

CASE STUDY

in

Wittmann

Battenfeld

POWDER
Increasing efficiency by

eliminating waste
AUTOMATIC

ROTO

LOAD

Question... What is POWDER AUTOMATION?

Answer... It is the reduction of labor.

Example... Eliminate the MANUAL delivery of powder to each production machine.

Increasing efficiency by eliminating waste

Question... What is POWDER AUTOMATION?

Answer... It is the reduction of labor.

Example... Eliminate the manual weighing of powder into buckets.

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Question... What is POWDER AUTOMATION?

Answer... It is the reduction of labor.

Example... Eliminate the manual dispensing of powder into the mold.

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Question... What is POWDER AUTOMATION?

Answer... It is the reduction of material loss.

Example... Eliminate powder on the floor and around workspaces.

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Question... What is POWDER AUTOMATION?

Answer... It is the reduction of material loss.

Example... Eliminate powder cross contamination.

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Question... What is POWDER AUTOMATION?

Answer... It is the reduction of scrap parts.

Example... Eliminate OVER / UNDER weight parts.

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Question... What is POWDER AUTOMATION?

Answer... It is the reduction of scrap parts.

Example... Eliminate employee error.

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Question... What is POWDER AUTOMATION?

Answer... It is the automated movement of raw materials from a source to a destination.

Example... Eliminate towmotor traffic.

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Question... What is POWDER AUTOMATION?

Answer... It is the automated movement of raw materials from a source to a destination.

Example... Create a Material Kitchen.

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POWDER AUTOMATION

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Question... What is POWDER AUTOMATION?

Answer... It is the solving of problems with simple and creative engineering.

Customer... PELICAN-HARDIGG, South Deerfield, Massachusetts.

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POWDER AUTOMATION



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Primary Goals...

Goal 1...Reduce Labor.

Goal 2...Improve Safety.

Goal 3...Increase Part Accuracy.

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POWDER AUTOMATION



Primary Goals...

Goal 1...Reduce Labor.

Request...Allow as many staff as possible to be reassigned to other tasks.

(2) Machines running 3 shifts

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Primary Goals...

Goal 2...Improve Safety.

Request...Eliminate the bending into gaylords to scoop material.

Request...Eliminate the breathing in of powder.

Request...Use existing buckets/totes.

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Primary Goals...

Goal 3...Increase Part Accuracy.

**Request...Eliminate UNDERWEIGHT and
OVERWEIGHT parts.**

Request...Use existing buckets/totes.

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POWDER AUTOMATION

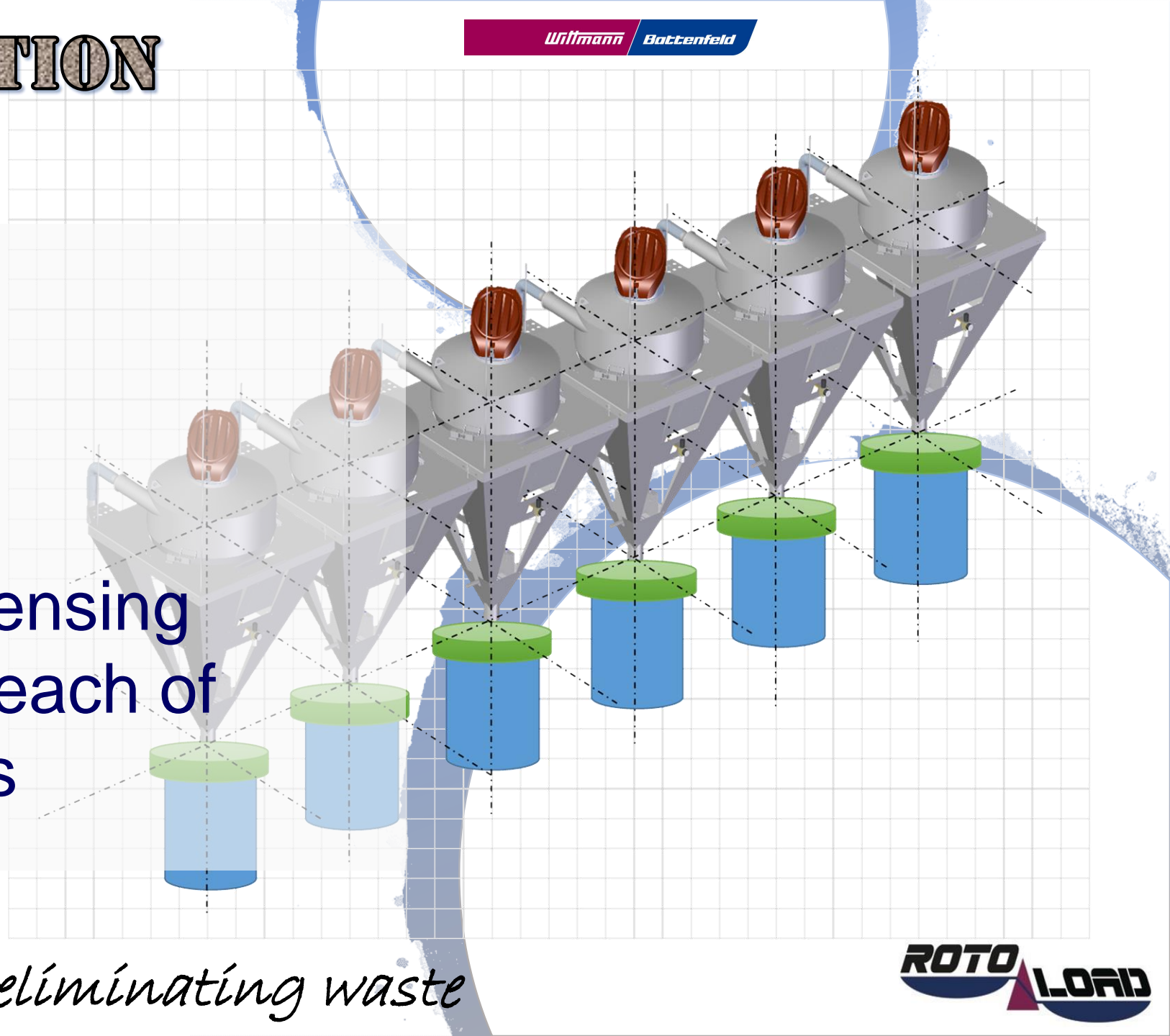


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Initial Concept...

Proposed...

(6) Six color loading/dispensing systems for each of (2) machines



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POWDER AUTOMATION



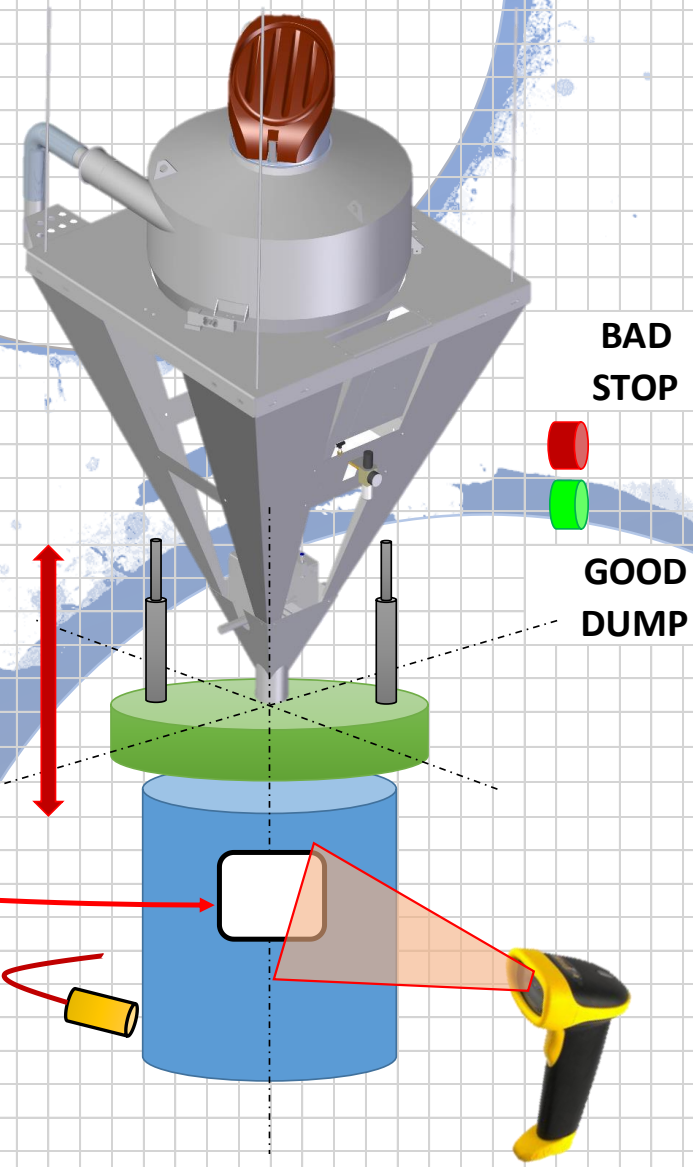
Initial Concept...

Proposed...

Automated Bucket
sealing with **BAR CODE**
scanning for recipe
selection



"BUCKET IN PLACE"
SENSOR



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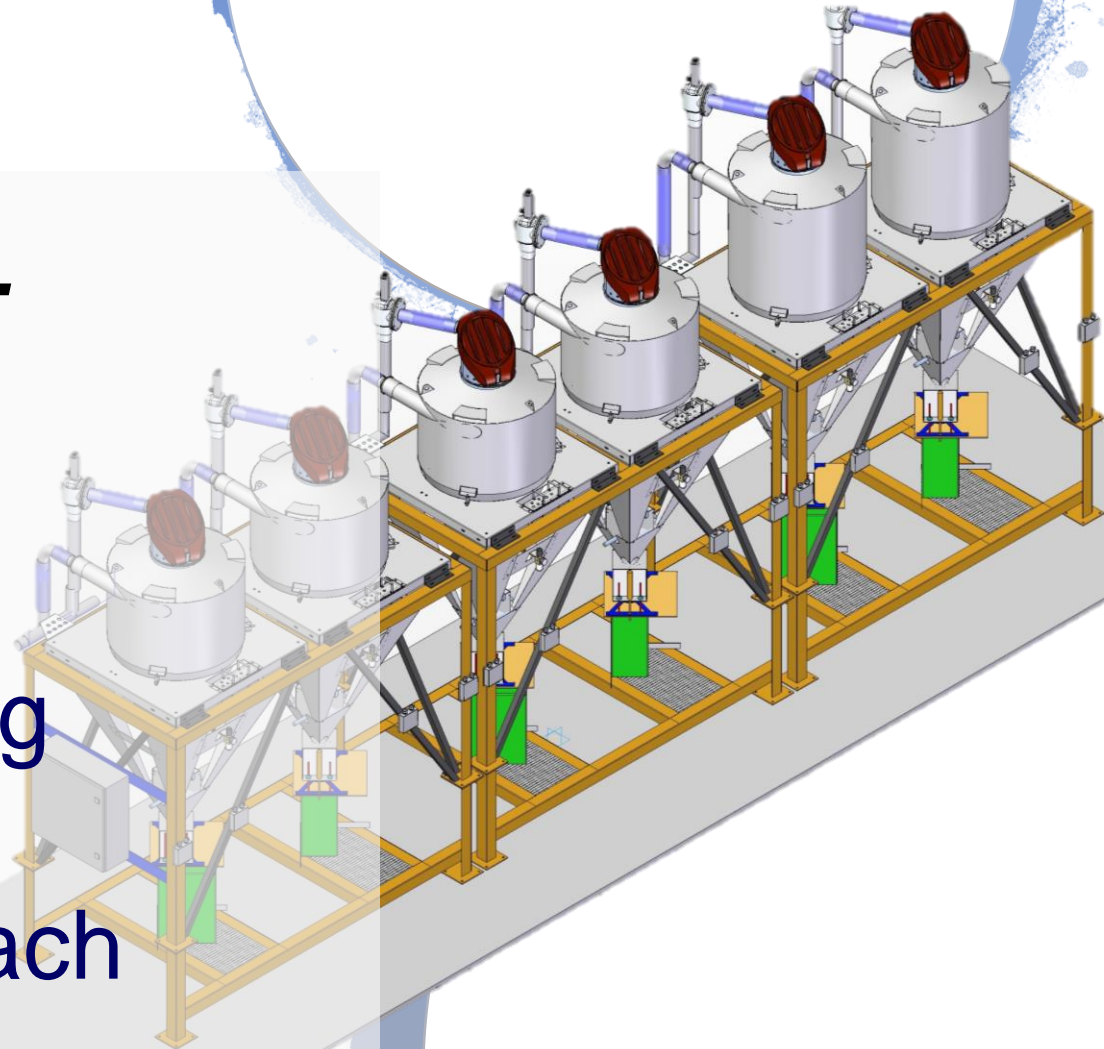
POWDER AUTOMATION



Developed Concept...

Engineered...

(3) Two color
loading/dispensing
systems (factory
assembled) for each
of (2) machines



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POWDER AUTOMATION

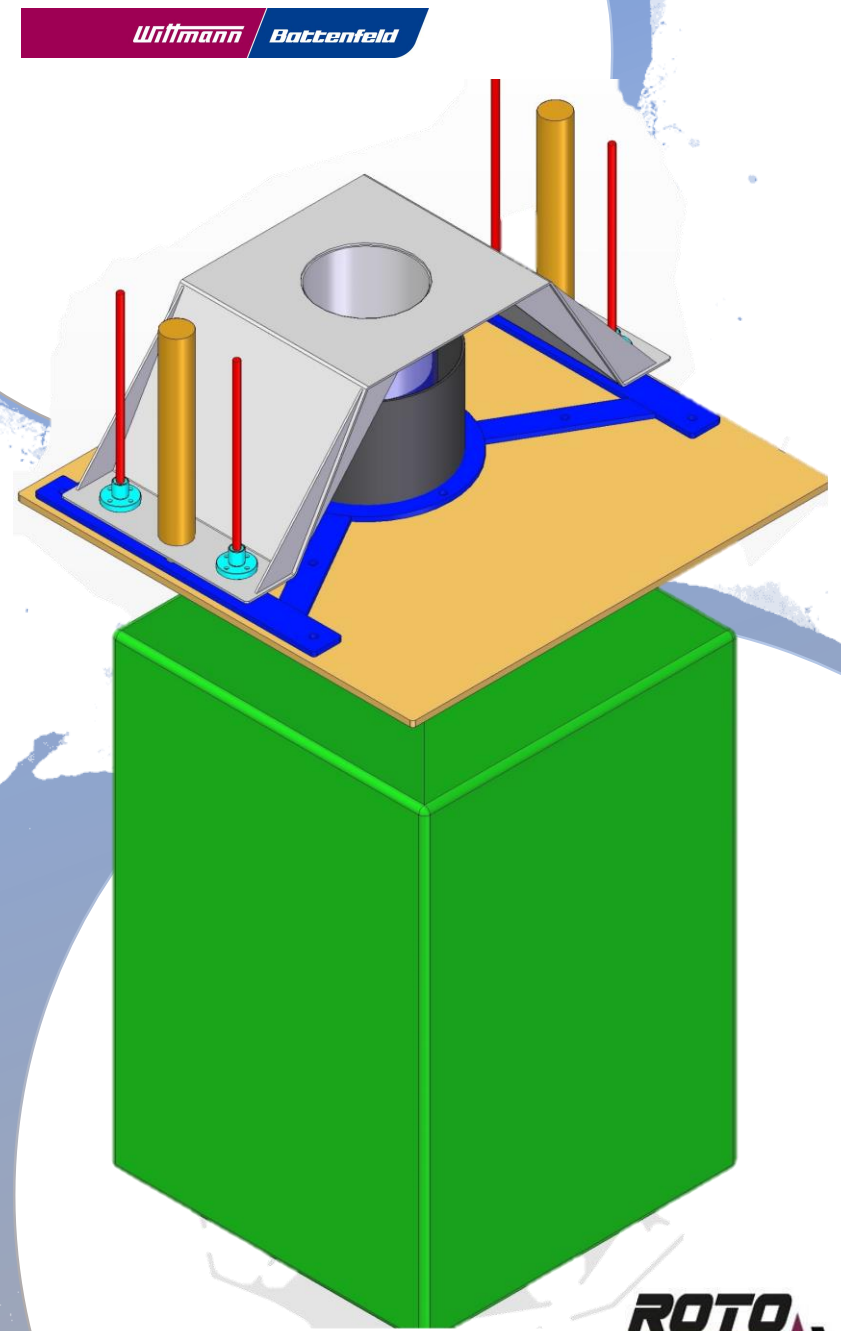


Developed Concept...

Engineered...

(3) Two color
loading/dispensing
systems (factory
assembled) for each
of (2) machines

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ROTO **LOAD**

POWDER AUTOMATION



Developed Quotation...

Quoted...

(1) Complete Powder Loading and Weigh Dispensing System to customer specifications.

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EXECUTIVE SUMMARY					
CUSTOMER: PELICAN PRODUCTS INC.					
QUOTE NUMBER: 12/16-00017- REV 03					
DATE: 20-Feb-17					
ITEM	PG	QTY	DESCRIPTION	LIST COST EA	TOTAL
ROTO 10					
1	8	5	ROTOLOAD 200 - NO CONTROLS	\$ -	\$ -
2	8	1	ROTOLOAD 300 - NO CONTROLS	\$ -	\$ -
3	8	6	PNEUMATIC DUST HOOD SYSTEMS	\$ -	\$ -
4	9	3	DUAL SUPPORT FRAME ASSEMBLIES	\$ -	\$ -
					\$ -
ROTO 12					
5	9	6	ROTOLOAD 200 - NO CONTROLS	\$ -	\$ -
6	9	6	PNEUMATIC DUST HOOD SYSTEMS	\$ -	\$ -
7	9	3	DUAL SUPPORT FRAME ASSEMBLIES	\$ -	\$ -
					\$ -
CONTROL					
8	10	1	(12) ROTOLOAD CONTROL SYSTEM	\$ -	\$ -
					\$ -
PUMP SYSTEM					
9	11	1	XVMX-100	\$ -	\$ -
10	11	1	XVMX-100 - SPARE	\$ -	\$ -
11	11	1	XSBF-1640	\$ -	\$ -
					\$ -
PIPING					
12	12	1	LOT INSTALLATION MATERIALS	\$ -	\$ -
13	12	1	LOT MECHANICAL INSTALLATION LABOR	\$ -	\$ -
					\$ -
OPTIONAL UPGRADES					
13	13	1	DATA RETRIEVAL AND OPC COMMUNICATIONS	\$ -	\$ -
					\$ -
				SUB-TOTAL	\$ -
					\$ -
				TOTAL PROJECT VALUE - US \$	\$ -





Customer Quote...

“I had a lot of pushback from Maintenance and operators who did not believe that I had found a powder system and was making a purchase.”

**Kathy Gorey , Process Engineer,
Pelican Products Inc.**

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POWDER AUTOMATION



Realized Equipment...

System 1...

(6) Powder Loading
and Weigh Dispensing
units to manage (6) SIX
colors.



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Realized Equipment... *System 1...*



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Customer Quote...

“This is the 5th powder system that we have invested in , and it is the only one that has actually worked, and worked well.”

**Kathy Gorey , Process Engineer,
Pelican Products Inc.**

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Realized Equipment... System 1...



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Realized Equipment... **System 1...**



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Customer Quote...

“They have all now apologized to me and they have told me how much they like this powder system.”

Kathy Gorey , Process Engineer,
Pelican Products Inc.

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POWDER AUTOMATION



Realized Equipment...

System 2...

(6) Powder Loading
and Weigh Dispensing
units to manage (6) SIX
colors.



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Realized Equipment... *System 2...*



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Realized Equipment... *System 2...*



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Customer Quote...

“I had faith and watched as you evolved this system for Rotocast.”

**Kathy Gorey , Process Engineer,
Pelican Products Inc.**

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Realized Equipment...

Central Pump System...

(2) Central Vacuum
pumps, (1) ONLINE, and
(1) SPARE.



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Realized Equipment...

Central Materials Area...

(1) Central Material
Kitchen for single
delivery location, away
from production area.



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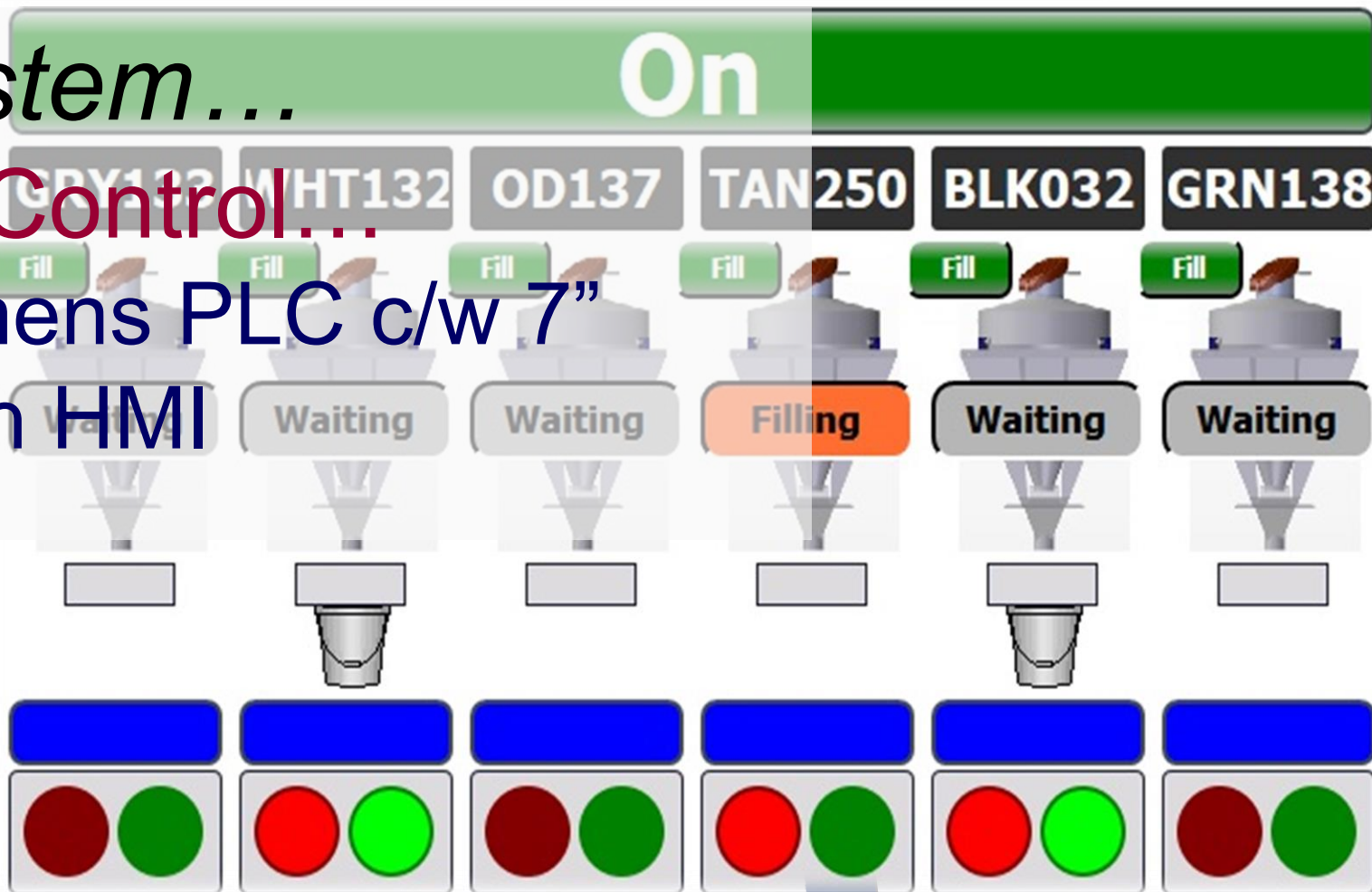


> Overview - Roto12

Control System...

Central Control...

Siemens PLC c/w 7"
touch HMI



Overview

Print
Barcode

Settings

Alarms

Help



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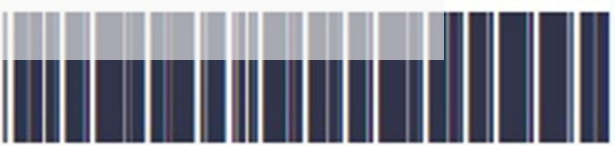
> Print Barcode



Control System...

Central Control...

BAR CODE Generation
and Printing on
ADHESIVE paper

Recipe		Printer Setup	
13	IS3721-11XX		
+10 +	Base	13200 g	
-	GRY133	WHT132	OD137
-10 -	TAN250	BLK032	GRN138
 * 5 - I S 3 7 2 1 - 1 1 X X *			
Print Barcode			

Overview

Recipes

Settings

Alarms

Help

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> RotoLoad Setup - Roto12



Control System...

Central Control...

Individual SET-UP
screens for each color

Fill	Loading	Load	Status
Fill Weight (kgs): 50			GRN138
Fill (s): 300 Dispense (s): 25			 Filling
Filter			
On (ms): 750 Off (ms): 1500			
Pinch Valve			Current: 39.39
Freefall (g): 5000			
Pinch Tuning			Reset
Accumulated Total (kgs): 365			

[Overview](#)
[Print Barcode](#)
[Settings](#)
[Alarms](#)
[Help](#)

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> Recipes

Control System...

Central Control...

RECIPE Navigation
screens for ease of SET-UP

Roto10		Roto12	
525	WITTMANN	22	DL4824-XX04
+10	Base ▾ 15000 g	+10	Lid ▾ 9800 g
+	^ Scan & Edit ^	+	^ Scan & Edit ^
-10	9024-11XX	-10	

**** IMPORTANT ****
Only UPPERCASE letters can be used for recipe names

Overview
Print Barcode
Settings
Alarms
Help

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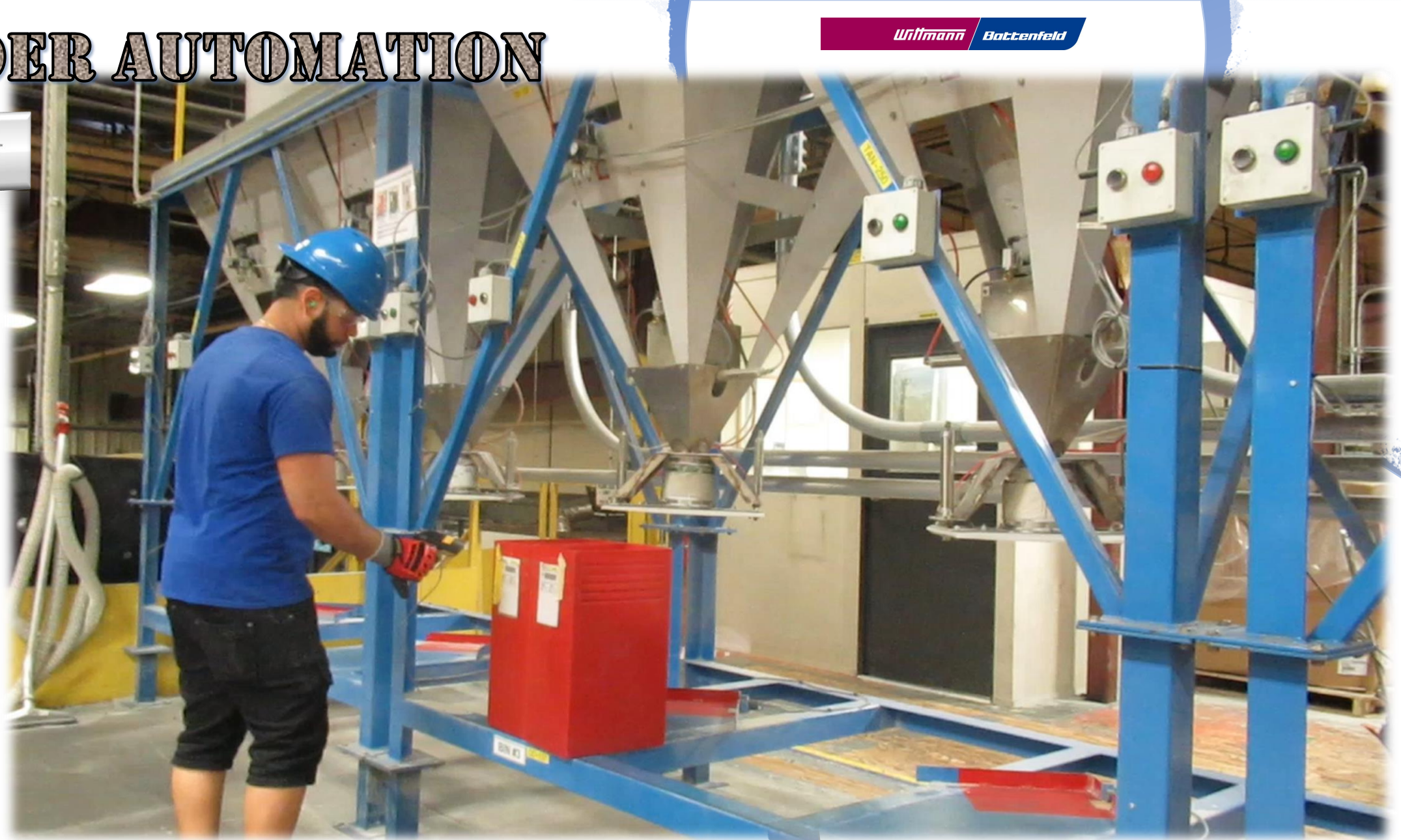
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Customer Quote...

“I am proud to say that this is our system, and we love it!”

**Kathy Gorey , Process Engineer,
Pelican Products Inc.**

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POWDER AUTOMATION



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Primary Goals...

Goal 1...Reduce Labor.

Goal 2...Improve Safety.

Goal 3...Increase Part Accuracy.

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POWDER AUTOMATION



Primary Goals...

Goal 1...Reduce Labor.

Result...Saved (1) ONE full body per shift per machine for a total of (6) SIX full time bodies re-assigned to other tasks.

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POWDER AUTOMATION



Primary Goals...

Goal 2...Improve Safety.

Result...Eliminated the bending into gaylords to scoop material, except for occasional “special” color runs.

Result...Eliminated the breathing in of powder.

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POWDER AUTOMATION



Primary Goals...

Goal 3...Increase Part Accuracy.

**Result...Eliminated scrap due to UNDERWEIGHT
and OVERWEIGHT parts.**

**Result...Used existing buckets/totes to
maintain safe lifting loads.**

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Customer Quote...

“Your company did an amazing job, working with us to create this awesome system!”

**Kathy Gorey , Process Engineer,
Pelican Products Inc.**

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Primary Goals...

Goal 4...Cleaner Machine Platform.

Result...Automation allowed for a more organized platform, creating a safer and less cluttered workspace.

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POWDER AUTOMATION



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Question... What is POWDER AUTOMATION?

Answer... It is the increase in efficiency through the elimination of waste.

Example... Eliminate the delivery of powder to each production machine.

Increasing efficiency by eliminating waste



POWDER AUTOMATION



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Question... What is POWDER AUTOMATION?

Answer... It is the increase in efficiency through the elimination of waste.

Example... It embodies the definition of LEAN Manufacturing principles.

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Question... **How did POWDER AUTOMATION assist in LEAN manufacturing?**



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POWDER AUTOMATION



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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Define Value...The VALUE goal was to manufacture and ship accurate consistent parts for the lowest possible cost.

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POWDER AUTOMATION



Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Delivering Value...POWDER AUTOMATION delivered batch to batch consistency and a reduction in labor expense.

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Value Stream...Mapping all of the steps required to move from POWDER to PARTS

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Value Stream...Simple engineering in POWDER AUTOMATION eliminated several of the common day to day steps.

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Value Stream...Reducing the manual movement of the resin supply.

Eliminating the manual weighing of powder.

Reducing Labor.

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Create Flow...Removing all of the waste and inefficiency from the value stream with POWDER AUTOMATION allowed them to clearly define the process flow.

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Create Flow...A clear and defined process flow utilizing POWDER AUTOMATION is now easier to teach and maintain, ensuring that EVERY step is adding value.

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Pull...With an improved flow, it is now easier to deliver products as needed at a lower cost.

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Pull...With a cleaner, more organized work environment, employees are happier, and safer. Potential output increases

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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Perfection...Making process safety and improvement part of the corporate culture.

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POWDER AUTOMATION



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Question...How did POWDER AUTOMATION assist in LEAN manufacturing?

Perfection...Showing employees that their health and safety is important, and investing in the improvement of the process leads to a dedicated and involved team.

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SPECIAL THANKS...

Wittmann

Battenfeld

Ms. Kathy Gorey, Process Engineer, Pelican
Products Inc.



Mr. Terry Gillian, President, Paladin Sales



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**Thank You
for your**

Kind Attention

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