Troubleshooting

G4 REELEX Coiling Machines

Poor Coil Formation

The hole is lost, the coil looks messy, the hole is being covered up or loops fall off the sides of the coil when the endforms are removed.

Possible Reason	Checks	Solutions
Encoders must count properly for good coil formation.	☐ Should count smoothly between 0 and 4095 in both directions. ☐ If count skips frequently, encoders could be failing or not making good contact.	• Swap Encoders • Check for encoder vibration and movement • Check wiring - wires may be swapped
Motors must rotate the correct direction and receive clean signals free from noise.	☐ Check that response feedback screen (PID) values are within limits. ☐ Check motor wiring. Make sure armatures are not swapped.	• Restore PID settings to default • Restore motor drive software to REELEX-supplied settings. • Make sure there are no faults on the motor drives.
Belts and Pulleys must make good contact with the shafts and not slip.	☐ 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.	• Tighten belts and inspect teeth on pulleys • Check keyways to make sure pulleys are not slipping on the shafts. •
The product must be **precisely controlled** as it traverses across the mandrel surface.	☐ Check that the guide tube is not too far away from the mandrel, leading to poor winding control. If it is, the coil might look narrow and not fill out the endforms. ☐ Check that the cable is not incorrectly fed through the guide tube. Check that the rollers closest to the mandrel are the last in contact	• Adjust the guide tube so it is ½ to ¾ inches away from the outer edge of the endform. • Use the adjustable precision wire guide for increased wire lay precision and improved coil formation. • Rotate the wire guide to make sure the last

	with the product in the left/right direction.	rollers to come into contact with the product before reaching the mandrel are oriented in the left/right direction.
The **buffer** must perform properly. If the buffer does not react quickly during coiling, inconsistent tension is applied to the coil surface, causing layers to be placed incorrectly. This can potentially cause stress and improper placement of crossovers, including closure of the payout hole and inconsistent wind patterns.	☐ Check Buffer for worn or broken bearings and springs. Check to ensure rim sheaves rotate smoothly and bearings slide easily. Springs should easily cushion rim sheave assemblies and push them back into place. Worn buffer components can be a primary cause of improper coil formation. ☐ Check that the buffer is strung up correctly. If buffer action is compromised by miss-feed, such as stringing up in the wrong sequence, the buffer could be causing increased tension on the coil.	• Make sure all shafts are straight, lubricated and there are no friction points. • Replace any bearings that are worn or show friction. • Replace rim sheaves that are bent or do not rotate freely. • Buffer must be strung up in the following order: over the top of the white sheave, under the lower rim sheave, over the top of the upper rim sheave, then into the traverse.
Too **High tension** can cause the product to slip on itself and cause the hole to close up.	☐ Check the air pressure at the dancer regulator. Typical air pressures are less than 12 psi (0.8 bar). ☐ Check that the regulator has consistent pressure. It should not vary more than 2 psi while running (0.14 bar). ☐ The motorized payoff must be able to keep up with the REELEX machine's acceleration. If the payoff cannot accelerate the supply reel fast enough, tension will build up on the line. ☐ Check other components in the line for restriction or friction points. Redirects, rollers and other contact points should be reviewed for smooth and unobtrusive operation.	• Adjust or replace air regulator as needed. The regulator must be REELEX-supplied relieving type regulator. • Lower sheave shaft bearing may be worn causing extra friction. Replace as needed. • Sliding assembly on the buffer must not be limited by friction due to buildup on rails or sticking bearings. • Make sure motorized payoff can keep up with REELEX machine. Replace payoff with REELEX model or increase payoff power. Lower REELEX acceleration and speed to match payoff capability.

Too **Low tension** can cause the wraps in the coil to fall apart, leading to loss of hole integrity or a sloppy coil.	☐ Air pressure at the dancer could be too low. ☐ Check buffer for proper operation.	• Increase air pressure at the dancer. • Repair or replace buffer components if needed.
A too **high gain** setting can cause the coil to be loose and sloppy. This causes the spacing between the wraps in the coil to be large and coil density to be low. This can jeopardize coil integrity.	☐ Can you see through the wind pattern in the coil? If so, ratios are likely too high. ☐ Check the recommended minimum and maximum ratio settings on the REELEX packaging calculator.	• Decrease upper and lower gains so that the average between the two is less than the maximum allowed by the REELEX packaging calculator for a given product.
A too **low gain** setting can cause the coil to be too tight. This causes the spacing between the wraps in the coil to be nonexistent and can create lumps in the coil. This "hump" opposite the hole can create a ridge that the product cannot cross during winding, causing loops, high tension spots and stress on the product.	☐ Is there a large "lump" or "hump" around the circumference of the coil? If so, the gain setting is too low. ☐ Check the recommended minimum and maximum ratio settings on the REELEX packaging calculator.	• Increase upper and lower gains so that the average between the two is less than the minimum allowed by the REELEX packaging calculator for a given product. • Use the density setting to reduce the spacing between winds as the coil builds.
Mandrel diameter may be incorrect for the product. If the product is very flexible and/or small, a smaller mandrel should be used. Larger, inflexible products should use larger mandrels. Using too large of a mandrel can cause the coil to fall apart, whereas too small of a mandrel may not allow the product to lay correctly.	☐ Does the product fall in on itself during payout and create a tangle? The mandrel may be too large. One way to check the flexibility of the product is to hold a half-circle in the air between two hands. Increase the radius of the arch between your hands until the product falls directly downward. This is the maximum radius of the product before it can no longer support itself. At no point in the coil should the product radius exceed this size, otherwise the coil may collapse. ☐ Does the product have difficulty existing the package? Payout should always be smooth and free of tension. If the product requires a sharp bend to exit the payout tube, the	• Contact REELEX for recommendations at support@reelex.com. Samples and consultation is free of charge to all licensees. • Review the REELEX packaging calculator for recommendations. • Measure your products minimum comfortable bend radius. The mandrel diameter should be double this bend radius at a minimum. • Measure your product's maximum comfortable bend radius without collapsing on itself. This is the largest coil diameter that

	mandrel size is too small. ☐ In general, products larger than 0.25 inches (Ø 6.3mm) diameter should use a 10-inch mandrel, products under 0.20 inches (Ø 5mm) can use a 6-inch mandrel, and other products can use a 8-inch mandrel.	is recommended without risking coil collapse.
Hole parameters may be incorrect. If the hole size is too large, the coil could be irregularly shaped and product could slip into the hole, covering it up.	☐ In general, the payout hole should be just large enough for the payout tube to be easily inserted into the coil. ☐ If the hole seems to be shifting or closing up over long coil lengths, use the hole shift setting to compensate. ☐ If there is a hump or lump forming around the perimeter of the coil, consider using a smaller hole size or use the hole taper setting.	• 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. • Use the hole taper setting to reduce the “v” shape of the coil. The payout hole walls should roughly mimic the taper of the payout tube. Hole taper can also help alleviate lumps or humps that may form around the center of the coil when using large payout hole settings.

Machine Will Not Start

The operator presses the START button and the machine does not respond.

Possible Reason	Checks	Solutions
Safety interlocks must be engaged. This includes safety fencing around ancillary equipment.	☐ Check all safety doors and interlocks. ☐ Inspect each interlock and confirm locks are engaged. ☐ Make sure all safety buttons are disengaged.	• Physically move each door and check that locks are engaged. • Inspect all interlocks for red indicators.
Dancers and accumulators must be off their **limit switches.**	☐ Check that the dancer sheaves are located in the center of the UDA and not resting on the limit switches.	• If dancer position is resting on the lower limit switch, physically bring in more cable until the dancer position raises above the limit switch. Alternatively, you may rewind cable back onto the supply reel. • If dancer position is resting on the upper limit switch, release the brake on the payoff and feed more cable into the dancer until it returns to the center position.

Safety Doors Stuck or Will Not Move

The safety doors do not open or cannot be opened or do not respond.

Possible Reason	Checks	Solutions
Door is not seeing a switch. Make sure the limits of the door reach the safety interlocks.	☐ When in the E-STOP position, physically rotate the doors and ensure switches can be reached.	• Physically adjust switches if necessary. • Replace switches if faulty.

Machine Will Not Reset

After an E-STOP or on startup, the machine will not fully reset and will not run.

Possible Reason	Checks	Solutions
Safety interlocks must be active.	☐ Make sure all door locks line up and are engaged. ☐ Make sure there are no illuminated lights on ancillary equipment safety locks (fence doors).	• Re-engage locks.
Safety switches are not lining up.	☐ Make sure automated door switches are being seen. ☐ Make sure automated door locks are engaging.	• Adjust position of locks and switches if necessary.
Automated door is unable to cycle. Door must go through entire range of motion before starting.	☐ Make sure door motors are working properly. ☐ Make sure door is not interrupted during reset.	

Machine is Overshooting

The machine does not stop in time for the set coil length or print signal, overshooting and creating scrap.

Possible Reason	Checks	Solutions
Preset 1 set too close to Preset 2. If the length during coil winding where the machine begins to decelerate (Preset 1) is too close to the coil length (Preset 2), the machine cannot slow down in time. See Operation Manual.	☐ Make sure Preset 1 is set so that the machine comfortably arrives at Low Speed prior to Preset 2. ☐ Check the payoff's performance to ensure it can slow down fast enough to match the REELEX machine's deceleration. REELEX payoffs are designed to rapidly accelerate and decelerate in response to the demands of the REELEX machine. ☐ Check the Low Speed RPM setting. If Low Speed RPMs are too high, the machine will not be able to stop in time from low speed. Low Speed RPM is the speed of the spindle after decelerating from Preset 1.	• Increase Preset 1 so slowdown occurs earlier in the coiling cycle. • Reduce the number of seconds in the Deceleration setting on the Speed Settings screen. • Reduce the Low Speed RPM setting on the Speed Settings screen.
REELEX Machine is missing the print signal because it either cannot stop in time or is not stopping in the right place.	☐ Make sure a clean signal is being received from the printer. ☐ Make sure REELEX machine is in the correct operating mode. ☐ Make sure print window settings are set properly. Do not use print window unless using a UV mark or similar print reset method.	• Change the operation mode to one that stops the machine based on print signals received from the printer. • Set the distance from printer to spindle to the correct length.