

Rubber Processing Application

Micro-ingredient batching

CUSTOMER INFORMATION

Customer processes rubber used in the manufacture of seals, gaskets, and hoses for products in the automotive industry.

SYSTEM REQUIREMENTS

Eliminate the manual weighing of materials thus reducing the time required to do the procedure, decrease the dust generated from the current hand weighing method, and improve the ergonomic conditions for the system operators.

SYSTEM RECOMMENDATION

The customer contacted Schenck Process for suggestions on improving their process. After careful review, an automated micro-ingredient batch system was recommended, which included the following equipment:

- (5) MC MechaTron® gravimetric batch feeders
- DISOCONT® Batch Controller
- Integrated PLC
- Indexing Conveyor

APPLICATION

The process begins with the operator entering the recipe and proper number of batches required into the Integrated PLC. Based on the recipe chosen only the feeders that are necessary to complete the recipe are enabled.

Next, the operator places a bag in an empty bucket on the conveyor. A sequence number, ingredient serial number, time,

date, and zero totalizer are displayed on the Integrated PLC screen. An ultrasonic sensor indicates there is an empty bag in the load/unload station. An electronic switch activates a dust collection blower. Electronics wait for interlock of the exhaust motor and established vacuum. Once the interlocks are made, the operator gets an indication from the Integrated PLC screen (light and message) that the conveyor is ready to index. The operator initiates the system beginning the batching sequence. For this application, the actual indexing of the conveyor is being done manually, via a foot switch. The conveyor indexes to the first feeder station. If material is part of the batch, the designated feeder will be displayed and begin batching. As each batch is completed, an ingredient inclusion label is printed and placed on the bag by the operator. The operator is then ready for the next bag to be indexed.

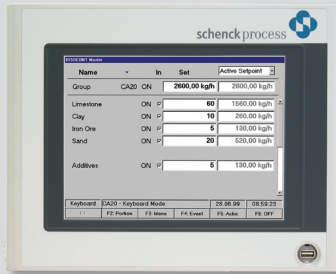
In the event there is a problem on any one batch, the system will detect a deviation, alarm the operator, and give them the opportunity to either accept the deviation and continue or reject the specific batch.

RESULTS

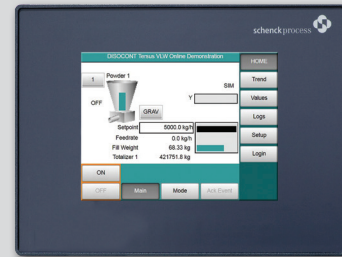
Schenck Process designed and built a system that automated the customer's batch process, reduced the time needed to prepare an entire shift of recipes from six hours down to 45 minutes, improved ergonomic conditions for the employees and significantly reduced the amount of dust generated by eliminating the hand weighing method procedure.



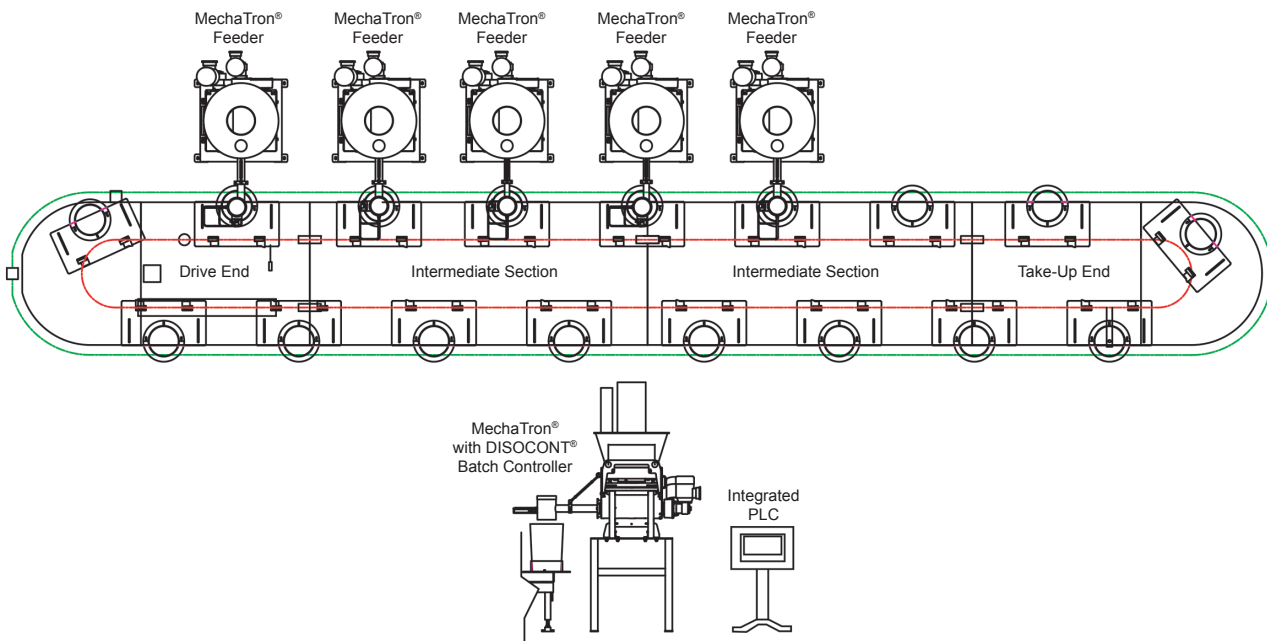
MechaTron® MC
(mid-range)



Integrated PLC



DISOCONT® Batch Controller



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