

Reliance Foundry Series R-847X Retractable Bollards

Technical Service Manual

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Introduction to retractable bollards

Retractable bollards are access control devices that make a stylish but strong statement on streetscapes. When erected, they deter access to restricted areas. When retracted, they allow entry. R-847x retractable bollards are the perfect solution for communicating the changing access requirements of any site. They are mechanical assemblies that require the same care and attention as any other mechanical device.

Important information before purchasing or installing

1. Retractable bollards are susceptible to environmental demands, and site selection is very important. Retractable bollards are susceptible to oxidation or rusting in high-saline environments, as well as areas where street de-icing chemicals and compounds are frequently used. Reliance Foundry uses 316 stainless steel, which is more resistant to corrosion than the more common 304 stainless steel. However, depending on the environmental demands that will be placed on the bollard, even Reliance Foundry's 316 stainless steel bollards may be at risk for corrosion. **Note:** *All Reliance Foundry stainless steel bollards are housed in a hot-dip galvanized steel receiver that sits below the concrete surface.*
2. Adequate drainage is critical for the long-term success of retractable bollards. Inadequate drainage may cause damage, accelerate corrosion, and require more frequent maintenance.
3. All Reliance Foundry's R-847x retractable bollards are produced in 316 stainless steel, and can be ordered with standard, powder-coated colors to meet site aesthetic demands, and to enhance elemental protection.
4. Retractable bollards must be installed with significant care and attention to detail, ensuring that adequate foundation support and significant drainage is available. For technical details on installing removable bollards, see Reliance Foundry's Installation Instructions: R-847x Retractable Bollards.
5. Retractable bollards can malfunction if water builds in the receiver and freezing temperatures occur. Retractable bollards can still be installed in cold climates, but if water freezes in the bollard's mechanical components it may become stuck in the raised or lowered position for prolonged periods of time. To prevent this, proper attention to drainage and maintenance is necessary.
6. The major mechanical features of these bollards are enclosed below ground, making dust and dirt likely to interfere with critical components. These bollards require routine maintenance and cleaning to keep them in optimal working condition, and such maintenance is demanded more often in significantly dusty or dirty areas.

Installation equipment

Various equipment, as well as cleaning and lubricating agents are necessary for the installation, disassembly, and routine care of retractable bollards.

What you will need

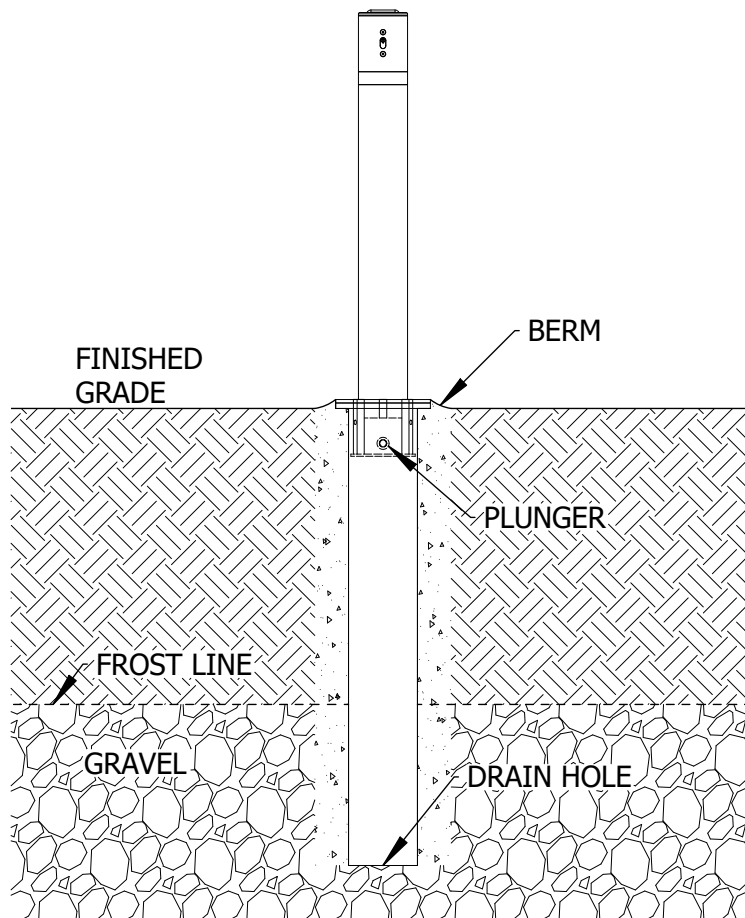
Bollard Key	Compressed Air Duster
Tamper-Resistant Key	Synthetic Scouring Pads
5mm Hex Key	Assembly Grease
3mm Hex Key	All-Purpose Lubricant
Wrench Set	Lock De-Icer
Swaging Tool and Crimping Sleeves	Rag
Small Hammer (optional)	

Note: If you require a replacement bollard key or tamper-resistant key, please contact Reliance Foundry's Sales Department.

Installing retractable bollards

Two components work in tandem to form a retractable bollard: a receiver and a bollard. The receiver is the external cylinder that is embedded in the concrete substrate and houses the bollard. The bollard can be telescoped in and out of the receiver to allow or restrict vehicle access to the surrounding area. At the bollard's base is a locking mechanism with a plunger that can be extended or retracted by inserting a key into the lock. The plunger holds the bollard in place in its extended position. Once the receiver is set in the concrete substrate, it cannot be moved.

To function properly, a retractable bollard must be installed with adequate drainage. The buildup of moisture can lead to many service issues, especially in cooler climates. Series R-847X retractable bollards can operate effectively in cold environments, but moisture must not be allowed to build up in the receiver. Buyers should review the installation site and ensure that an adequate level of drainage can be provided for each retractable bollard.

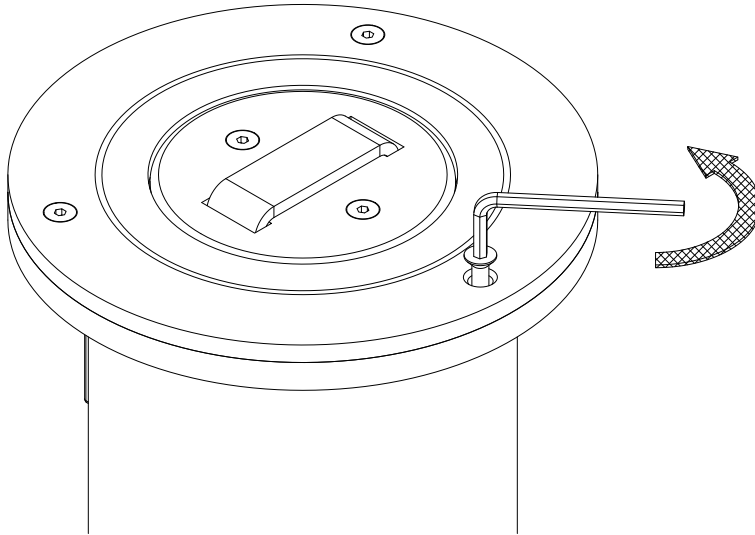


Note: Adding a slightly raised concrete berm during installation will help to prevent moisture from accumulating in the bollard's receiver.

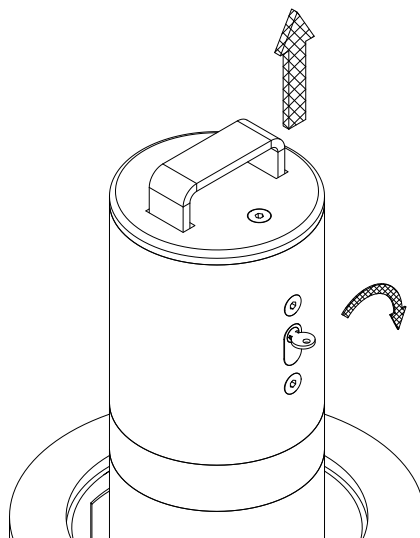
Disassembling retractable bollards

Removing the bollard from the receiver

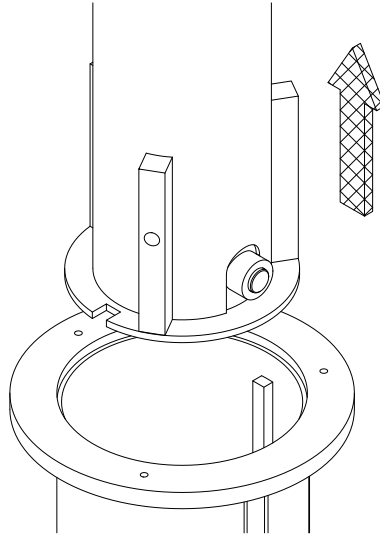
1. Use the tamper-resistant hex key to loosen the 3 tamper resistant bolts on the flange collar and remove the bolts and stainless steel cover.



2. Lift the bollard, insert the bollard key, and turn it in a clockwise motion.



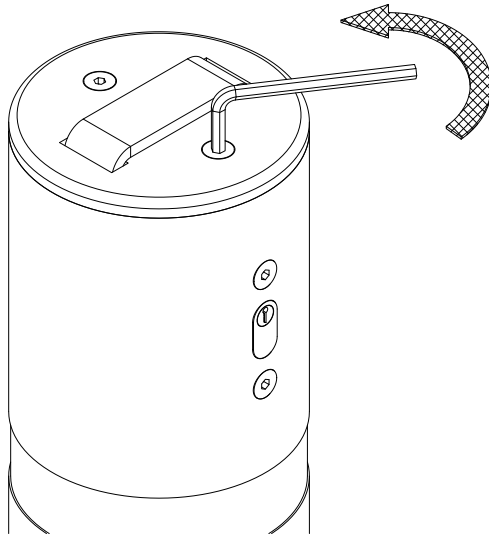
3. Hold the key in position and continue to lift the bollard. The plunger should remain retracted, allowing the bollard to be removed from the receiver.



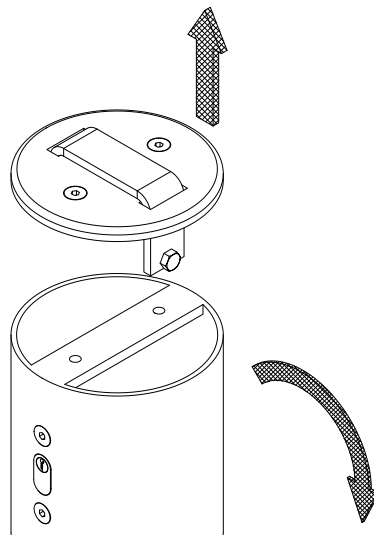
Disassembling the bollard body

The bollard body assembly is made up of several parts: a cap with a lifting handle, a lock, and a locking mechanism that holds the plunger.

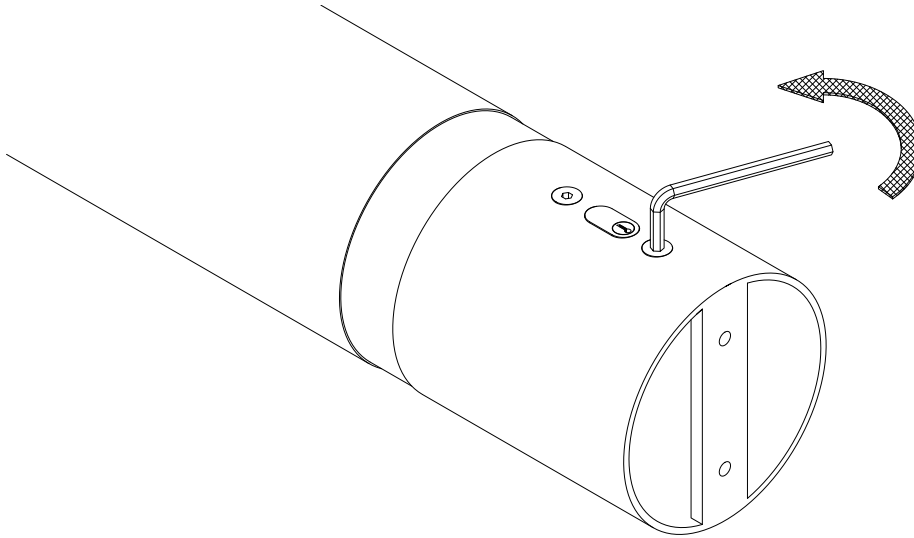
1. Use the tamper-resistant hex key to loosen the two tamper-resistant bolts found on the cap.



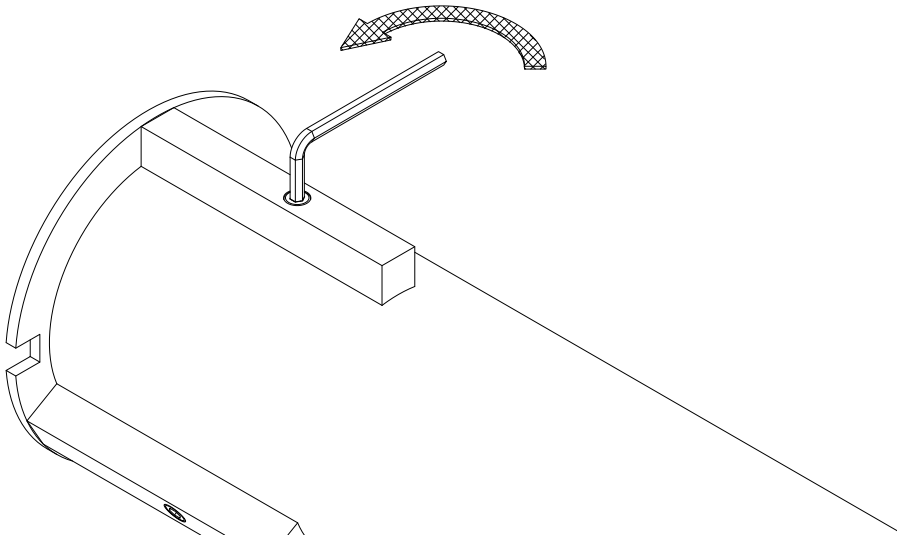
2. Remove the cap and lay the bollard horizontally on a flat surface.



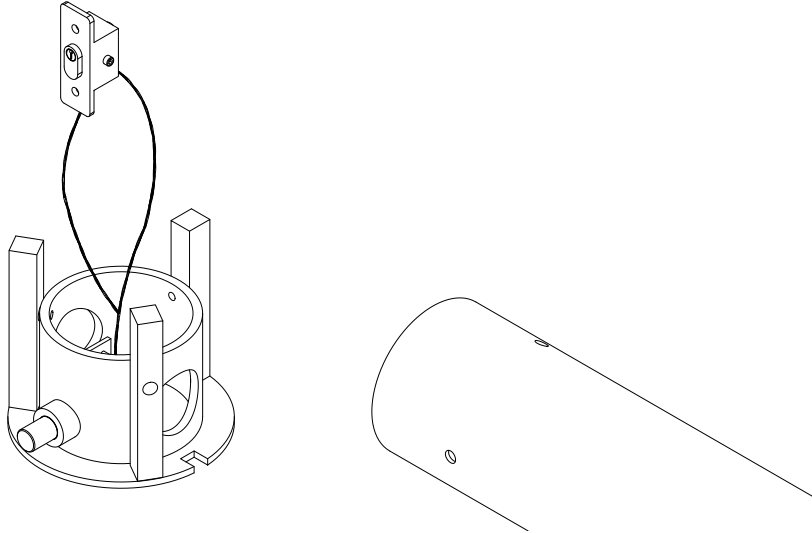
3. Loosen and remove the tamper-resistant bolts on the locking mechanism.



4. Use a standard 5mm hex key to loosen and remove the three stainless steel hexagon bolts that hold the locking mechanism at the body assembly's base.



5. Wire rope connects the lock to the locking mechanism. Remove both assemblies together.



Retractable bollard maintenance

Maintenance of retractable bollards is required at least once a year to maintain good working order and prevent deterioration of bollard surfaces.

1. Keep the surface surrounding the receiver and bollard free from debris and standing water. Use a broom to remove sand, gravel, or debris. Avoid moving the broom over the flange collar and cap of the bollard. Brush in an outward motion, away from the bollard. Sand and debris that fall through small gaps may eventually cause the retractable bollard to seize. If sand or debris does accumulate in the receiver, remove the bollard and use a vacuum to extract the blockage.

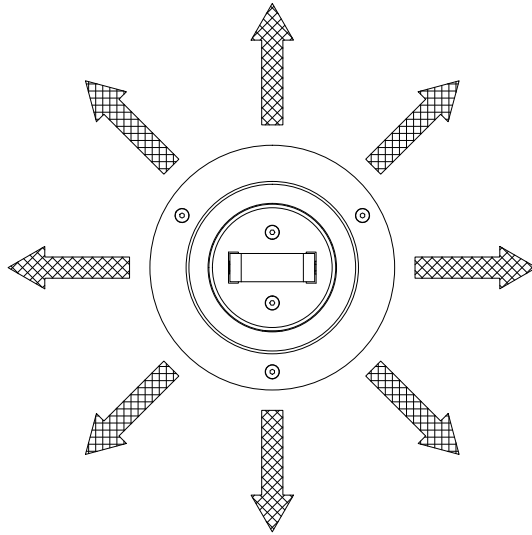
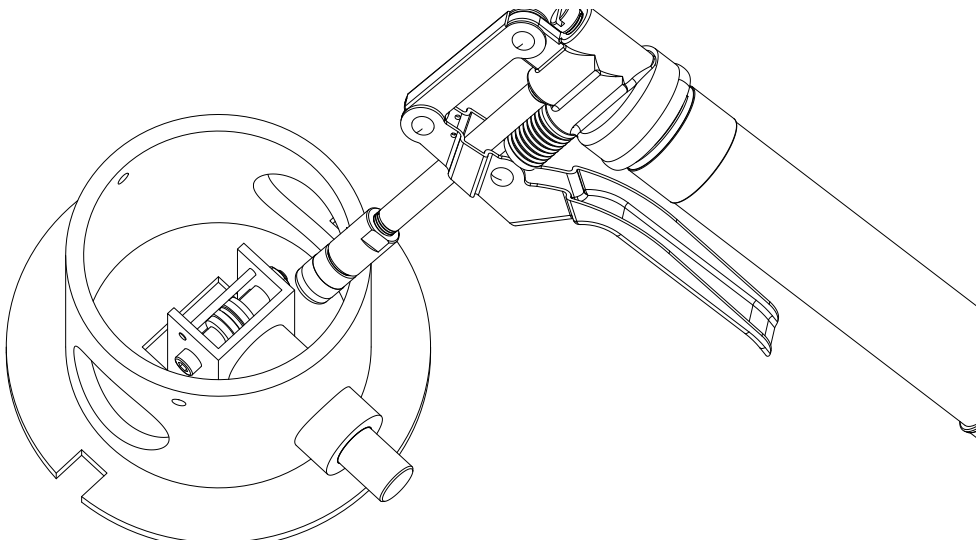


Figure 1: Sweep away from the bollard and push debris outward.

2. Use a rag to wipe the retractable bollard as site conditions require. Remove any debris that may have accumulated on the bollard body and flange collar. Look for signs of rust or staining.
3. To ensure that the bollard glides in and out of the receiver smoothly, and to protect it from rust, use a rag to apply all-purpose lubricant such as WD-40 to the entire surface of the bollard. Wipe away all residue.

4. Remove rust as soon as possible with an all-purpose lubricant and a synthetic scouring pad. To avoid scratching the surface of the bollard, scrub in a lateral motion. Once the rust is removed, apply an all-purpose lubricant to the entire surface of the bollard immediately. For more detailed instructions on maintaining stainless steel products, see Reliance Foundry's Stainless Steel Care and Maintenance Guide.
5. Wipe the lock and apply an all-purpose lubricant every three months. Apply a generous amount of the lubricant to the keyhole. This will help to protect the lock and allow it to function more smoothly.
6. Remove the locking mechanism as site conditions require to ensure that the sheave, plunger, and plunger hole remain lubricated. Use assembly grease, such as spray grease, and apply a generous amount. Retractable bollards that are installed in areas that experience exceptionally warm or wet conditions may need to be lubricated more frequently.



Troubleshooting

Problems with inserting the key

1. Check the lock for debris. Remove anything that is blocking the passage of the key. For fragments that are difficult to remove, use a compressed air duster (avoid inserting the straw in the keyhole) or flush the debris out with a dry graphite lubricant.
2. Ensure that the lock is not frozen. If the lock is frozen, apply a generous amount of lock de-icer to the key and gently wiggle it into the lock.

Problems with turning the lock

1. Remove the retractable bollard from the receiver and disassemble. If the retractable bollard cannot be removed from the receiver, use a 5mm hex key to loosen both hexagon bolts on the bollard cap. Remove the cap and locate the wire rope. Pull it by hand and remove the retractable bollard from the receiver.

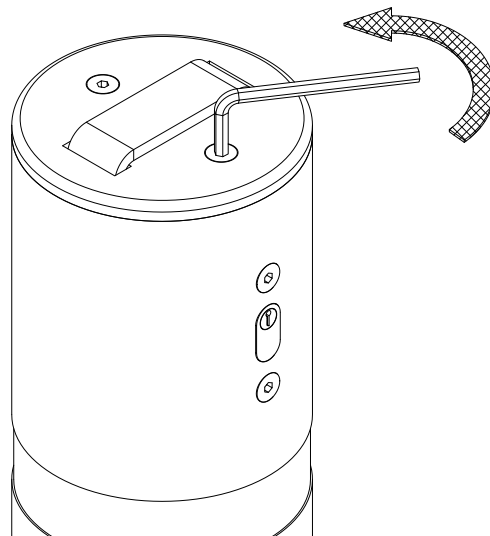


Figure 3: A retractable bollard can be manually removed from the receiver by removing the cap and pulling the wire rope.

2. Remove the locking mechanism and examine it. Clean all parts and apply generous amounts of assembly grease to the sheave and the plunger. Pull the cable with your hand. If the plunger does not retract, disassemble the plunger and inspect the spring. Replace the spring if necessary. All parts within the locking mechanism can be ordered from Reliance Foundry. Contact the Sales Department for more information.

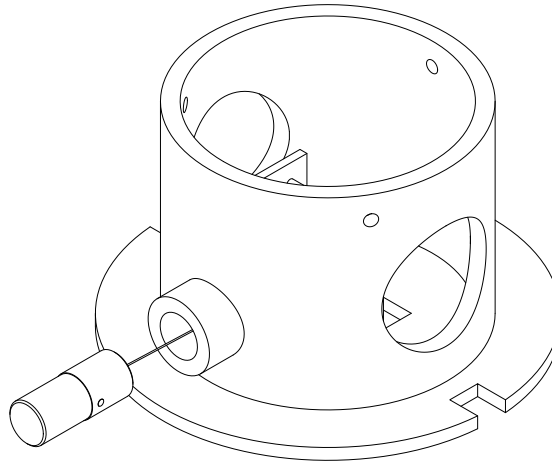


Figure 4: Ensure the plunger is in proper working order.

Problems with retracting the bollard

1. Remove the bollard, disassemble, and ensure there is no debris in the locking mechanism. Water, debris, and ice can all cause the retractable bollard to seize. Use a rag, a compressed air duster, a lock de-icer, or heat to remove the debris that is affecting the bollard. Apply all-purpose lubricant to the lock and ensure that the plunger and sheave are adequately lubricated.
2. Ensure that the retractable bollard is not frozen. Moisture and cold air can cause the bollard's spring-loaded plunger and locking mechanism to freeze and lock in place. Ice can also form on the wire rope, causing the bollard to seize. Lock de-icer and heat can be used to remove ice, but it is difficult to prevent this problem. Retractable bollards have mounting systems installed below a concrete's surface and are more susceptible to freezing.

More Troubleshooting tips

- Inspect all parts of the retractable bollard, and clean and lubricate where necessary.
- Note any areas where it may be possible for water to enter the receiver—take preventative measures to restrict water from entering the receiver.
- Remove any visible rust or stains immediately
(refer to <https://www.reliance-foundry.com/bollard/maintenance-bollards> for more information).

Reliance Foundry is committed to providing the information and technical resources necessary to support its industry-leading bollards. If you have questions or would like more information on Reliance Foundry's innovative bollards or their applications, please visit www.reliance-foundry.com or call the Sales Department at 1-877-789-3245.