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# TOP 5 QUESTIONS

## to ask when sourcing a

# CHECKWEIGHER

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Running a successful packaging line isn't just about speed; it's also about efficiency and optimizing operations through continuous improvement. While high production rates and low changeover times are important, so are accurate and reliable product filling machines. One of the simplest ways to ensure accurate production is to include downstream devices such as checkweighers in your line.

Integrating a checkweigher adds a critical control point to your operation. Checkweighers ensure the correct weight of product—whether it is in powder, liquid or solid form—is truly being accurately filled or deposited, package after package, run after run. This not only helps packagers meet mandated government standards regarding maximum allowable product weight variances, but also protects the overall profitability by preventing product giveaway. Checkweighers also provide valuable operational insights by creating a continuous stream of data and feedback on package rates and weight measurements that can be optimized to boost production.

While the benefits of checkweighers may be obvious, selecting one that is ideal for your specific application can be overwhelming. Here are the top five questions to ask when sourcing a checkweigher to ensure the right fit for your operations.

## 1. Is the checkweigher designed to stand up to plant conditions and for how long?

A checkweigher's construction is critically important since it determines the overall reliability and accuracy of the weight measurements. It also determines how operators interact with the equipment and how easy (or not) it is to calibrate, troubleshoot and repair, if necessary.

First, look for a checkweigher that features a rigid and stable design. Thanks to the laws of physics, a three-leg design is actually stronger than a traditional four-leg design and in the world of checkweighers, lends itself to a more mechanically stiff design that adds to improved weight control.

Next, take a look at the frame construction. Is it welded or bolted? Is it an 'open channel' frame or tubular? Welds can add different stressors to the frame that impact accuracy. A non-welded frame may not stand up to sanitary requirements, depending on the application. Check to see if the checkweigher meets IP54, washdown IP65 or full sanitary requirements. The elimination of hollow bodies on the frame aid in the prevention of bacteria forming during production. Also consider materials such as anodized aluminum and stainless steel depending on your application.

A small overall footprint is also important. As most packagers are pressed for space on the plant floor, a smaller footprint is easier to integrate into the line. A checkweigher that features an open design and a reduced size or non-existent, electrical cabinet thanks to smaller PLC-based controls, fits easily into tight spaces and aids in general usability, access and maintenance.



## 2. Are the checkweigher controls industrial grade and can production staff easily program parameters?

Checkweighers, while a sensitive piece of equipment, should be designed to work under the often harsh and varied conditions of a plant environment. Components should be industrial grade to stand up to operating conditions and required cleaning while maintaining reliability and accuracy over time.

The software should easily allow operators to create and edit recipes and product parameters given SKUs, package type and size. Ideally, non-proprietary controls easily allow you to customize the checkweigher's parameters tailored to the specific application needs. PLC-based checkweighers also make it easy to calibrate and communicate with other systems in the plant.

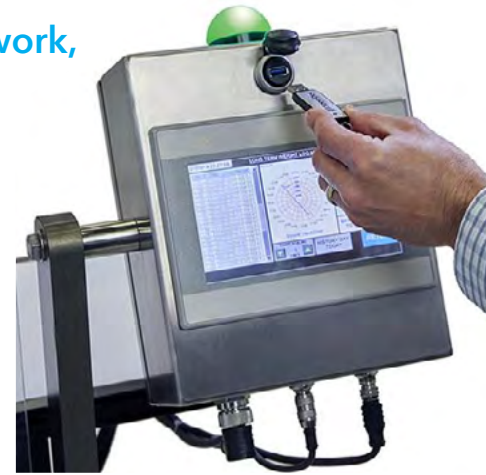


PLC-based checkweighers offer easy and accessible data as well, which is important to optimizing operations. According to [this article in Control Design](#), a dry-foods manufacturing and packaging company recently realized the benefits of PLC-based checkweighers and were so impressed, it inspired them to look at replacing legacy equipment earlier than planned.

### 3. How does the checkweigher connect to the plant network, is it secure and what data is collected and available?

A PLC-based checkweigher, by design, is easier to connect to the plant compared to PC-based checkweighers. PLC-based controls eliminate the need for special coding and permissions since the technology communicates with Ethernet IP that is commonly found in the majority of plants already. A checkweigher that has a dedicated Ethernet connection with the plant network will help keep data and sensitive production information gated behind the firewall.

Data collection is imperative to ensuring accuracy. Once a checkweigher is connected to a plant network, it has the ability to collect thousands, or even millions, of data points. Look for a checkweigher that allows you to download data in a sortable format, like a CSV file via email, USB, or direct download. This allows operators to access certain metrics and shift averages to find variances to further improve accuracy. This feature is often an extra feature for most checkweighers, but some suppliers do offer it as a standard feature.



### 4. Can the checkweigher be easily calibrated by your staff or is a service technician required?



When it comes to calibration, checkweighers fall into two categories: strain gauge and Electro Magnetic Force Restoration (EMFR) technology. Calibration of a strain gauge weigh cell is typically a manual process that can be time consuming and the set weight can drift over time, requiring routine maintenance by a service technician.

EMFR technology, on the other hand, quickly and automatically adjusts to the known weight during calibration, essentially resetting to zero. Because there are no moving parts or components to wear or become misaligned during use, there is no routine maintenance or technician needed.

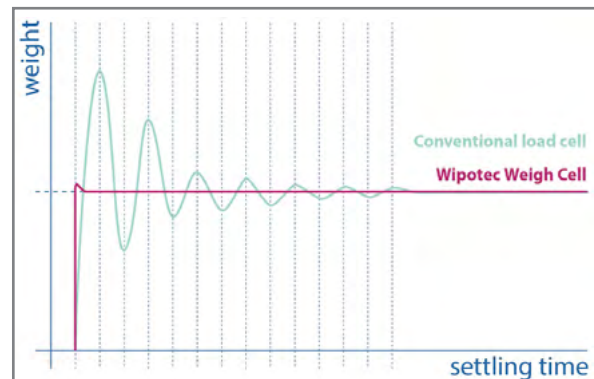
With EMFR technology, machine operators or plant maintenance staff can simply re-calibrate via software and accuracy is maintained in-house and within a few minutes.

### 5. How accurate is the checkweigher based on the weigh cell technology?



Just as there are differences between strain gauge and EMFR checkweighers when it comes to calibration, there are differences in accuracy. The main differentiator is the number of weights taken on the weigh belt and how well the unit is programmed to weigh packages in motion. With any checkweigher, you take a series of weights over time and then average those figures to determine a baseline. The more measurements, the more accurate the checkweigher.

Because the EMFR technology stabilizes faster than a strain gauge, it can analyze ten times the amount of weight measurements in the same period of time. Since there are more data points to obtain an average from, the EMFR technology is more accurate by nature, and helps save product and boost profit.



Source: Wipotec

While there are many other features to consider when it comes to sourcing a checkweigher, such as customization, OEM integration with other filling equipment and controllers, and testing and product support, considering the answers to these five questions will help you select the ideal checkweigher for your operations.

For more information on checkweighers or Spee-Dee solutions, contact the author:

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