

Sumitomo Drive Technologies

# 9 *WARNING SIGNS* OF SERVO GEARMOTOR

FAILURE IN THE FOOD AND BEVERAGE MANUFACTURING INDUSTRY

---

US.SUMITOMODRIVE.COM

# Table of Contents

---

1. Common Causes of Servo Gearmotor Failure
2. Top 9 Warning Signs of Servo Gearmotor Failure
3. Preventive Measures and Best Practices

## 9 WARNING SIGNS OF SERVO GEARMOTOR FAILURE IN THE FOOD AND BEVERAGE MANUFACTURING INDUSTRY.

Servo gearmotors play a crucial role in the food and beverage manufacturing industry, driving various processes from packaging to mixing. While these motors are designed for durability and continuous operation, they can still experience wear and eventual failure. When a servo gearmotor fails or malfunctions, the ripple effects can be substantial, leading to halted production lines, compromised product quality, and even safety concerns.

Recognizing the early warning signs of potential failures not only saves money but ensures uninterrupted operations and upholds the stringent standards of the food and beverage sector.

In this guide, we'll delve deep into these warning signs, arming industry professionals with the knowledge to act swiftly and decisively in the face of emerging mechanical challenges.

### Common Causes of Servo Gearmotor Failure

Servo gearmotors, like any mechanical equipment, can degrade over time and under certain conditions. Let's examine some of the main factors that can lead to their failure in the food and beverage manufacturing setting:

#### 1. **Wear and Tear from Constant Use:**

- Servo gearmotors often run continuously for long hours. The constant motion and stress can lead to parts wearing out or becoming misaligned.

#### 2. **Inadequate Maintenance Practices:**

- Skipping routine maintenance checks or not addressing minor issues can accumulate over time, leading to significant damage and eventual failure.

#### 3. **Environmental Factors:**

- The food and beverage industry can expose gearmotors to various challenges:
- **Moisture:** Water or steam from cleaning processes or the production itself can corrode parts or short electrical components.
- **Extreme Temperatures:** Cold storage areas or hot processing zones can affect the lubrication and material properties of the gearmotor.
- **Contaminants:** Food particles, dust, or chemicals can infiltrate the gearmotor, leading to wear or malfunction.

#### 4. **Incorrect Specifications:**

- Using a servo gearmotor that's not suited for the specific application or load can lead to overworking the motor and premature failure. To avoid this pitfall, partnering with a reputable company like Sumitomo Drive Technologies can be invaluable. Their expertise in drive solutions

ensures that you're equipped with the right gearmotor tailored to your specific operational needs, helping mitigate potential failures due to mis-specification.

Understanding these common causes is the first step toward prevention. Regular assessments, appropriate selection of equipment, and adherence to maintenance protocols can significantly reduce the risk of servo gearmotor failures in the food and beverage industry. Moreover, collaborating with industry leaders like Sumitomo Drive Technologies provides an additional layer of assurance in equipment specification and longevity.

## Top 9 Warning Signs of Servo Gearmotor Failure

Understanding the early indicators of a malfunctioning servo gearmotor is crucial. By addressing these signs without delay, larger, more costly complications can be avoided. Let's explore each warning sign in detail:

### 1-Leaking Lubricant:

The sight of lubricant seeping out or puddles near the servo gearmotor's housing is not just a mess but a clarion call for immediate attention. Lubricants ensure smooth operation, and any sign of leakage is a direct threat to the gearmotor's health.

- **Why It's Occurring:** Leaks can result from worn-out seals, overfilled lubrication systems, or even cracks in the motor's housing. Temperature fluctuations can also cause the lubricant to expand and find its way out through weak points.
- **Implications:** A loss of lubricant compromises the gearmotor's ability to run smoothly. It increases friction, which can accelerate wear and tear and can lead to overheating. Moreover, it exposes the system to contaminants, further risking damage.
- **Common Solutions:** Inspect for and replace damaged seals, ensure the lubrication system is filled to the recommended level, and routinely check the motor's housing for cracks or damages. When in doubt, consulting with industry specialists like Sumitomo Drive Technologies can offer insights on the best lubricants to use and the most effective maintenance routines.

This warning sign is particularly significant, as lubrication is a fundamental aspect of ensuring a servo gearmotor's longevity and efficient operation. Recognizing and addressing any lubricant leakage promptly can save manufacturers from more severe complications down the line.

### 2-Unexpected Shutdowns or Resets:

One of the most alarming issues an operator can face is a servo gearmotor that suddenly shuts down or resets without any discernible reason. Such events not only disrupt the manufacturing process but could also be indicative of deeper issues.

- **Why It's Occurring:** These unexpected behaviors can be due to various reasons including electrical faults, software glitches, overheating, or mechanical blockages. Sometimes, an overloaded system or an external factor like power fluctuations can also cause unexpected resets.
- **Implications:** Frequent shutdowns and resets can be detrimental to the entire production line, leading to product waste, increased downtime, and reduced overall efficiency. Furthermore, if the root cause is not identified and addressed, it can escalate to more serious damage or even a complete servo gearmotor failure.
- **Common Solutions:** Regularly inspect electrical connections and circuits, ensure that the system is not overloaded, check for software or firmware updates, maintain optimal operating temperatures, and seek expert guidance, preferably from renowned companies like Sumitomo Drive Technologies, when troubleshooting proves challenging.

Integrating this warning sign with the rest ensures that manufacturers are well-equipped to handle not just the evident symptoms of potential failure but also the unexpected ones that can sometimes be even more disruptive.

### 3-Unusual Noises:

A well-functioning servo gearmotor should operate relatively quietly. Unanticipated noises, whether they be grinding, squealing, or clattering, can be immediate indicators of internal complications.

- **Why It's Occurring:** These noises can arise from various sources such as misalignment of gears, worn-out bearings, loose components, or insufficient lubrication. Each sound character may correlate to a specific internal issue.
- **Implications:** Unaddressed noises not only signify immediate issues but can lead to escalating damage. Over time, they can result in reduced operational efficiency, increased wear and tear, or even catastrophic gearmotor failures.
- **Common Solutions:** Regularly inspect and realign gears as needed, replace worn or damaged bearings, ensure all components are tightly secured, and check lubrication levels. When troubleshooting based on noise, the expertise of companies like Sumitomo Drive Technologies can be invaluable in pinpointing the exact cause and recommending remedial actions.

This sign is crucial, as noises are often the most noticeable early warnings that something is amiss. By paying keen attention to the auditory cues a gearmotor provides, manufacturers can proactively address issues before they manifest into larger, more costly problems.

#### 4-Excessive Vibration:

While some level of vibration is inherent in the operation of many machines, an unusual increase or sudden onset of excessive vibration in a servo gearmotor can be a clear warning sign.

- **Why It's Occurring:** Excessive vibration can be attributed to various factors such as misaligned components, imbalances in the motor or drive, worn-out or damaged bearings, loose parts, or even foundational issues where the motor is mounted.
- **Implications:** Over time, unchecked vibration can exacerbate wear on the motor's components, degrade performance, lead to premature part failures, and even jeopardize the safety of the operation.
- **Common Solutions:** Regularly check and calibrate alignment, inspect and replace damaged bearings, tighten any loose components, and verify that the mounting foundation is stable and secure. In situations where the cause of vibration remains elusive, it's beneficial to consult with experts from trusted industry leaders like Sumitomo Drive Technologies.

Excessive vibration is not only detrimental to the motor itself but can also affect interconnected machinery and systems. By promptly addressing vibration issues, manufacturers can ensure smooth operations and prolong the lifespan of their equipment.

#### 5-Overheating:

Servo gearmotors are designed to operate within specific temperature ranges. When the motor becomes too hot to touch or emits an unusual amount of heat, it's a significant sign that requires immediate attention.

- **Why It's Occurring:** Overheating can result from several issues, including excessive load, insufficient or aged lubrication, blocked or malfunctioning cooling systems, environmental factors, or even worn-out components causing internal friction.
- **Implications:** Consistent overheating can rapidly degrade the motor's internal components, leading to reduced efficiency, shorter equipment lifespan, and increased risk of fire or other serious malfunctions.
- **Common Solutions:** Regularly monitor the gearmotor's load and ensure it's within recommended limits, check and replenish lubrication as needed, clean and maintain any cooling systems, and ensure the operational environment is conducive to optimal motor performance. When faced with persistent overheating issues, leveraging the expertise of companies like Sumitomo Drive Technologies can provide insights into underlying causes and remedial actions.

Being proactive about overheating is essential, as consistent high temperatures can have cascading effects on the overall functionality and safety of the equipment. Proper monitoring

and regular maintenance checks are vital in ensuring the gearmotor operates within its optimal temperature range.

## 6-Reduced Performance or Efficiency:

One of the subtler yet equally concerning signs is when a servo gearmotor starts to lag in its performance or isn't as efficient as it used to be. This might manifest as slower response times, decreased torque, or an inability to maintain consistent speeds.

- **Why It's Occurring:** Various reasons can be at play here. They might range from wear and tear of components, issues with power supply or electrical connections, software or controller glitches, to problems with other interconnected systems.
- **Implications:** While the motor might still be operational, reduced efficiency can translate to longer production times, increased energy consumption, and potentially compromised product quality. Over time, this could also lead to more significant mechanical issues or complete motor failure.
- **Common Solutions:** It's crucial to routinely calibrate and test the gearmotor's performance against its specifications. Checking and ensuring optimal electrical connections, updating software or controllers as needed, and replacing worn-out parts are all critical steps. As with other nuanced issues, the knowledge and solutions provided by specialists like Sumitomo Drive Technologies can prove invaluable.

A decline in performance or efficiency might be gradual, making it essential for operators and maintenance teams to be keenly observant and proactive in addressing any perceived changes. Regular performance checks and maintenance can help in ensuring the gearmotor remains at its optimal efficiency throughout its lifecycle.

## 7- Intermittent Stopping or Jerking

If the motor stops intermittently or jerks during operation, it's a sign of possible internal problems. Predictability is a cornerstone of servo gearmotor performance. When a motor begins to behave unpredictably or displays inconsistencies in its operation, it's a signal that shouldn't be overlooked.

- **Why It's Occurring:** Such behaviors can arise from a myriad of reasons. Electrical interference or issues in the power supply, software or controller malfunctions, worn-out or damaged components, or even external factors like environmental changes can all lead to erratic operations.
- **Implications:** Erratic behavior can lead to unpredictable outcomes in the manufacturing process. Not only can this compromise the quality of the produced goods, but it can also lead to potential safety hazards, system breakdowns, or extended downtimes.
- **Common Solutions:** Ensure that the electrical supply and grounding are stable and free from interference. Regularly update and check software or controllers for glitches.

Inspect for and replace any damaged components. If erratic behavior persists, seeking consultation from industry experts like Sumitomo Drive Technologies can help identify and rectify the underlying issues.

Erratic behavior, given its unpredictable nature, can be particularly challenging to diagnose and rectify. It underscores the importance of comprehensive maintenance, timely upgrades, and the value of expert insights when troubleshooting complex issues.

Recognizing these warning signs and understanding their implications is a crucial step toward ensuring the longevity and efficiency of servo gearmotors in the food and beverage manufacturing industry. Combining this knowledge with expertise, like that of Sumitomo Drive Technologies, can further optimize the maintenance and performance of these critical components.

### **8-Physical Damage or Wear:**

While some signs of failure are internal and less apparent, visible physical damage or evident wear on the exterior or accessible parts of a servo gearmotor is a clear red flag that requires assessment.

- **Why It's Occurring:** Physical damage can be a result of external impacts, mishandling, prolonged use without proper maintenance, or environmental factors like corrosion from exposure to harsh chemicals or conditions.
- **Implications:** External damage can compromise the gearmotor's protection from contaminants, lead to misalignment of internal components, or even directly impair its functionality. Furthermore, visible wear may be a precursor to imminent mechanical failures or performance drops.
- **Common Solutions:** Regularly inspect the gearmotor's exterior and accessible parts for signs of wear or damage. Ensure the motor is appropriately housed and protected from potential external threats. Damaged components should be replaced promptly. For comprehensive damage assessments and solutions, partnering with industry specialists like Sumitomo Drive Technologies is recommended.

Visible physical damage or wear is often an immediate cause for concern. It emphasizes the importance of proper handling, storage, and regular inspections to ensure the gearmotor remains in optimal working condition and to preempt potential issues.

### **9- Unusual Odors:**



A functional servo gearmotor should not emit any strong or uncommon odors during operation. If you detect scents reminiscent of burning, chemicals, or other out-of-place aromas, it's crucial to investigate.

- **Why It's Occurring:** Unusual odors often indicate overheating, insulation breakdown, electrical malfunctions, or even the degradation of lubricants or other internal components.
- **Implications:** Ignoring these odors can have grave repercussions. Overheated components can degrade rapidly, insulation breakdown can lead to short circuits, and degraded lubricants can result in increased friction and wear. Moreover, these symptoms can lead to potential fire hazards or complete motor failure.
- **Common Solutions:** Power down the motor and perform a thorough inspection for signs of overheating or damage. Ensure the insulation is intact, electrical connections are secure, and lubricants are fresh and adequately applied. If the source of the odor remains elusive or if the smell persists, seeking the expertise of industry leaders like Sumitomo Drive Technologies can be invaluable.

Unusual odors are often among the first signs noticed by operators, mainly because they are easily detectable. Immediate action upon detecting any odd smells can prevent severe damage, ensuring both the longevity of the equipment and the safety of the operational environment.

## Preventive Measures and Best Practices

Ensuring that your servo gearmotors are in peak condition will undeniably translate into tangible benefits for your manufacturing processes, product quality, and bottom line.

### Regular Maintenance Checks:

- Like any machinery, servo gearmotors benefit from regular check-ups. Scheduled maintenance ensures early detection of potential issues.
- **Importance:** Maintenance checks prevent minor issues from escalating into major problems, reducing costly downtime.
- **Action Steps:** Schedule periodic inspections, document findings, and promptly address identified issues.

### Proper Lubrication:

Lubrication reduces friction and wear between moving parts, ensuring smoother operations.

- **Importance:** Consistent lubrication reduces the risk of premature wear, overheating, and associated damages.
- **Action Steps:** Use manufacturer-recommended lubricants, check lubrication levels frequently, and re-lubricate as necessary.

### Training and Awareness:

Knowledgeable staff can quickly recognize and address potential problems before they escalate.

- **Importance:** Well-informed employees contribute to machinery longevity and operational efficiency.
- **Action Steps:** Offer regular training sessions, circulate informational material, and encourage open communication about observed abnormalities.

#### **Ensuring Proper Installation:**

Correct installation is the foundation of a gearmotor's operational lifespan.

- **Importance:** Proper alignment and installation prevent undue stresses and imbalances in the system.
- **Action Steps:** Follow manufacturer guidelines, seek assistance if unsure, and verify installation with diagnostic tools.

By proactively maintaining and monitoring your equipment, not only do you safeguard your investment, but you also ensure seamless production, minimizing costly downtimes and disruptions.

In the complex ecosystem of food and beverage manufacturing, the role of servo gearmotors is undeniable. They are foundational to ensuring seamless operations, where even the slightest glitch can ripple into significant production setbacks. Recognizing early warning signs and addressing them preemptively is not just a maintenance protocol but an operational imperative.

Aligning with industry experts like Sumitomo Drive Technologies amplifies the benefits twofold. Their expertise in servo gearmotors is not just about product quality; it's about fostering a culture of knowledge sharing, innovation, and unwavering support. With the right partners and a proactive mindset, manufacturers can navigate the ever-evolving challenges of the industry, ensuring durability, efficiency, and, most importantly, uninterrupted production.

## **About Sumitomo Drive Technologies**

Sumitomo Drive Technologies is a global leader in power transmission and motion control solutions. With over 130 years of engineering excellence, we are dedicated to delivering robust, reliable, and efficient motion control products and solutions to meet a broad range of industrial needs.

Our Motion Control division specializes in designing and manufacturing high-quality servo gearboxes, motors, and drive systems that provide superior precision, performance, and durability. Our portfolio includes innovative products such as the Servo Cyclo, Servo Hyponic, and Servo Bevel BuddyBox 4, each designed to meet the specific requirements of diverse automation and robotics applications. Leveraging advanced technology, rigorous quality control, and an unwavering commitment to customer satisfaction, we ensure that every product from Sumitomo Drive Technologies not only meets but exceeds industry standards. At Sumitomo Drive Technologies, we believe in empowering businesses to achieve their full potential. Our products and solutions are designed to maximize productivity, reduce operational costs, and simplify the complexities of motion control.

**Partner with us to experience the Sumitomo difference: innovation powered by tradition, performance backed by reliability, and solutions designed for the future.**

**Find out more information here.**

---

**[US.SUMITOMODRIVE.COM](https://www.us.sumitomodrive.com)**