that, in Munters' judgement, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to SiloSenz-10, (for example cables, weights, etc.) is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action, and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer).

Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their despatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent despatch, where the cost of carriage would exceed the value of the parts, Munters may authorise the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorised to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

***WARNING:** In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.*

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorised materials;
- inadequate maintenance;
- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer.

Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability.

Requests for technical assistance and spare parts can be made directly to the nearest [Munters office.](#)



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