

HARTMAN SCALE CO., INC.

WEIGHING AND CONTROL SYSTEMS
DESIGN • FABRICATE • PROGRAM • SERVICE

HSC

ALLOY BATCH SYSTEMS

1-800-443-1164 or 215-257-7067 • 100 North Seventh Street, Perkasie, PA 18944



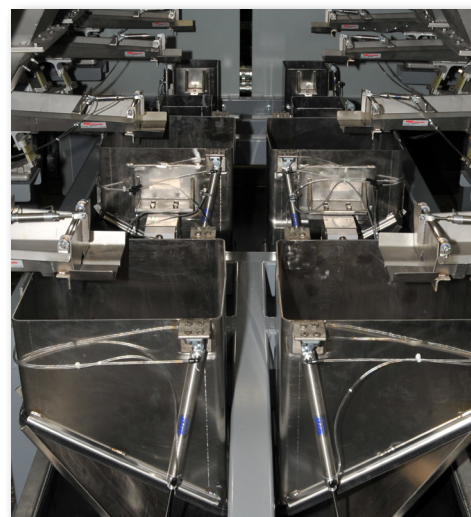
Hartman Scale will design, build and program a system for any number of ingredients and can include support equipment such as powder feeders, tumblers, and/or bucket elevators to move products to customers process.

**Discuss your batching application with us at:
1-800-443-1164 or e-mail to: sales@hartmanscale.com.**

Minor feed systems include: Surge hopper, Transition, Vibrator, Feeder tray, Weigh hopper and related PLC controls. The feeder and weigh hopper are sized to provide desired feed rate and weighing accuracy. The minor ingredient stand can contain up to eight individual ingredients. This module is built to be completely wired and plumbed and tested prior to shipment and is designed to fit standard shipping containers for shipments overseas.



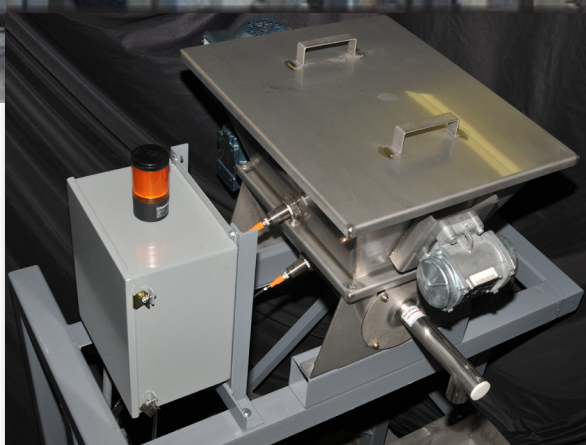
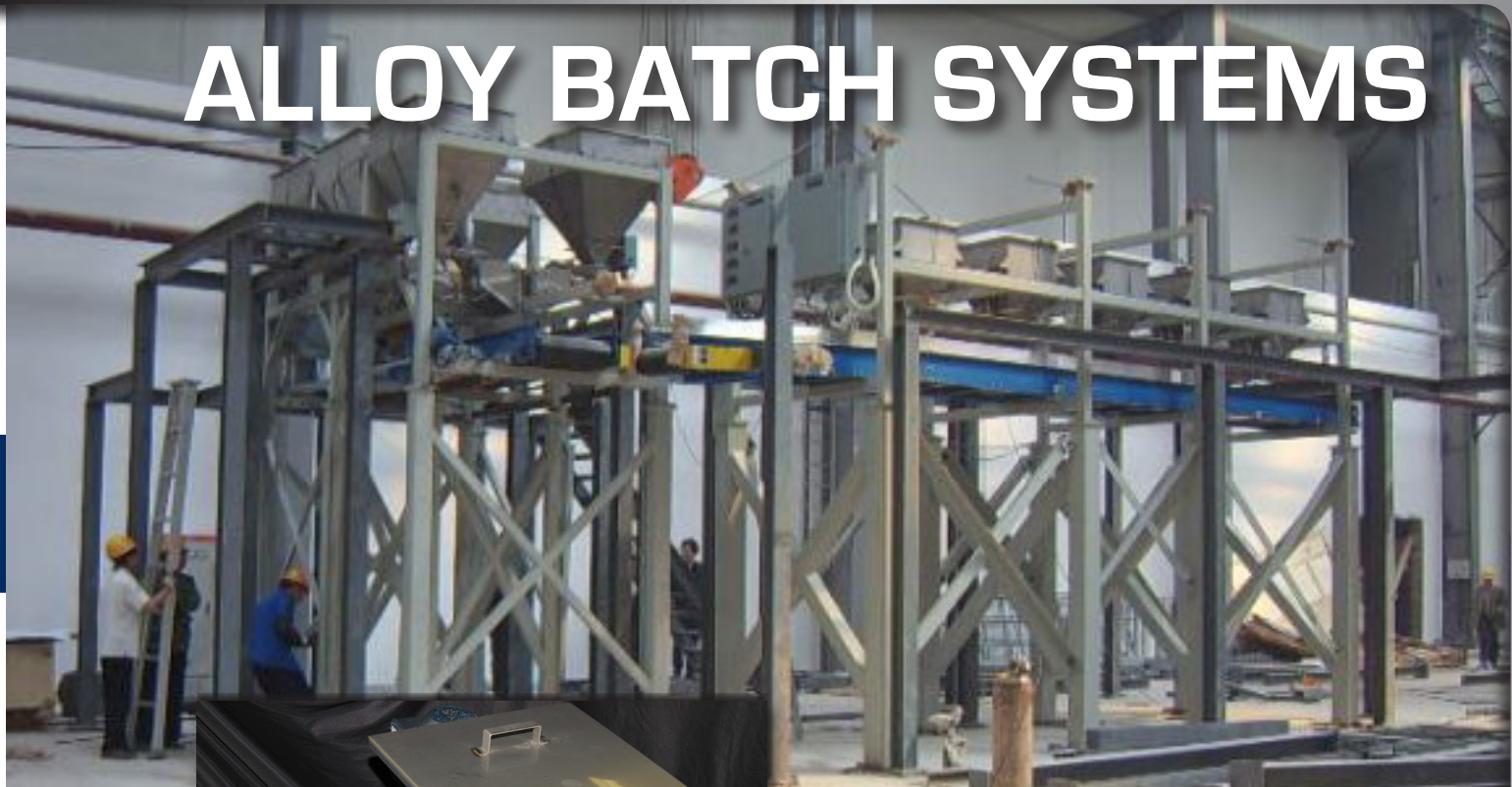
This end view of the minor system shows eight ingredient systems and weigh hoppers ranging from 1KG to 30KG capacities. All of the weigh hoppers are dumped on the belt conveyor that runs under the row of weigh hoppers. The discharge of the hoppers is controlled by pneumatic cylinders with flow controls. The Conveyor belt includes skirts and speed sensor to monitor operation before hoppers discharge. The belt conveyors discharge the products into the "Re-Weigh" hopper, which provides a check weight to confirm discharge of all ingredients.



Surge hoppers can be built to different hold capacities (Typically 5, 10, and 15 cubic foot hold capacity) and are available in carbon steel or 304 stainless steel. Each hopper includes a hinged cover lid with handle and gas springs to assist in opening and closing. Most of our systems employ multiple hoppers in a range of sizes.



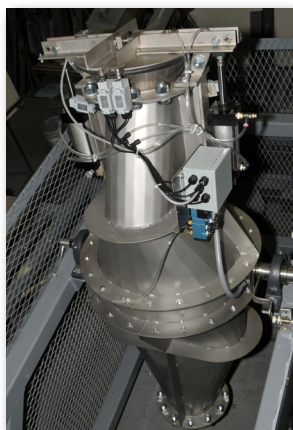
ALLOY BATCH SYSTEMS



Screw feed systems can feed ingredients, such as TiO_2 , into the batch. The screw feed system includes a screw properly sized to deliver the amount at the desired feed rate, hold hopper, vibrator, high and low level lights to alert operator when refill is needed, and control panel for pneumatic and electrical connections to PLC. Hopper includes removable lid.



PLC control panels utilize the Allen Bradley PLC family and can be either the SLC or Control Logix package. All controls are pre-wired and tested at the factory. All systems include remote programming capabilities.



Tumblers are provided to mix all of the pre-weighed ingredients and utilize variable speed control to control the speed and duration of the mixing. A specially-designed discharge gate, pneumatically actuated with locks and sensors for monitoring, is used to load and unload the tumbler.



The weighing system includes load cells, summing junction box, digital weight indicator (or direct PLC scale card), and communication module to PLC. All scales are NTEP approved and are fully tested with certified test weights. Automatic calibration cycles are available as an option, as well as automatic test weigh application to verify scale accuracy at the touch of a button.

HARTMAN SCALE CO., INC.



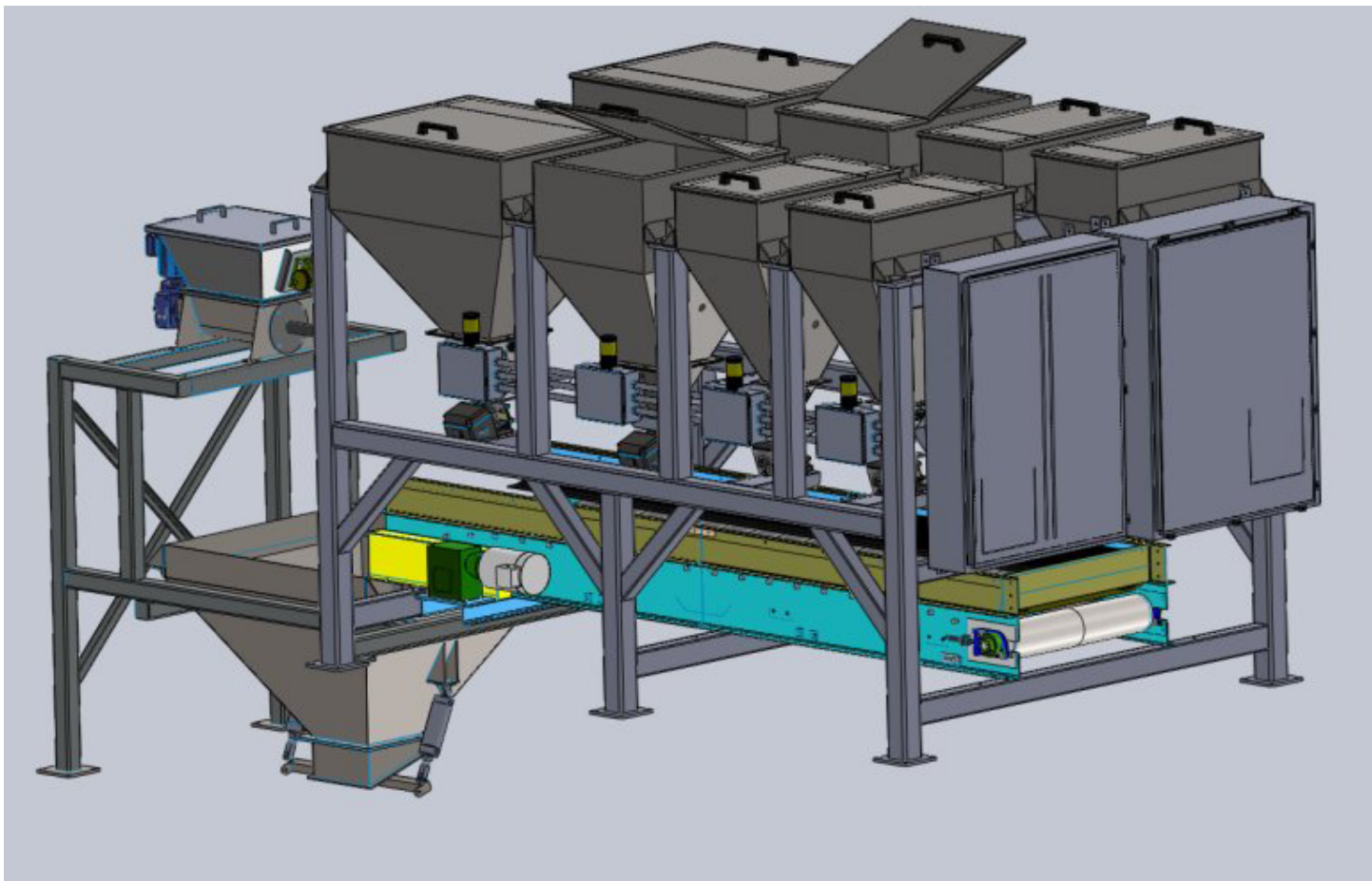
WEIGHING AND CONTROL SYSTEMS
DESIGN • FABRICATE • PROGRAM • SERVICE

Alloy Batch System Reporting Capabilities

Compact Report

Compact Lot Number: CompactLotNumber

Completion Time	Compact Number	Alloy 1		Alloy 2		Alloy 3		Alloy 4		Alloy 5		Alloy 6		Alloy 7		Alloy 8		Alloy 9		Alloy 10		TIO2		Name
		Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
1/16/2009 9:41:03 AM	1	10.00	10.00	12.50	12.49	13.00	13.00	14.00	14.05	15.00	15.03	16.00	15.99	23.79	23.80	31.72	31.94	34.57	34.66	0.00	0.00	0.00	0.00	GR2-Production 20
1/16/2009 10:10:53 AM	2	10.00	9.99	12.50	12.54	13.00	13.01	14.00	14.00	15.00	15.05	16.00	16.20	23.79	23.84	31.72	31.72	34.57	34.81	0.00	0.00	0.00	0.00	GR2-Production 20
1/16/2009 10:13:36 AM	3	10.00	9.99	12.50	12.48	13.00	13.01	14.00	13.98	15.00	15.02	16.00	16.98	23.79	23.88	31.72	31.91	34.57	34.92	0.00	0.00	0.00	0.00	GR2-Production 20
1/16/2009 10:23:20 AM	4	10.00	10.01	12.50	12.49	13.00	12.99	14.00	14.03	15.00	15.00	16.00	16.01	23.79	23.82	31.72	32.03	34.57	34.57	0.00	0.00	0.00	0.00	GR2-Production 20
1/16/2009 10:25:38 AM	5	10.00	10.01	12.50	12.51	13.00	13.00	14.00	14.01	15.00	14.99	16.00	16.02	23.79	23.79	31.72	31.79	34.57	34.58	0.00	0.00	0.00	0.00	GR2-Production 20
1/16/2009 10:41:46 AM	6	10.00	10.01	12.50	12.50	13.00	12.99	14.00	14.00	15.00	15.01	16.00	15.99	23.79	24.00	31.72	31.75	34.57	34.87	0.00	0.00	0.00	0.00	GR2-Production 20



WWW.HARTMANSCALE.COM

1-800-443-1164 or 215-257-7067 • 100 North Seventh Street, Perkasie, PA 18944