

THE PLEX SMART MANUFACTURING PLATFORM™

BATCH MANAGEMENT

for Process Manufacturers

In process manufacturing, batch management represents the execution of a particular job operation in small quantities called “batches” that will meet the overall job operation quantity.

Generally, batch scheduling and production applies when the workcenter is a cooking or mixing vessel that has a maximum capacity, like a 500-pound tumbler, a 1,000-gallon blender, or a 100-liter cooking pot. All ingredients are scaled to the size of the batch, and when the process has completed, the final product and the full batch is discharged at the end.



Plex's Batch Management capability enables flexible scheduling of production runs using kettles, mixers, or other equipment with fixed capacities. Additionally, Batch Management in Plex allows for:

- Optimization of equipment utilization via parallel scheduling and execution of batches (and associated pre-process batches), which can be scheduled to maximize capacity utilization and/or minimize WIP inventory
- Coordination of scheduling and execution of pre-process operations such as spice mixes, wet ingredients, dry ingredients, and prepped vegetables
- Reduction of material and yield losses through control of pre-process containers and ingredients as they are added to the batch, with upper and lower tolerance limits
- Yield reporting by batch
- Consolidation of multiple jobs by offering the ability to create one single job containing all pre-process and packaging operations

Let's break it down.

Bernie's Brownie Company needs to fulfill an order for 500 cases of brownies which requires 1,750 pounds of brownie mix to be produced. The production facility features several mixers with different capacities: two 300-pound mixers and two 500-pound mixers. The requirement for 1,750 pounds of brownie mix can be fulfilled in a variety of ways using Batch Management in Plex.

Option 1: Produce the exact quantity needed for the order using five batches on Batch Mixer 1 and Batch Mixer 2 working in parallel.

JOB ADD JOB OPERATIONS DETAIL

JOB ADD JOB OPERATIONS -

Specify a Workcenter to Schedule selected Operations. Operations without specified workcenter must be scheduled manually.

Op No	Operation Code	Add Operation	Job Op Quantity	Unit	Workcenter	Scheduled	Capacity	Minimum Batch Size	Split Type	Scheduled Quantity	Batch Count	Last Batch Size
10	Prep Wet	<input checked="" type="checkbox"/>	1,750	lbs	Prep ...							
20	Prep Dry	<input checked="" type="checkbox"/>	1,750	lbs	Prep Dry							
30	Batch (Lb)	<input checked="" type="checkbox"/>	1,750	lbs	Batch	<input type="checkbox"/>	500	300				
					Batch Mixer 1	<input checked="" type="checkbox"/>	300	100	Even	750	3	250
					Batch Mixer 2	<input checked="" type="checkbox"/>	500	300	Even	1,000	2	500
					Batch Mixer 3	<input type="checkbox"/>	300	200				
40	Assembly (FG) - lbs	<input checked="" type="checkbox"/>	1,750	lbs	Stand...							

Option 2: Fully utilize the capacity of the 300-pound mixer by increasing the scheduled quantity to 1,900 pounds and packing off the excess 150 pounds as WIP against future requirements.

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10	Prep Wet	<input checked="" type="checkbox"/>	1,750	lbs	Prep ...							
20	Prep Dry	<input checked="" type="checkbox"/>	1,750	lbs	Prep Dry							
30	Batch (Lb)	<input checked="" type="checkbox"/>	1,750	lbs	Batch	<input type="checkbox"/>	500	300				
					Batch Mixer 1	<input checked="" type="checkbox"/>	300	100	Even	900	3	300
					Batch Mixer 2	<input checked="" type="checkbox"/>	500	300	Even	1,000	2	500
					Batch Mixer 3	<input type="checkbox"/>	300	200				
40	Assembly (FG) - lbs	<input checked="" type="checkbox"/>	1,750	lbs	Stand...							

Based on the exact scheduled quantity for each mixer, Plex Batch Management automatically scales ingredients for pre-process operations to the size of each batch, making execution of batches foolproof for operators.

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<div> <div>Edit</div> <div>Print</div> <div>Export As</div> <div>Add Job Op Batch Container</div> <div>Edit Job Op Batch Container</div> <div>Reschedule Batches</div> </div>												
Job No	Op No	Operation Code	Batch No	Batch Size	Unit	Status	Workcenter	Serial No	Quantity	Component Part	Depletion Quantity	Depletion Unit
	20	Prep Dry	1	300	lbs	Active	Prep Dry			Baking Flour	111	lbs
										Cocoa	24	lbs
										Sugar	54	lbs
			2	300	lbs	Active	Prep Dry			Baking Flour	111	lbs
										Cocoa	24	lbs
										Sugar	54	lbs
			3	300	lbs	Active	Prep Dry			Baking Flour	111	lbs
										Cocoa	24	lbs
										Sugar	54	lbs
			4	500	lbs	Active	Prep Dry			Baking Flour	185	lbs
										Cocoa	40	lbs
										Sugar	90	lbs
			5	500	lbs	Active	Prep Dry			Baking Flour	185	lbs
										Cocoa	40	lbs
										Sugar	90	lbs

Operator control panel view: A simple display with sections for each batch size that is to be produced, allowing for entry of actual component and output quantities to support yield management.

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PLEX

Bresler, Jim

Plex Control Panel Testing

Record Production

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Source Inventory

Current Production

Scrap Log

Checklists

Operators

BOM Updates

LOAD SOURCE

Input Serial No to load source material.

WORKCENTER STATUS

Prep Dry

Browne Batch-20

20 - Prep Dry

Browne Batch

Job 197

Running Production

0 / 1,780 lbs

Primary User: Jim Bresler

BATCH SIZE 300.00

Record Production

Batch No 1

Batch Info 1 / 3

CONTAINER INFO

Quantity 150.00 lbs

Status OK

Part No	Quantity	Lower	Standard	Current	Upper
✓ Sugar	60 lbs	54	60	0	63
✓ Baking Flour	120 lbs	111	120	0	123
✓ Cocoa	30 lbs	24	30	0	36

BATCH SIZE 500.00

Record Production

Batch No 4

Batch Info 1 / 2

CONTAINER INFO

Quantity 150.00 lbs

Status OK

Part No	Quantity	Lower	Standard	Current	Upper
✓ Sugar	100 lbs	90	100	0	105
✓ Baking Flour	200 lbs	185	200	0	205
✓ Cocoa	50 lbs	40	50	0	60

“With Plex Batch Management, it is all about scheduling optimization. The more that we can schedule, the more efficiently we can run the lines. With Plex Batch Management, we have total productivity, efficiency, and scaling capabilities.”

– Christopher Marks, ERP Manager at Old World Spices

Watch the video [here](#)