Pod Tracker
Ribbiot Pod

Connectivity

Ribbiot trackers leverage advanced communication technologies to ensure accurate and reliable asset tracking. The Pod utilizes Bluetooth Low Energy (BLE), Ultra Wide-Band (UWB), and Near-Field Communication (NFC) for versatile connectivity options.

- Bluetooth Low Energy (BLE) - Phone and portal connectivity, general asset location information.
  - Accuracy: +/- 20ft.
  - Range: ~250ft.
- Ultra Wide-Band (UWB) - Precision asset location information.
  - Accuracy: +/- 1in.
  - Range: ~50ft.
- Near-Field Communication (NFC) - Phone tap and provisioning.

Range and accuracy are affected by nearby metal and other materials

Product Overview

The Ribbiot Pod asset tracker is an essential tool for optimizing resource utilization and enhancing workflow automation. Designed to excel in extreme applications, the Pod is perfect for tracking unpowered, difficult-to-track assets. Its rugged design ensures durability in harsh environments, making it water and dust-proof, and resistant to impact and vibration. With a 3-year battery life, the Pod can be used alone or paired with various accessories like a metal protective case or a weldable mount.

- Rugged Design: Water and dust-proof, impact and vibration-resistant.
- Long Battery Life: 3-year battery life for extended use.
- Versatile Usage: Can be used alone or with accessories like a metal protective case or weldable mount.

Software Features

The Ribbiot Pod offers a suite of software features designed to enhance asset management and operational efficiency. These features provide real-time insights and easy interaction with tracked assets.

- Usage Detection: Monitor motion or asset usage to optimize operations.
- Simple Tap to Interact Interface: Scan the Pod to pull up information and documentation associated with the asset.
- Find Your Asset: Be guided to the exact position of the asset in real-time, ensuring quick and efficient retrieval.

Install Accessories

What's Included

- Pod Tracker
- CR2477X Battery
- 3M VHB, High-strength double-sided mounting tape

Power

Battery Type

- Single-use replaceable CR2477X coin cell battery
- The "X" is critical as it denotes the "Extreme" operating temperatures of the battery from -40°F(-40°C) to 185°F (85°C)

Enclosure

Material

- UV-Stabilized, chemical resistant, polycarbonate-based polymer

Dimensions

- Diameter: 1.80in (46mm)
- Thickness: 0.75in (19mm)

Weight

- 1.09oz (31g)

Operating Temperature
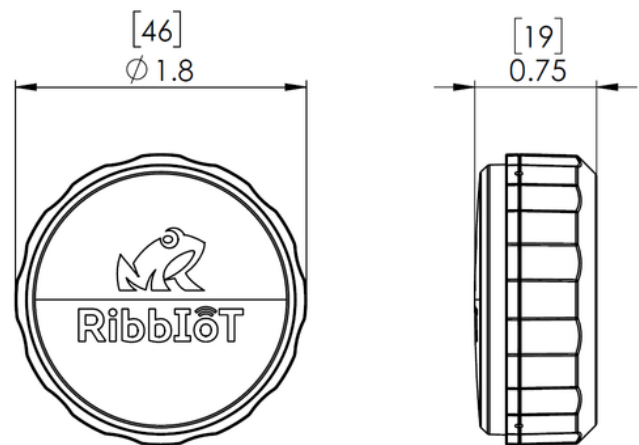
- -40°F(-40°C) to 185°F (85°C)

IP Rating

- Submersible in up to 1m of water for 30 minutes
- Resistant to high-pressure washdowns

Optional Accessories

Additional accessories are available for various mounting applications, including industrial welding, epoxy, round tube or pipe, etc.
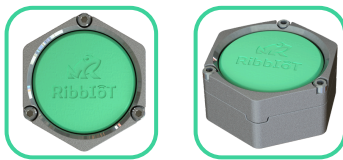
[46]
⌀1.8

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0.75

The Ribbiot Pod asset tracker's robust design make it ideal for small to large, unpowered asset tracking

POD (MAIN HOUSING + PCBA)

BATTERY (CR2477X)

BATTERY DOOR

3M VHB, HIGH STRENGTH MOUNTING TAPE
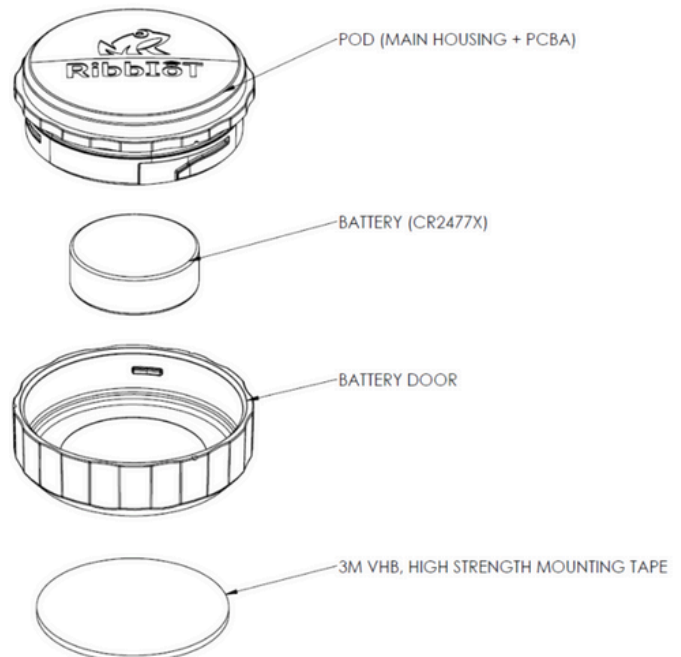
The Ribbiot Pod asset tracker twists to reveal an easily replaceable coin cell battery

The Stainless Steel case can be easily disassembled if/as needed vie three M3 captive screws (2.5mm hex drive).

Overall size of the Stainless Steel Mount

Product Overview

This is a rugged stainless steel case that will protect the Pod through the most extreme of conditions. This case is intended and recommended to be welded to the asset, although it can also be screwed, bolted, or epoxied if necessary.
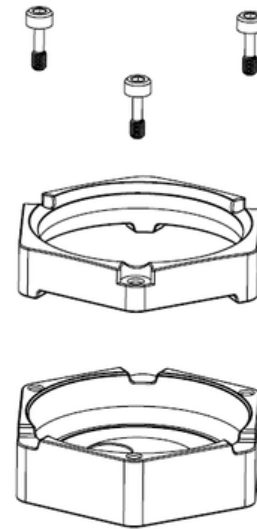
Enclosure

Material

- 316L Stainless Steel
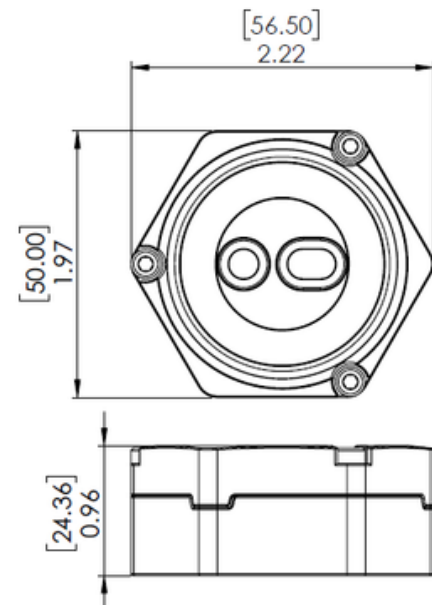
Dimensions

- 2.2 x 2.0 x 1.0in (57 x 50 x 25mm)

Weight

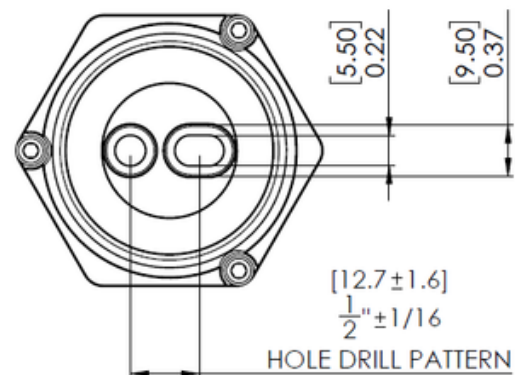- 5.5oz (155g) w/o Pod
- 6.6oz (186g) w/ Pod

Bolt Hole Drill Pattern

- 0.5 +/- 0.0625in (12.7 +/- 1.6mm)

Bolt hole drill pattern if mounting with bolts/screws

Install Accessories

What's Included

- Stainless Steel Case (Top and Bottom)
- 3x Captive Screws (M3x0.5, 2.5mm hex drive)
- 3M VHB, high strength tape, specifically for use with Epoxy Installation

Welding Installation

Welding is the strongest and most robust installation method, capable of withstanding up to 3.8T shear force if welded per Ribbiot suggested guidelines.

Suggested Filler Materials
- SMAW: AWS E309-16 is recommended, but AWS E312-16 may also be used
- GMAW / GTAW: ER309L is recommended, but ER312 may also be used

We recommend fillet welding 3 sides of the case, with a weld leg size of 3/16in (4.75mm), as shown in the images below.
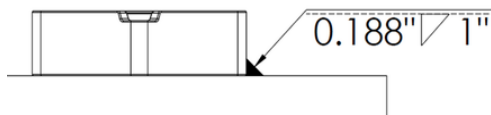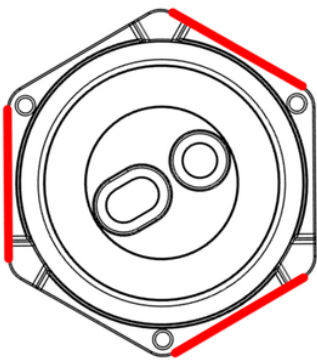
Fastener Installation

Installing with fasteners is a robust option that allows for easy removal. The mounting hole pattern is shown in the technical specifications.

Recommended fasteners:
- Machine Screw
  - #10 Button Head Cap Screws
    - i.e. 10-32 x 0.25in

- Self Tapping Screw
  - #8 Rounded Head Drilling Screws for Metal
    - i.e. #8x0.375
    - 18-8 stainless fasteners for use in aluminum.
    - *410 Stainless fasteners for use in steel.

Epoxy Installation

Epoxy installation is an incredibly robust, permanent option when asset alteration (welding or drilling) it not desired or allowed. Epoxy mounting is capable of withstanding 1.3T shear force when applied properly.

**Recommended epoxies and full installation instructions can be found in 'Metal Accessory Cases, Epoxy Installation Instructions'.

*410 Stainless fasteners are not suitable for use in Aluminum, if unsure it is best to stick with 18-8 fasteners.
**Ribbiot only endorses these specific Toughened Structural Epoxies as they are the only products capable of withstanding tensile, shear, AND impact loading.

Pod Tracker:
Stainless Steel Case
Installation Options

Key Safety Recommendations

It is critical to follow the installation methods outlined in the instructions to ensure the safety and effectiveness of the Ribbiot Pod Industrial Case.
FAILURE TO ADHERE TO THESE RECOMMENDATIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

Correct Installation

- Warning: Incorrect installation can cause the Pod to detach and fall.
- Risk: Falling debris from high altitudes can result in severe injury or fatality to anyone below.

Regular Inspections

- Warning: Perform regular inspections of the mount before each use.
- Frequency: Conduct frequent checks during equipment inspections.
- Impact: Scrutinize the device if it shows any signs of impact or damage.

Impact Damage

- Warning: The industrial case is not designed for repeated abuse.
- Action: If the case shows signs of significant impact, it must be removed and reinstalled properly.

Adherence to Recommendations

- Warning: Do not deviate from specified installation procedures.
- Importance: Proper adherence prevents accidents and ensures safe use.

FAILURE TO FOLLOW THESE WARNINGS CAN LEAD TO SEVERE CONSEQUENCES. ALWAYS ENSURE PROPER INSTALLATION AND REGULAR INSPECTIONS TO MAINTAIN SAFETY.

The Aluminum case can be easily disassembled if/as needed vie three M3 captive screws (2.5mm hex drive).

Product Overview

This is a rugged aluminum case that will protect the Pod through the most extreme of conditions. This is Ribbiot's go-to recommended, bullet proof case for use when welding is not required. This case is intended to be either epoxied, screwed, or wire rope mounted to the asset.

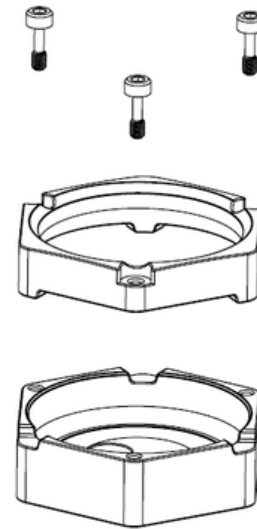## Enclosure

Material

- Aluminum Alloy, Hard Anodized

Dimensions

- 2.2 x 2.0 x 1.0in (57 x 50 x 25mm)

Weight

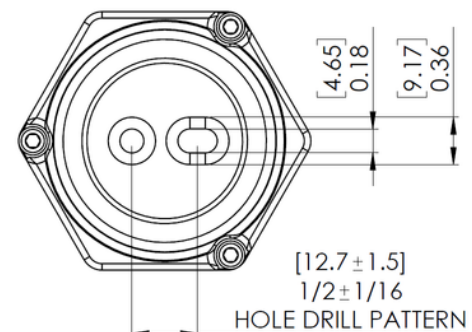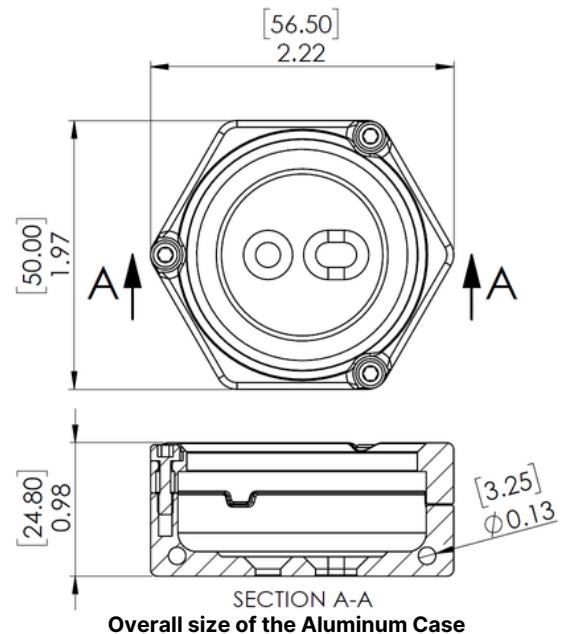- 1.9oz (54g) w/o Pod
- 3.0oz (85g) w/ Pod

Bolt Hole Drill Pattern

- 0.5 +/- 0.0625in (12.7 +/- 1.6mm)

Overall size of the Aluminum Case

Bolt hole drill pattern if mounting with bolts/screws

Install Accessories

What's Included

- Aluminum Case (Top and Bottom)
- 3x Captive Screws (M3x0.5, 2.5mm hex drive)
- 3M VHB, high strength tape, specifically for use with Epoxy Installation

Wire Rope Installation

The Aluminum case is has two locations for mounting with a wire rope. We recommend using a stainless steel, 3/32" (2.5mm) diameter wire rope; but the case will fit anything <= 1/8" (3.15mm). This allows for mounting in locations where fasteners or epoxy simply will not work.
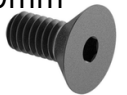

Fastener Installation

Installing with fasteners is a robust option that allows for easy removal. The mounting hole pattern is shown in the technical specifications.

Recommended fasteners:

- Machine Screw
  - #8 Flat Head: i.e. 8-32 x 0.375in
  - M4 Flat Head: i.e. M4x0.7 x 10mm

- Self Tapping Screw
  - #8 Flat Head Drilling Screws for Metal: i.e. *18-8 SUS, #8x0.625in

- Wood Screw
  - #8 Flat Head Screws for Wood: i.e. #8x0.75in

Epoxy Installation

Epoxy installation is an incredibly robust, permanent option when asset alteration (welding or drilling) it not desired or allowed. Epoxy mounting is capable of withstanding 1.3T shear force when applied properly.

**Recommended epoxies and full installation instructions can be found in 'Metal Accessory Cases, Epoxy Installation Instructions'.

*410 Stainless fasteners are not suitable for use in Aluminum, if unsure it is best to stick with 18-8 fasteners.
**Ribbiot only endorses these specific Toughened Structural Epoxies as they are the only products capable of withstanding tensile, shear, AND impact loading.

Product Overview

This is a mount adapter that will easily allow for mounting the Pod Tracker to round objects, such as tube or pipe sections. This mount is zip-tied to a round object, and then secures the Pod with VHB in a way that does not require removal to change the battery.

Install Accessories

What's Included

- 1x Round Mount
- 1x XL Zip Tie: 21.7 x 0.5 x 0.08in (550 x 12.7 x 2.1mm)

Enclosure

Material

- Main Housing: UV-Stabilized, chemical resistant, polycarbonate-based polymer
- Zip-Tie: UV Stabilized, Nylon 6-6

Dimensions

- ∅2.0 x 1.1in (∅51 x 28mm)

Weight

- 0.3oz (11g) w/o Pod
- 1.5oz (42g) w/ Pod

Round Mounting Capacity
- Side 1: ∅1.5 -to- ∅3.0in
- Side 2: ∅3.0 -to- ∅5.0in

∅3.00

∅1.50

THIS SIDE MOUNTING:
1.5" min -to- 3.0" max

∅3.00

THIS SIDE MOUNTING:
3.0" min -to- 5.0" max

∅5.00

[50.7]
∅2.0

[27.5] 1.1

VHB Tape

Recommended for:
- Secure areas in boom/jib sections
- Protected and/or recessed areas where damage from external objects, storage, or rigging is not likely.
- Locations or items where tracker removal, without permanent alteration, is necessary (i.e. no screw holes, weld beads, or epoxy residue left behind).

Installation Instructions:
1. Thoroughly prepare both surfaces (the asset for tracking and the Ribbiot device) for adhesive application; see 'Adhesive Surface Prep'.
2. Remove liner for adhesive on VHB
   a. *Note: Only do so when the application area is completely cleaned and dried*
3. Apply the product with VHB to the application area.
4. Firmly push on the product and hold for fifteen-to-thirty seconds to activate the adhesive: you should try to apply between 20-to-40lb of force while pressing.
5. Provision the Pod using the Ribbiot Mobile App. More details can be found here...
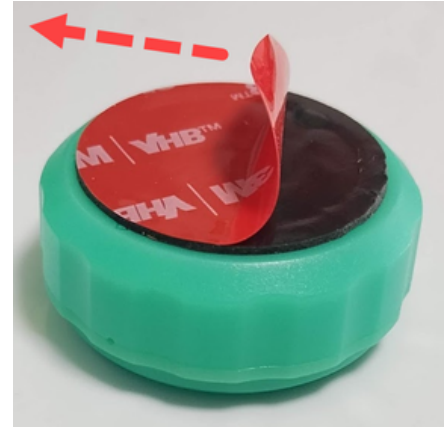
Step 2. Remove the VHB Liner

Step 4. Press firmly on the product for 15-to-30 seconds to activate the VHB adhesive.

Learn more at Ribbiot.com
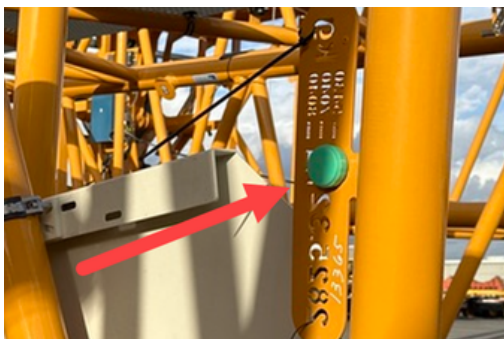
Metal Cases: Epoxy Install

The recommended method for epoxy installation uses a small VHB tape to secure the product while the epoxy cures, eliminating any need to clamp the product.

Recommended for:
- An incredibly robust bond without needing to permanently alter the structure (i.e. no welding, drilling, or mechanical/structural alteration required).
- Areas or assets prone to abuse: i.e. blocks, spreader bars, counter weights, etc.

Installation Instructions:

Ensure you have are starting with a un-opened and non-expired bottle of epoxy. A previously opened bottle can become compromised quickly, even if re-sealed. If in doubt, throw it out.

- **Step 1:** Thoroughly prepare both surfaces (the asset for tracking and the bottom of the Ribbiot case) for adhesive application; see 'Adhesive Surface Prep'.
- *Step* **2:** Remove liner from one side of the included VHB and stick onto the metal case.
  - Ensure to cover any screw mounting holes with this VHB. Press firmly on the adhesive to ensure it is fully adhered to the case.
- *Step* **3:** Remove liner from the other side of the VHB to expose the adhesive, and then apply epoxy around the perimeter.
  - Only use approved epoxies
  - The ideal epoxy bead size is between 3/32-to-1/8in (2.5-to-3.2mm).
- **Step 4:** Carefully push the product straight onto the asset in the desired location. Once applied, press firmly for 15-to-30 seconds to fully activate the VHB adhesive.
  - Be careful not to wiggle the case when applying, too much lateral movement can cause epoxy to cover the VHB rendering it useless in holding the device until the epoxy cures.

Step 2: the surfaces are prepped and the VHB has been applied to the center of the case, covering up the screw mounting holes.
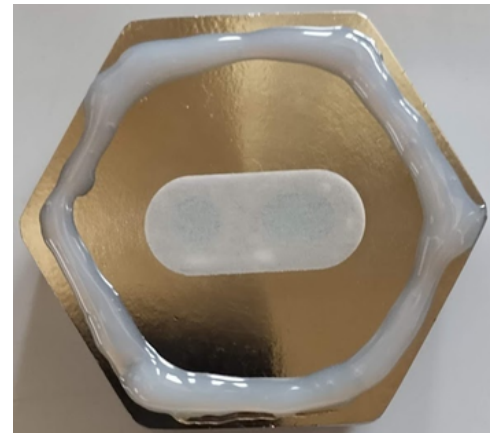
Step 3: the VHB liner is removed first, and then the epoxy is applied around the perimeter in a 3/32-to-1/8in bead.
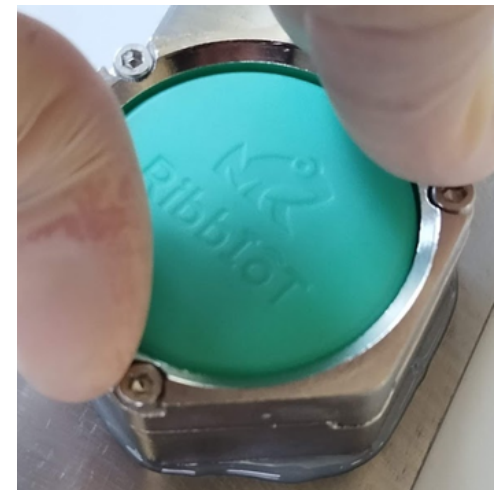
Step 4: the case is applied to the asset and firm pressure is applied for 15-to-30 seconds to activate the VHB.

Learn more at Ribbiot.com

Metal Cases: Epoxy Install

- **Step 5:** Allow a full 24hrs for the epoxy to cure before using or transporting the asset.
  a. The epoxy should not be exposed to rain or water during the curing process.
  b. If rain is expected, you can temporarily cover the tracker to keep it dry. Even something as simple as covering with a tarp or even GLAD PRESS'NSEAL work great.
- **Step 6:** Provision the Pod using the Ribbiot Mobile App. More details can be found here...

Step 6: If necessary, temporarily cover and protect the tracker from anticipated rain while the epoxy cures. This image shows GLAD PRESS'NSEAL applied.

Epoxy Recommendations

Epoxy Type:
Ribbiot only endorses these specific Toughened Structural Epoxies, they are the only products capable of withstanding the proper tensile, shear, AND impact loading.

- 3M: DP460NS (if unavailable, DP420NS is also OK).
  - McMaster-Carr PN: 7467A66
- Loctite: E-60hp (if unavailable, E-20hp is also OK).
  - McMaster-Carr PN: 6430A28

*Ensure that the epoxy is not expired before use.
*Ensure that you are using a new bottle of epoxy, as the epoxy will degrade rapidly (within days) after first being opened, even if re-sealed.
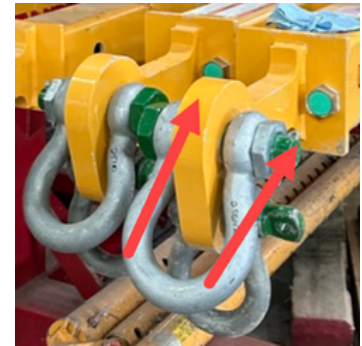
Installation Considerations:
- The epoxy will cure in 24hrs when cured at a temperature of 73°F. It may cure slightly faster at warmer temperatures and slower at colder temperatures.
- The epoxy should not be installed in temperatures less than 50°F, but ideally this would be at least 60°F (this also includes the overnight low temperature during the curing process).
- Moisture can inhibit the curing process, see Step 5 above for considerations.

Surface Preparation

Proper surface preparation is the MOST IMPORTANT part of using adhesives (VHB, Epoxy) to install your Ribbiot product; i.e. a properly prepared Pod, epoxied to steel can withstand 1.3T shear force, but an improperly prepared one can fail unexpectedly.

Adhesives will generally adhere well to most paints; however the adhesion of the paint to the underlying metal will then be the weakest link. If a very robust installation is required, it is HIGHLY recommended to remove the paint prior to installation.

- **Step 1:** Determine whether or not the surface needs the paint removed.
    - **IF** the asset is new or the paint is in very good condition **AND** the bond does not need to be as robust as possible (i.e. VHB mounting) - then only a cleaning is necessary and you can **skip to step 3**.
    - **IF** the paint is old, or the item has been re-painted, or there is corrosion and/or rust present, **OR** you need a very robust bond (i.e. epoxy bond for something that gets lifted overhead) - then grinding the surface must be done. **Continue to Step 2**.
    - **IF** installing with epoxy, Ribbiot recommends removing all paint at the installation site. **Continue to Step 2.**
- **Step 2:** Grind away existing paint, corrosion and/or rust.
    - Using the tool of your choice, thoroughly grind away ALL existing paint, corrosion and/or rust. Afterwards, there should be nothing remaining at the installation sight other than bright, shiny metal (see Step 2 Figure 1 for a good example).
    - Failure to remove all contaminates will result in pre-mature bond failure (see Step 2 Figure 2 for a bad example).

Step 1: Identify if necessary to grind away paint. The left image is an asset with brand new paint and OK to just clean IF appropriate. The right image represents an item where the paint must be removed prior to installation.
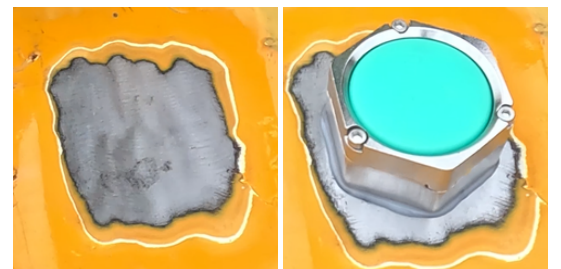
Step 2 Figure 1: Example of proper removal of paint. The area is thoroughly cleaned of paint, rust, etc. and only bright + shiny steel remains.

Step 2 Figure 2: Example of a poorly prepared surface that resulted in pre-mature failure. The surface was not properly ground leaving residual rust and paint causing poor adhesion. You do not want your surfaces to look like this, instead you want them to look like above in Step 2 Figure 1.

Surface Preparation

- **Step 3:** Clean the area of all dirt, dust, grease and/or grime.
  - If necessary, first degrease with the degreaser product of your choice.
  - Wipe the area with a rag to remove the majority of loose particles.
    - A drill mounted plastic bristle brush also works very well for dislodging and removing foreign debris particles such as embedded dirt/dust.
  - Thoroughly clean the area using a clean, lint free rag and Isopropyl Alcohol (minimum 90% alcohol).
    - Spray the area with alcohol and wipe with the rag.
    - When the rag is no longer accumulating foreign particles (i.e. after wiping the rag it is still visually clean), then the surface is thoroughly prepared.
  - This should be performed for BOTH the Ribbiot product AND the asset that you are installing the tracker on.
- **Step 4:** Install the Ribbiot tracker.
  - Ensure that the Isopropyl Alcohol has fully dried, and then proceed to installing the Ribbiot tracker.
  - See applicable Installation Instructions for further details (i.e. VHB or Epoxy installation).

Step 3: Continue cleaning until the rag is still clean after wiping like shown on the RIGHT above (i.e. the rag is wet with Isopropyl Alcohol but no dirt or grease). If after wiping the rag is dirty like shown on the LEFT above, you need to continue cleaning and wiping.

Installation Failure Identification

PROBLEM: Tracker installed with VHB Fails
- Potential Causes:
  - Poor surface preparation – see Adhesive Surface Prep.
  - Contaminated adhesive – ensure nothing touches the adhesive prior to installation; even finger oils from clean hands can contaminate the adhesive.
  - Bonded to an incompatible material – the provided VHB is intended for bonding to metals and most paints. While it does bond very well to the Ribbiot tracker it came with, it will NOT bond well to the majority of low surface energy plastics, coated plastics, uncoated wood, concrete, etc. If mounting to any of these items, Ribbiot highly recommends another installation method such as fasteners (screws / bolts).

PROBLEM: Metal Case Installed with Epoxy Fails
- **Potential Causes:**
  - Poor surface preparation – see Adhesive Surface Prep.
  - Contaminated adhesive – ensure nothing touches the adhesive prior to installation; even finger oils from clean hands can contaminate the adhesive.
  - Incorrect epoxy used – Ribbiot only endorses specific epoxies for this, see Metal Case Accessory Epoxy Installation.
  - Epoxy installed in bad conditions – the epoxy needs to remain above a certain temperature and to remain dry during the curing process otherwise it can be compromised, see Metal Case Accessory Epoxy Installation for details.
  - Expired epoxy – each bottle of epoxy will have an expiration date printed on it. Ensure that the epoxy has not surpassed this date AND has been stored appropriately.
  - Degraded / Previously opened epoxy bottle – the epoxy bottles degrade rapidly once they have initially been opened. If the bottle is not fresh, it should be avoided.
  - Too little epoxy – ensure the appropriate amount of epoxy is applied as shown in Metal Case Accessory Epoxy Installation
  - Bonded to an incompatible material – the recommended epoxies are specifically targeted for bonding metals, though they will also bond well with painted or coated metal surfaces (i.e. painted, anodized, etc. metal). They will not bond well to most plastics, wood, concrete, etc. so if mounting to one of these materials, Ribbiot recommends using fasteners instead.