

REELEX Coil Issues

Sloppy Coil, Payout Hole Disappears or Coil Falls Apart

The coil looks messy, the hole is being covered up or loops fall off the sides of the coil when the endforms are removed. These issues are usually related to incorrect line tension caused by improper settings or mechanical malfunction.

1. **Ensure the encoders count properly** via troubleshooting program.
 - See the troubleshooting manual appropriate for your machine.
2. **Ensure motor to encoder couplings and rubber gear are snug** and do not have excessive play.
3. **Check/Swap W600 cards** to ensure proper counting and operation.
4. **Ensure the control boards (W90A,W900) are tuned properly** in accordance with REELEX manuals.
 - See Tune Up Procedures - REELEX Drives and Boards
5. **Observe if hole issues change with machine speed** to rule out certain mechanical failures.
 - If the hole is good at speed 3 but lost at speed 8, check for slippage on the belts and pulleys.
6. **Guide tube is too far away from mandrel**, leading to poor winding control.
 - *Adjust guide tube so it is 1/2 to 3/4-inches away from the outer edge of the endform.*
7. **Cable not correctly fed through guide tube** and bearings.
 - *Buffer action is compromised by miss-feed, resulting in increased tension.*
 - *Correct wire path to resolve.*
8. **Coil or PID Parameters have been changed** (D-2000/2050, G2 Equipment)
 - *Revert to known reliable values.*
 - *Lockout screens to prevent accidental or unauthorized changes.*
9. **Irregular or excessive tension** due to improper air pressure regulation at the Dancer.
 - *Check gauge at the Dancer air pressure regulator for consistent pressure. Standard REELEX Dancer with 5 over 4 (15 inch) sheaves should have no more than 15 PSI and vary no more than 2 PSI while running.*
 - *Adjust or replace regulator as needed. The regulator must be REELEX part # FRL-REG/NU10060 (relieving type regulator) or equivalent.*
 - *Lower sheave shaft bearing may be worn causing extra friction. Replace as needed.*

10. Mechanical failure of Buffer due to broken or worn parts.

- *Check Buffer for worn or broken bearings and springs.*
- *Sliding assembly must not be limited by friction due to buildup on rails or sticking bearings. (D-2000)*
- *Replace parts as required. Use OEM REELEX parts.*

11. Electrical component related problem.

- *Check graphs on screen 14. See manual for specific drive adjustment. (D-2000)*
- *Check encoder and drive function. See manual or consult REELEX as needed.*

12. Cable OD is less than 0.10 inch (2.54 mm) and /or the cable is slippery or highly flexible.

- *The coil may need to be stretch wrapped. One symptom is the coil will tangle at the end of the payout. (Only a few feet left in the box.)*
- *A smaller diameter mandrel should be used. Coil Too Large*

1. Gains set too high, causing low wind density.

- *Lower gain settings to decrease negative space in the coil.*
- *Gains are too low, causing layers to sit atop one another. Consult packaging charts for minimum and maximum gains per product OD.*

2. Tension too low, causing the layers of the coil to be loose.

- *Increase tension settings to recommended pressures. Check gauge at the Dancer air pressure regulator for consistent pressure. Standard REELEX Dancer with 5 over 4 (15 inch) sheaves should have **no more than 15 PSI** and vary no more than 2 PSI while running.*
- *Adjust or replace regulator as needed. The regulator must be REELEX part # FRL-REG/NU10060 (relieving type regulator) or equivalent.*

3. Hole Size setting too large, causing the coil to be irregularly shaped.

- *Adjust the Hole Size setting so that the coil produces a hole that is only slightly larger than the payout tube diameter. This setting may vary depending on product type, diameter and coiling conditions.*

4. Use Density Program (available for D-510, D-750, D-1000, D-1500, D-2000 machines).

- *The Density Program works by gradually lowering the upper and lower gains as the product winds, thereby increasing weave density. This program is available as a software upgrade and can lower coil size by as much as 10%.*

Tangles and Snags During Payout

Some Common Causes of Tangles and Snags:

1. **Hole is not clear.** Make sure the machine is making a clear hole in the coil for the operator to insert a payout tube. In general, coils without holes have a 40 percent chance of tangling. Many Non-REELEX machinery and “counterfeit” machines do not have the necessary algorithms that are built into REELEX machines and thus produce this “scramble wind”.
2. **Twist in cable ahead of REELEX machine.** Try to minimize twisting in the cable prior to reaching the REELEX machine. In general, the REELEX package can tolerate one twist every 20 feet. (6 meters). Some complex cables including enhanced Category 5 cables, Cat 6 and Cat 7 can have localized (residual) twist in the cable. These issues can be resolved by utilizing REELEX II settings, boxes and tubes. Contact REELEX Packaging Solutions if these issues arise.
3. **Operator loses ends of coil.** The operator is creating a problem while putting the coil in the box. The outer end of the coil is moving to the inside and causing tangles. Be sure to properly train the operator in proper REELEX packaging and in preventing tangles. The operator could be poking the outer end of the coil into the coil prior to packaging.
4. **Operator creates knot.** If a tangle occurs in the first 10 feet (3 meters), the operator is not threading the cable through the tube properly. Be sure the operator is placing the tube directly in the hole produced within the coil and is not creating a knot by threading the cable through one of the winds.
5. **Incorrect package size.** The box is too large for the coil and shaking around during shipment. The coil should fit snugly inside the box with minimal room to move, rotate or change shape.
6. **Incorrect payout tube length.** Make sure the correct tube length is used. In general, the best payout performance comes from the inside end of the tube being as close to the center of the coil as possible.
7. **Incorrect payout tube size.** For some products, REELEX II or EcoCore payout tubes are required for proper payout. This is particularly true of cables that have inherent twist, or are so flexible that they easily loop on themselves.

Kinks, Indentations and Twists in Cable

Some Common Causes of Kinks, Indentations or Twists:

1. **Payout tube too short.** The payout tube should extend at least 1.00-inch (25mm) beyond the inside wall of the coil, or as close to the center of the coil as possible. Too short of a tube causes undue stress on the cable during payout.
2. **Tension too high.** High tension on the line can cause the cable to indent at the crossovers. This leads to a weakened area which will increase the chances of kinking at that the weakened point. These indentations also can cause electrical performance issues on twisted-pair cables.
3. **Hole Size setting too low.** A small hole size results in the cable requiring a very sharp bend in order to exit from either side of the payout tube. Increasing the hole size places the cable further away from the payout tube, which decreases the bend required to reach the payout tube.
4. **Thin jacketing.** Thin cable jacketing makes the cable vulnerable to denting and deformation even prior to reaching the REELEX machine, which creates a point of resistance when the cable rolls over the edge of the tube. This dent then can create a "kink" under the right circumstances.

Best Practices for Twisted-Pair Cables

Introduction

While many manufacturers have no issues packaging Category 6 (and higher) products in REELEX, some companies have reported electrical testing issues and performance degradation when using REELEX. These issues are caused by the frequency of the cross-overs in the REELEX coil leading to "dents" or deformation of the product. Over long lengths, these "dents" add up to signal errors and transmission problems. Many of these issues can be mitigated or eliminated. Please refer to the "Best Practices - LAN Cable" for reference.

Documentation



NOTE: A separate document exists for addressing twisted-pair cable packaging in REELEX. Please see: Best Practices - LAN Cable