

BATCHING SYSTEMS



Bachelor Controls, Inc.

Systems Integration for Manufacturing

BCI BATCH ENGINE™
MES Solution Suite for Batching Applications

Batching Systems and Controls

Batching expertise designed with the entire production process in mind

Bachelor Controls – utilizing more than 20 years of batching experience – designs a batch control system to do more than just control your batch process. Our goal is to provide you with flexibility in recipe design, to optimize your cycle times and equipment utilization, and to provide data collection and management. In short, we seek to maximize the overall efficiency of your production process.

Automatic Pre-Act Tuning for Precise Accuracy

Every ingredient has its own pre-act history, developed by monitoring performance at each location/destination. During use, the pre-act history and performance information is continually updated to compensate for system variations and achieve precise weigh-ups. The accumulated history for each ingredient location and destination is saved with its current history for future use.

- Enhanced Accuracy
- Unlimited Recipe/Formula Management and Editing (with Version Control)
- Lot Tracking and Bar Coding
- Microsoft SQL Server Backbone
- Advanced Diagnostics and Smart Messaging
- Scalable and Expandable System Architecture
- Flexible and Scalable Programming Code Structure
- Flexible Reporting
- On-Line Help/Troubleshooting

Business Enterprise System

BCI BATCH ENGINE™
MES Solution Suite

Advanced Recipe Editing and Management

Link to QA for tighter recipe control. Microsoft SQL Server is the repository for all recipe parameters, so client terminals can be strategically located throughout the corporate network to provide control and guidance for the batching operators.

Bar Code and Lot Tracking — Ingredient Genealogy

Bar coding, coupled with classic database methodologies, provides ingredient validation plus the means for convenient data access. Get the information you need for yield analysis, recall bracketing, vendor evaluation, genealogy and more.

BCI SOLUTIONS
HMI/PLC/Controls

'Plant Floor to Top Floor' Interface (MES Integration)

Leveraging technology and relationships with Rockwell Automation, Microsoft and its own *BCI BATCH ENGINE™*, BCI can connect your plant floor applications to your company's business management/enterprise-level software, linking orders to production and giving you the near real-time information you need to manage your company and make critical business decisions.

- Ingredient Inventory Management
- Campaign Management
- Formula Editor
- Robust Reporting

Flexible and Expandable Code Structures

Using the BCI library of code structures and procedures allows us to economically deliver a full-featured, intuitive system with growth and expansion inherently built into both the hardware and the delivered software for better life-cycle value.

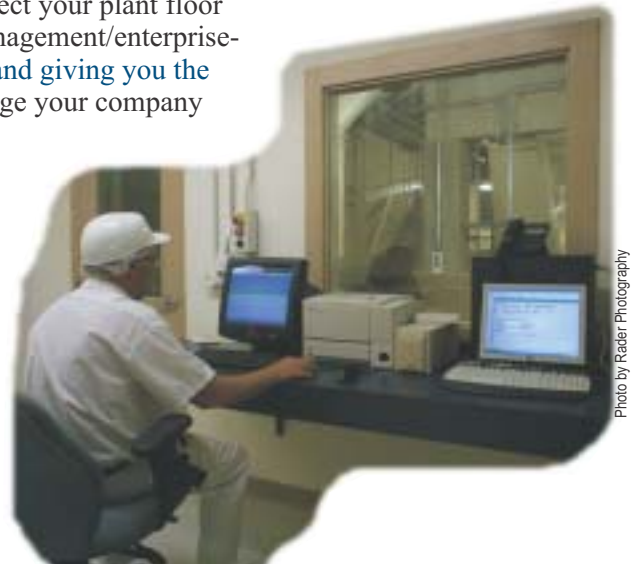


Photo by Rader Photography



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Inventory Report

Location	Source ID	Ingredient	Description	Ticket Number	Ticket Quantity	Move Date	Status
BD2010	BD2010	YST001	YEAST FOOD	5194	10000	11/30/2001	VALID
BD6200	BD6200	SHT001	SHORTENING	5195	10000	11/30/2001	VALID
BD6300	BD6300	MILK001	MILK SOLIDS	5196	10000	11/30/2001	VALID
BD6400	BD6400	SLS001	SULFONOLYLS	5197	10000	11/30/2001	VALID
BD9100	BD9100	PWD001	BAKING POWDER	5198	10000	11/30/2001	VALID
BD9200	BD9200	DMS001	DMS	5200	10000	11/30/2001	VALID
BD9600	BD9600	EGG001	EGG SOLIDS	5201	10000	11/30/2001	VALID
BD9700	BD9700	FLV001	FLAVORING	5201	10000	12/05/2001	VALID
S1100	S1100	FLR001	FLOUR	9058	10000	12/05/2001	VALID
S1200	S1200	SLT001	SALT	9059	38027	12/05/2001	VALID
S1300	S1300	SUG001	SUGAR	9217	44260	12/05/2001	VALID
SB3020	SB3020	WTR001	WATER	9593	9599	12/05/2001	VALID
SB3120	SB3120	YST002	YEAST	9057	8959	12/05/2001	VALID
SB3220	SB3220	BRM001	BR/MATES	5203	7999	12/05/2001	VALID
SB3320	SB3320	CAL001	CAL PROPORTIONAT	5199	8000	12/05/2001	VALID

Calculated Inventory

Location	Source ID	Ingredient	Description	Ticket Number	Ticket Quantity	Move Date	Status
BD2010	BD2010	YST001	YEAST FOOD	5194	10000	11/30/2001	VALID
BD6200	BD6200	SHT001	SHORTENING	5195	10000	11/30/2001	VALID
BD6300	BD6300	MILK001	MILK SOLIDS	5196	10000	11/30/2001	VALID
BD6400	BD6400	SLS001	SULFONOLYLS	5197	10000	11/30/2001	VALID
BD9100	BD9100	PWD001	BAKING POWDER	5198	10000	11/30/2001	VALID
BD9200	BD9200	DMS001	DMS	5200	10000	11/30/2001	VALID
BD9600	BD9600	EGG001	EGG SOLIDS	5201	10000	11/30/2001	VALID
BD9700	BD9700	FLV001	FLAVORING	5201	10000	12/05/2001	VALID
S1100	S1100	FLR001	FLOUR	9058	10000	12/05/2001	VALID
S1200	S1200	SLT001	SALT	9059	38027	12/05/2001	VALID
S1300	S1300	SUG001	SUGAR	9217	44260	12/05/2001	VALID
SB3020	SB3020	WTR001	WATER	9593	9599	12/05/2001	VALID
SB3120	SB3120	YST002	YEAST	9057	8959	12/05/2001	VALID
SB3220	SB3220	BRM001	BR/MATES	5203	7999	12/05/2001	VALID
SB3320	SB3320	CAL001	CAL PROPORTIONAT	5199	8000	12/05/2001	VALID

Ingredient Inventory Management

- Inventory relief is made as actual values of metered ingredients are metered into batch
- Capability for inventory adjustments is included for variances between calculated and actual
- Inventory Report is included for hard copy record of on-hand ingredients

I am impressed with both the design and the project management skills delivered by Bachelor Controls to create a highly functional, user-friendly, and extremely performant batching system for Natura Manufacturing.

Don Scott
Vice President of Manufacturing
Natura Pet Products

Campaign Management

- Select formula and total quantity for the run
- Campaign Manager automatically applies rules, calculates and develops a "campaign" (a series of related batches) to complete the order
- Campaign Manager posts newly created campaign to the Campaign View screen for manipulation, drill-down and reporting

Bachelor Controls was extremely thorough while gathering the information they needed to design a new batch control system for our plant. Not only did BCI deliver what we specified, but the start-up went so smoothly, it took very little of our staff's time to support it.

Jeff Lang
Vice President
DAD'S Products

Campaign View

Campaign ID	Formula ID	Formula Description	Campaign Status
C2001082402	BRD001	WHITE BREAD	FINISHED
C2001096401	BRD001	WHITE BREAD	FINISHED
C2001096402	BRD001	WHITE BREAD	FINISHED
C2001096403	BRD001	WHITE BREAD	FINISHED
C2001096404	BRD001	WHITE BREAD	FINISHED
C2001096405	BRD001	WHITE BREAD	FINISHED
C2001096406	BRD001	WHITE BREAD	FINISHED
C2001096407	BRD001	WHITE BREAD	FINISHED
C2001096408	BRD001	WHITE BREAD	FINISHED
C2001096409	BRD001	WHITE BREAD	FINISHED
C2001096601	BRD001	WHITE BREAD	FINISHED
C2001120501	ROL001	WHITE BREAD	FINISHED

Campaign Manager

Campaign ID: C2001120601

Formula: BRD001

Production Quantity: ROL001, CAK001, PZL001

Batch View

- Display batch details for a campaign
- Manipulate individual batches
- Put an entire campaign on "Campaign Hold"
- View ingredient breakdown specifics

Batch View

Batch Date	Campaign ID	Batch Number	Formula ID	Formula Description	Campaign Quantity	Batch Size	Batch Status
08/24/2001	C2001082402	001	BRD001	WHITE BREAD	4000	1000	COMPLETE
08/24/2001	C2001082402	002	BRD001	WHITE BREAD	4000	1000	COMPLETE
08/24/2001	C2001082402	003	BRD001	WHITE BREAD	4000	1000	RUNNING
08/24/2001	C2001082402	004	BRD001	WHITE BREAD	4000	1000	RUNNING

Ingredient View

Campaign ID: C2001082402 Formula ID: BRD001
Formula Description: White Bread

Ingredient ID	Ingredient Description	% of Formula	Bin Number
FLR001	FLOUR	56	S1100
WTR001	WATER	35	SB3020
YST002	YEAST	2.2	SB3120
SHT001	SHORTENING	1.7	BD6200
SUG001	SUGAR	1.7	S1300
SLT001	SALT	1.5	S1200
MILK001	MILK SOLIDS	1.1	BD6300
BRM001	BR/MATES	0.4	SB3220
YST001	YEAST FOOD	0.4	BD2010

Pre-Weigh View

- Display pending batches and their respective Pre-Weigh requirements
- View breakdown for Pre-Weigh components
- Add bar codes for product validation

BCI's experience and unequalled referrals convinced us they had sufficient depth to ensure the system would exceed our expectations.

Dean Becker
Livestock and Nutritional Specialist
Nemaha County Coop

Formula Editor

Formula ID: BRD001 Formula Description: WHITE BREAD RSBatch ID: AZO_RECIP_1 Default Batch Size: 1000 lbs Destination: Line 1

Ingredient ID	Description	Percentage	Hand Add
BRM001	BR/MATES	0.4	NI
CAL001	CAL PROPORTIONAT	0.4	NI
CHM001	SHORTENING	1.7	NI
EGG001	EGG SOLIDS	1.1	NI
FLV001	FLAVORING	1.7	NI
MILK001	MILK SOLIDS	1.1	NI
PWD001	BAKING POWDER	1.7	NI
SLS001	SULFONOLYLS	1.1	NI
FLR001	FLOUR	56	NI
YST001	YEAST FOOD	0.4	NI
YST002	YEAST	2.2	NI

Parameter

Parameter ID: Value: Units:

Formula Editor

- Maintain version control as you edit existing recipes and create new ones
- Modify/add/delete ingredients
- Allows for the inclusion of parameters such as mixing, cooling, heating, etc. (ISA S88 model batching)

Easy as 1...2...3

1. select the formula
2. set the quantity
3. start the system





Guidance for today's business climate.

Organizational values, production goals and systems design all work together to create a unique and complex interaction of forces. It is important to find a systems integrator who can negotiate these factors on your behalf to find the most effective solution for your business and your processes.

At Bachelor Controls, we understand that your project is unique and carries a significant amount of risk for your organization. You need a systems integrator you can trust to provide the leadership necessary to guide you through the risk associated with automating your systems and processes.

Trust is something that must be earned. We strive to earn it every day.

Our best customers trust us and see us as an integral extension of their staff. They know that we are working in their best interest, keeping them on track with the latest technology and best practices.

We work to continuously improve our processes and methodologies, formulating and documenting a set of best practices. Combined with our extensive experience managing nearly 1,800 projects, our project management procedures enable us to create repeatable, predictable results that positively affect your bottom line.

Our reputation extends outside our customers to the industry at large. Some of the best equipment manufacturers in the industry have placed their trust in us to exclusively provide the controls for their best products.

A licensed engineering firm, Bachelor Controls is well-respected by the leaders in the automation industry and has been recognized as a Charter CSIA Certified Member, Charter Rockwell Automation Solution Provider, and Microsoft Certified Partner.

Leveraging our experience and strategic partnerships, we are a single-source point of contact you can trust to provide the solutions you need to succeed in today's business climate.



Bachelor Controls, Inc.

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