



Checkweighing

Enhancing accuracy and efficiency for high speed lightweight applications

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Keywords

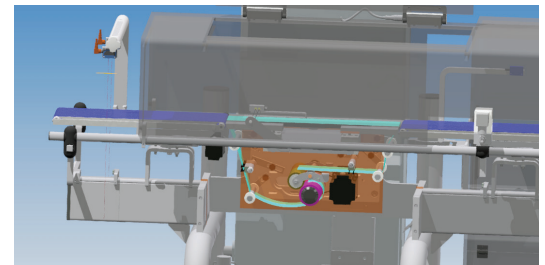
food safety, product inspection, slack belt, checkweighing, brand protection, high speed, high accuracy

Introduction

Checkweighers are essential tools used in various industries to ensure accurate weight measurements of products. They are designed to weigh items quickly and accurately as they move along a conveyor belt, helping manufacturers maintain quality control and compliance with regulatory standards. Thermo Fisher Scientific offers a range of high-quality checkweighers that cater to different industry needs, including food & beverage, pharmaceutical, and consumer goods. Our checkweighing systems provide manufacturers with the capability to weigh, count, and reject items within a single, dynamic system.

Slack belt design

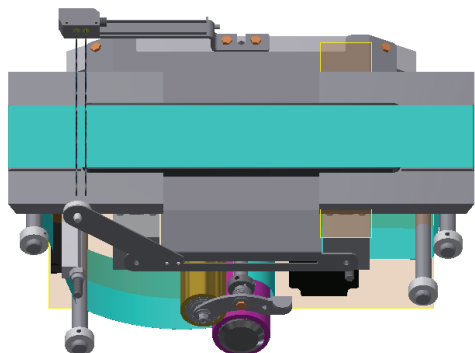
In a traditional conveyor belt system, the motor that drives the movement of the belt is typically located underneath the conveyor. The motor is directly connected to the belt and is responsible for driving it at a specific speed. Whereas the slack belt design



has a motor that is isolated from the weighing platform, which instead of being directly connected to the belt, the motor is mounted beneath the conveyor belt and isolated from the loadcell. This isolated motor design helps to minimize the vibrations and mechanical disturbances that can occur in very high-speed applications. By separating the motor from the load cell and weighing platform, the potential for motor-induced vibrations to interfere with the weight measurements is significantly reduced, allowing for more precise and reliable weight readings for light weight applications with high speed and high accuracy requirements.

The slack belt design allows fast-moving products to transfer with a low risk of unbalancing and with as little vibration as possible to decrease settling time on weighing. This design allows for the removal of one of the rollers and the use of a knife-edge design which reduces the gap even further between the conveyors (see image 1).





Slack belt design

Our offering

The Thermo Scientific Versa Rx contains the slack belt design which is suitable for packaged pharmaceutical products, which are generally small and light, run at very high speeds, and require very high accuracy. The Versa Rx continues to be our flagship model, delivering ultra-high speeds (up to 550 ppm) and exceptional accuracy (+/- 0.05g) at 3 sigma. We are now releasing the Global Versa checkweigher with a similar slack belt design which is suitable for applications that do not demand such high levels of speed and accuracy. Providing a more cost-effective alternative for food and beverage and consumer goods applications. Table 1 below shows a comparison of the weight range, speed, and accuracy of the Versa Rx and the Global VersaWeigh/Versa GP models.

Table 1.

Checkweigher	Weight Range	Maximum Rate	Accuracy
Versa Rx Slack Belt Conveyor	2g-300g	550 PPM*	±0.05g*
Global VersaWeigh or Versa GP Slack Belt Conveyor	2g-300g	400 PPM*	±0.10g*
Global VersaWeigh or Versa GP Traditional Conveyor	10g – 10Kg	300 PPM*	±0.125g*

*Actual results dependent upon line speed, package material/fill/weight, and handling

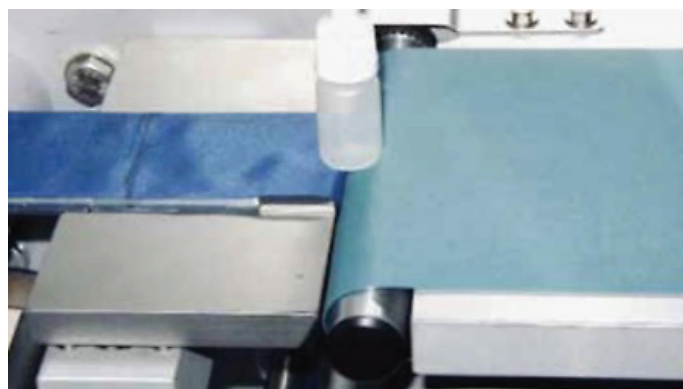


Image 1.

Versa checkweighers with slack belt

The VersaWeigh and Versa GP checkweighers are advanced weighing solutions designed to enhance quality control and operational efficiency in multiple industries. These systems provide versatile and reliable solutions for maintaining stringent quality standards and regulatory compliance. Now with the option of including the slack belt design to these systems, we are able to provide a more accurate and cost-effective solution. Table 2 below highlights some applications that benefitted from the Global Versa checkweigher slack belt design.

Table 2.

Application	Weight	Rate	Accuracy
Waffles	33g	366 PPM	0.16g
Biscuits/Cookies	30g	60 PPM	0.14g
Candy bar	40g	400 PPM	0.19g

Conclusion

Thermo Fisher Scientific's range of high-quality checkweighers epitomizes advanced weighing solutions tailored to meet diverse industry needs. Implementing the slack belt design, we have significantly enhanced the accuracy and reliability of weight measurements, particularly for lightweight, high-speed applications. By integrating the slack belt design across our product line, we continue to lead in delivering versatile, accurate, and efficient checkweighing systems that uphold stringent quality standards and regulatory compliance, ultimately driving operational excellence for our customers across many industries.