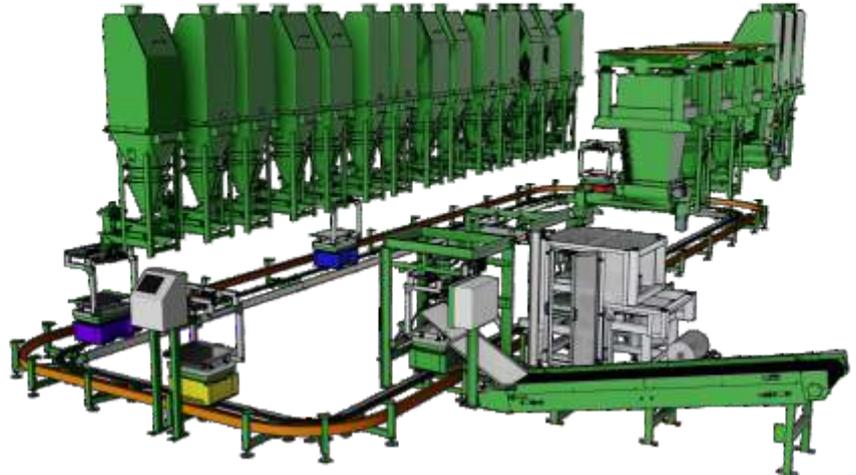




# CJ Waterhouse Co Ltd

MATERIALS HANDLING ▼ WEIGHING SYSTEMS ▼ PROCESS SOLUTIONS  
PLANT CONTROL ▼ BESPOKE MACHINERY ▼ AUTOMATION

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## The **SMART CART** just got Smarter !

**CJ Waterhouse Co. Ltd's automated minor ingredients system, 'The Smart Cart – G3' now uses RFT positioning and wireless communication systems.**

### Introduction

The semi-automatic and subsequent fully automatic minor ingredient systems were first developed over 10 years ago to overcome the negative constraints associated with more traditional systems where feeders are positioned around a static central weigh vessel. Such systems can suffer from lower accuracy, contamination, slow throughput and limited or no expansion possibilities.



### Smart Cart Philosophy

The Smart Cart overcomes these issues by moving individual weigh carriages with pre-loaded receptacles (bag, bucket etc.) to the feeder stations around a monorail track. In this way the raw ingredients are weighed directly into the container on the carriage from the feed station therefore eliminating cross contamination.

Each carriage incorporates a high accuracy force motion platform scale to give typical weighing accuracies on minor ingredients of +/- 3g or better. As the smart cart carriages run upon a continuous monorail track numerous carriages can be added to increase overall throughput. This system can also reduce / eliminate costly downtime due to weigher malfunctions as each weigh carriage can be simply removed from the track for maintenance or repairs. The remaining carriages will then continue the weighing operations or an additional spare carriage can be added to maintain the same throughput.

automatic systems for bucket, container and bulk IBC can also be supplied although the latter would normally be located upon a linear track. Due to the unique philosophy of the Smart cart it is possible to incorporate additional feed stations and track extensions at a later date if expansion should be required.



## Bag Manufacture & Handling System

The fully automatic version of the Smart Cart manufactures bags on-line before loading them onto the carriage clamp system. The weigh carriage then proceeds around the track system collecting the required ingredients in accordance with the pre-specified recipe. On completion of the batch the bag is printed with a barcode or batch information before being sealed and ejected onto the downstream accumulation system. Semi & fully automatic systems for bucket, container and bulk IBC can also be supplied although the latter would normally be located upon a linear track.



### System Developments

The Smart Cart is now into its 3<sup>rd</sup> generation (G3), previous developments from G1 to G2 have included; increased speed / throughput, packet separation and dosing systems, variable bag length and control / automation improvements.



The Smart cart G3 has two main technological advancements over the previous version. The first being the use of wireless communications between the carriages and the main PLC control panel. A Mitsubishi bluetooth system will be utilised to send / receive recipe and data information to and from the carriages. Previous versions used a fixed copper conductor running around the track perimeter and pickup points on the carriages. The bus conductor system is still utilised for carriage power distribution.

The second improvement is the addition of a radio frequency tag (RFT) positioning system. The G2 Smart Cart utilised a specific pattern of proximity sensors to identify each individual feeder station. The carriage would stop at the required feeder station and look for a specific layout of sensor activation to check its position before commencing material dosing. The G3 version weigh carriages now have RFT readers on-board and each feeder station has a programmable RFT fitted. When the carriage stops at the feeder station it reads the identification tag to confirm the correct location. This system is less susceptible to positional errors and reduces complexity and installation costs.

## ***THE SMART CART***

**High Accuracy  
High Throughput  
Contamination Free**

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