

Innovation · Changing the World

# SeTAQ<sup>®</sup> Checkweighing



Weight / Content Uniformity:

Capsule  
Tablet  
Soft Pouch  
Carton  
Bottle  
Ointment  
Hollow Capsule

SeTAQ Instruments (Shandong) Co., Ltd.



# SeTAQ<sup>®</sup> Checkweighing

With the business philosophy of "Innovation · Changing the World", SeTAQ Instruments (Shandong) Co., Ltd. has provided thousands of professional checkweighing equipments for the industries include pharmaceutical, food and daily chemical, etc. which is used for detecting filling difference, weight difference, and missing parts of the package. SeTAQ owns a hundred of invention patents and software algorithm copyrights related to checkweighing.



SeTAQ built reliable performance laboratory for safety regulations, environment test, aging test, electromagnetic compatibility, and has SMT patch welding production line and visual inspection equipment, ensuring all the weighing control module produced by SeTAQ working on high reliability and conformity. SeTAQ adopts plenty environment-friendly production materials, equipment and craft to support the sustainable development idea.

SeTAQ has been engaging in checkweighing industry for 20 years. All the underlying core technologies in SeTAQ checkweigher are solely developed, designed and manufactured by SeTAQ, such as weighing load cell, weighing ARM hardware control circuit, bottom drive software, weight checking algorithm of various characteristic materials, electrical control design, upper computer operation software and checkweigher structure, which totally ensures the high reliability of SeTAQ checkweigher, and the convenience of software upgrade.



Patents Wall



SMT Workshop

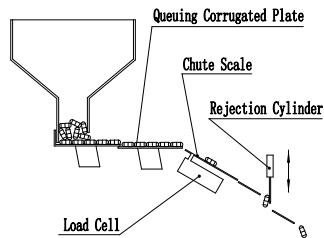
## ▶ Capsule and Tablet Checkweigher

As the top product of checkweighing equipment in the pharmaceutical industry, SeTAQ Capsule and Tablet Checkweigher has concentrated dozens of SeTAQ patents including dynamic chute weighing, horizontal material ranging, vertical material ranging, inertial rejection. Compared with the static checkweighing structure, it has many incomparable innate technology advantages. It can be equipped with a non-destructive air-free elevator to realize the on-line checkweighing of the filling machine or tablet press machine.

Standard model			Checkweighing lane Qty	Speed: pcs/min	Accuracy /mg	Vibration suppression	Loading and ranging method
Capsule and Tablet Checkweigher	Capsule Checkweigher	Tablet Checkweigher					
CT600	C600	T600	6	600	0.6-2.0	Yes	Horizontal corrugated plate
CT1200	C1200	T1200	12	1200			
CT1800	C1800	T1800	18	1800			
CT3600	C3600	T3600	36	3600			
	C2000V		12	2500			
	C3800V		18	3800			
	C7600V		36	7600	Vertical gears		

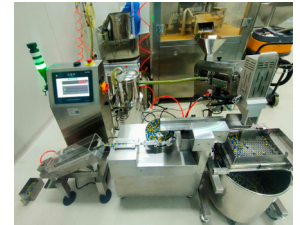


C3600 (Horizontal loading)



## ▶ CS80 Capsule Sampling Checkweigher

Adopts dynamic chute weighing theory. Load unit includes auto sampling device, transport device and round vibrating plate. Sampling device regularly samples from polisher outlet. Round vibrate plate works as ranging device of products. Speed: 80 pcs/min. Accuracy: 0.6-2.0mg.



## ▶ CT30 High-precision Capsule and Tablet Checkweigher

Adopts static weighing theory. Speed: 30 pcs/min. Highest accuracy: 0.3mg.

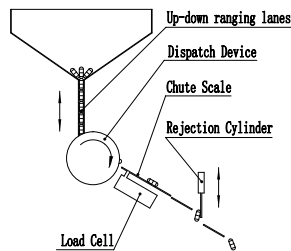


## ▶ CTS60 Universal Sampling Checkweigher

Adopts static weighing theory with vibration suppression function. Without changing the mold, all kinds of soft capsules, hard capsules, hollow capsules and various shapes tablets can be checked. Accuracy: 0.6-1.0mg. Speed: 30-60 pcs/min.

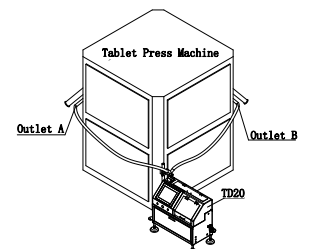


C7600V (Vertical loading)



## ▶ TD20 Tablet Hardness and Weight Detector

Checks weight, then checks hardness. Can be integrated with tablet press machine, and feedback test results to press machine. Can test both weight and hardness of different shape or size tablets at speed of 6 pieces per minute. Accuracy of weight: 1.0-2.0mg; Accuracy of hardness: 0.1N.



C7600V : Filling, polishing, metal detecting, lifting, checkweighing: 400,000 pcs/h

## Advantages of SeTAQ Dynamic Chute Checkweigher

**Rotate Screen :** The 320 ° rotate operation screen enable workers to operate the equipment from various angles in the workshop or to fully observe the interface.

**Separate Structure :** The loading/controlling unit and weighing unit are separate independent structures, which can eliminate the interference (on accuracy) from frequent loading operations and screen operation.

**Dynamic Verification :** Equipped with dynamic calibration and sampling verification software, the weighing accuracy under full speed operation can be ensured and verified. Under normal working conditions without stopping the machine, one capsule or tablet can be automatically taken out from each channel, and its weighing value can be frozen on the screen for on-site verification on balance.



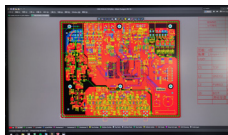
**All Capsules and More Tablets Are OK:** By use of multi-level, horizontal, open corrugated board, all models of capsules and various size and shape of tablets can be sorted, queued and issued. The structure is reliable for queuing, of strong adaptability to capsule and tablet.

**No block or Jam:** The checkweigher has the features of smooth logistics, convenient observation and cleaning. Broken capsule, half capsule, split capsule and deformation capsule will not block the channel.



### Electrical Design / Production / Test by SeTAQ

**Integrate PCB Design :** SeTAQ Adopted embedded design to ensure real-time communication and control. Multiple analog, digital, and control units are designed on a PCB motherboard based on an ARM architecture, resulting in stronger real-time performance, higher speed, and greater reliability. There is no need for protocol communication between modules in general PLC control mode.



**Quality Control :** By use of automatic SMT production line imported from YAMAHA Japan for precision welding each PCB circuit board, SeTAQ ensures the yield rate and the intrinsic quality of production, and also ensures every electrical product leaving from SeTAQ with consistent, reliable, and stable performance.



**Electrical Reliability Test :** The various of harsh environmental challenge tests can be used to verify the accuracy of weight values in various physical environments.

1. Electromagnetic compatibility EMC immunity test: Under normal working conditions, it is not allowed to reduce the checkweighing accuracy when it is affected by electromagnetic interference.



1.1 Electrostatic discharge: Ensure that static electricity from the operator's hair and clothes does not affect the weighing value.

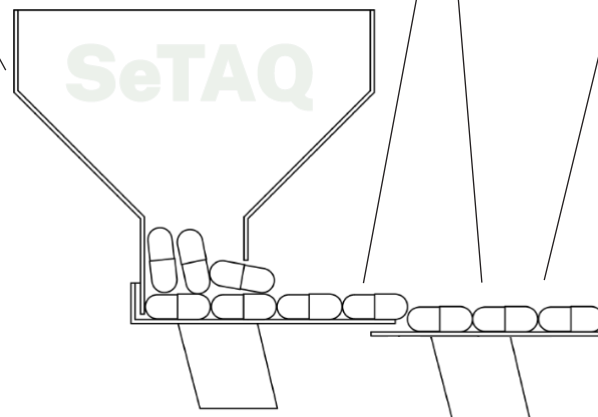


1.2 Voltage fast transient pulse group: Ensure that the switch or relay contacts of high-power inductive load equipment inside and near the workshop do not cause interference through the power supply.

1.3 Surge: Ensure that lightning, high-power load switches, or power system faults do not affect the weighing value through the power supply.



2. High and low temperature humidity environment tests: Ensure that changes in temperature and humidity do not affect the weighing value.



**Health Check for Load Cell :** After disassembling and assembling the weighing platform, zero point detection and automatic calibration can be carried out automatically. So, the health status of the weighing load cell can be quickly checked.

**Load Cell Durability :** By use of strain type weighing load cell, the checkweigher do not need preheating and can be used immediately upon startup. It is also durable, free from electromagnetic interference, and has low replacement costs.

**Free from Vibration Interference :** By embedded a vibration suppression function, ensure that the weighing accuracy is not affected by vibration interference. Vibration interference may come from ground vibrations caused by high-rise buildings, logistics vehicles, mechanical equipment, or the reject mechanism action from the checkweigher.



**Protection for Capsule/Tablet :** There is no large-scale rolling and brushing actions on the capsules or tablets. So, the best surface protection is provided in process of sorting , queuing and issuing.

**Exception Exclusion:** By setting a single bridge trap or roller brush at the outlet of the corrugated plate, the superposed capsule or tablet are dropped at the single bridge or are rolled into the material space behind, prevents stacking of the capsule from spilling over the weighing channel when loaded.



**Dynamic Chute Weighing :** The capsule or tablet slides through the inclined weighing platform by its own weight, no material transfer mechanism is needed. So, the advantages are as follows:

- 1) Simple structure, long-term reliability
- 2) Suitable for any size capsule and tablet with any size or shape
- 3) There is no pause of capsule or tablet on weighing platform, checkweighing speed is very fast
- 4) Adopting SeTAQ patent algorithm, with high weighing accuracy
- 5) High anti-dust ability
- 6) The weighing and moving of half capsule, break capsule and fragments will not damage load cell
- 7) Good observability.

**Prevention of extreme situation :** To prevent the weighing accuracy from being affected by two capsules on the weighing platform at the same time in extreme situation, photoelectric detection sensorl was set at the front and back of the weighing platform respectively. The two link capsules will be considered as abnormal conditions, and be rejected.

**Clearing Quickly :** All channels are open structure to enable the quick clearance. The open structure is especially suitable for hollow capsule manufactures that use the same equipment to test different types of capsules frequently without replacing the channel, meanwhile they do not allow the previous batch of products to stay in the next batch. So, only the clearance must be completed. The channels can be cleaned by air blowing and wiping, and the cleaning results can be seen directly by visual, which is convenient and fast.

**Low Cleaning Workload :** The number of parts in direct contact with capsules or tablets is very small. So, the workload of disassembling and cleaning is very small too.

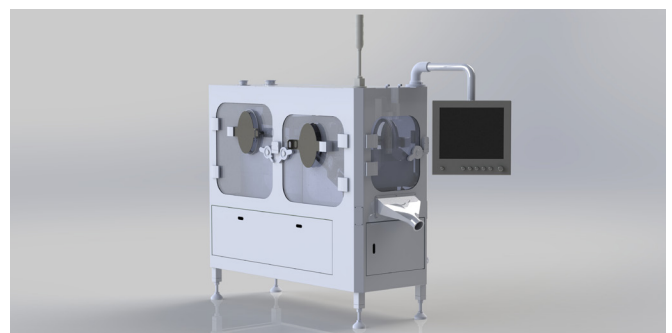
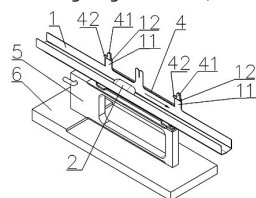
**Less Cylinders :** The entire machine only uses cylinders on the rejection mechanism, which saves gas and is more reliable.

## Summary

The incline sliding dynamic checkweighing invented by SeTAQ has unique congenital advantages for capsule and tablet chechweighing:

- 1) Simple structure, long-term reliable and stable work
- 2) Strong universality for capsules or tablets
- 3) No block and jam
- 4) Cleaning, dismantling, cleaning, and maintenance are very convenient
- 5) High accuracy and high speed for checkweighing
- 6) Stable and reliable accuracy
- 7) Can achieve unmanned operation with minimal workload, and can achieve negative pressure sealed OEB3 operation.

**Clean Thorough and Safety :** Including the weighing platform, all parts that directly contact with drugs can be frequently, safely, and quickly disassembled. All channels are installed in quick disassembly methods. Crucially, when fixing the weighing platform (weighing channels) to the transition bracket of the weighing load cell, the direction of the applied force fastening is perpendicular to the direction of the sensor bearing, which can ensure frequent disassembly and assembly of the weighing platform with one bare hands without damaging the weighing load cell.



# Weight / Content Uniformity Check

**SCW/B1**



**SCW/B2**



**SCW/B3**



Docking the single-row soft pouch granule packaging machine, checking the content uniformity or weight uniformity one by one.

Model	Scale L*W/mm	Bag max diagonal/mm	Bag weight range/g	Max speed/pcs/min	Accuracy/g	Application
SCW/B1	160x120	100	0.5-5	100	0.003-0.03	Ultra-light pocket
SCW/B2	250x120	115	3-5	80	0.02-0.05	Pouch
SCW/B3	250x120	115	5-20	100	0.03-0.07	Mid-small pocket
	250x160	155	5-50	100	0.03-0.10	Mid-big, linked pocket
SCW/B4	450x240	235	50-1000	100	0.1-0.5	Big pocket, bottle & can
SCW/B3H	250x120	115	3-10	150	0.04-0.07	High speed pouch



**SCW/SS-N**  
**Multi-lane**  
**Checkweigher**



12 lanes back sealing pouches are straight to online multi-lane checkweigher. The unqualified products will be shipped by vertical belt.

# Missing Part Check

**SCW/BS4**



**SCW/BB**



**SCW/BS3H**



Docking the cartoning machine, blister packaging machine, pillow packing machine and counting bottling machine to check if contains the correct amount of instruction leaflet, blister, pouch, desiccant, straw and if there any missing inside of the blister.

Model	Scale L*W/mm	Weight range/g	Max speed/pcs/min	Accuracy/g	Application
SCW/BS3	250x160	5-120	240	0.05-0.2	Small box & mid-pocket
		120-200	120	0.1-0.2	Mid box
SCW/BB3	250x120	10-120	120	0.05-0.3	Small bottle
SCW/BS4	450x240	20-1000	120	0.1-0.5	Big box
SCW/BB180	200x120	0.5-10	180	0.015-0.05	Blister
SCW/LS600	200x160	1-60	600	0.2	Ultra speedy small box
SCW/BS3H	200x160	1-60	350	0.2	High speed small box



**SCW/BH400**  
**Bottle**  
**Checkweigher**

The Vial Checkweigher can detect the weight of vials as small as 15 mm in diameter at a speed of up to 400 vials per minute without the risk of vial falling.



**SeTAQ<sup>®</sup>**

# Checkweigher



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