



Manufacturers Alliance Seminar

## **Kanban Material Flow**

Practical experiences from peers on how to setup material  
delivery systems to flow just-in-time

**Banner Engineering**

**Evan Burgstaler**

Director of Operations



**BANNER**



**BANNER**

## Worldwide Presence



### 1,300+ GLOBAL EMPLOYEES

Banner owes the honor of its market leadership to its inventive product designers, skilled application engineers, and talented employees. These dedicated problem solvers put customer needs first every day. [Join the team!](#)

### 3,500+ REPRESENTATIVES

Banner has a network of more than 3,500 factory and field representatives around the world, as well as the largest force of application engineers in the industry. [Find a distributor near you.](#)

### OFFICES IN 13 COUNTRIES

Headquartered in Minneapolis, MN, Banner has sales offices, production facilities, and field representatives throughout North and South America, Asia, Africa, Australia, and Europe.

## Banner Products – over 40,000 SKUs



### Sensors

- Photoelectric
- Laser
- Ultrasonic
- Registration
- Arrays
- Radar



### Safety

- Light Curtain
- Controllers
- Modules
- Two-Hand
- Interlock
- E-Stop



### Vision

- One piece
- Two Piece
- Black & White
- Color
- Sealed
- Lighting



### Lighting & Indicators

- Illumination
- Indication
- Actuation
- Towers
- Sealed
- Audible



### Wireless

- Cable Replacement
- Serial
- Ethernet
- Temperature
- Vibration
- Solar and Battery

## Industries Supported

**BANNER**



AGRICULTURE



ASSEMBLY AND  
ROBOTICS



AUTOMOTIVE



BEVERAGE



ELECTRONICS



FOOD



MATERIAL HANDLING



MOBILE EQUIPMENT



OIL AND GAS



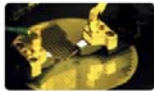
PACKAGING



PHARMACEUTICAL AND  
MEDICAL



PORT MACHINERY



SEMICONDUCTOR



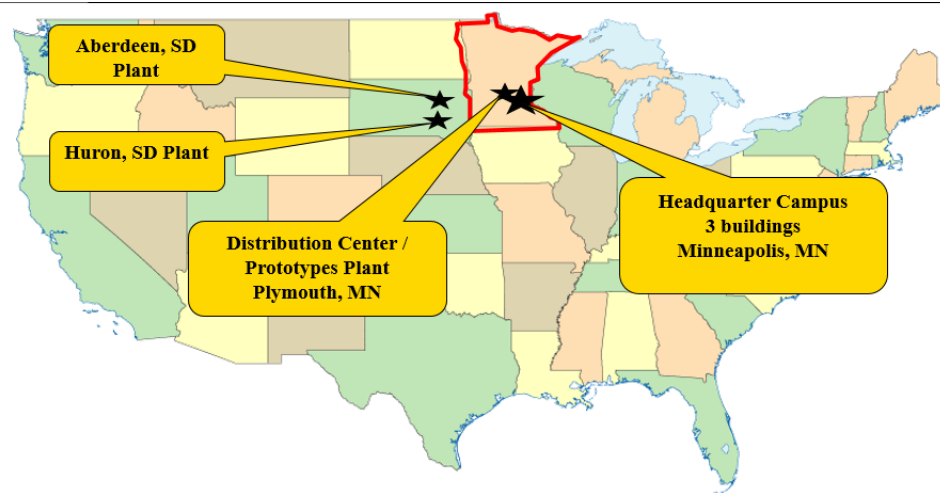
TRAFFIC AND PARKING



WATER TREATMENT

## US Locations

**BANNER**



## China Mfg Location

BANNER®



Suzhou China  
Plant



Suzhou, China

## Mexico Mfg Location

BANNER®



San Luis Potosi  
Plant



San Luis Potosi, Mexico

## Goals

- Stocking product fill rate of 95% or higher
- Ontime Shipment Performance at 95% or higher
  - Meet the scheduled ship date provided to the customer



## Tools

- Oracle EBS
  - Focus on use of standard functionality with minimal customization
  - Production Planning Methodologies
    - ASCP – advanced supply chain planning
    - Min/Max Planning
    - Kanban

## Product Classification

- Finished Goods broken down into two classes
  - Stocking Product
  - Build to order
- Subassemblies
  - High volume
  - Medium volume
  - Build to order



## Pull System

- Mix of Oracle Min/Max planning and Kanban driven from top level down
  - No build to forecast
  - Safety stock used for long lead time components with uneven demands
  - Forecasting used to set projected usage
  - Projected usage drives planning settings
  - Planning automation drives work order priority to production floor
  - Production line employees are responsible to release work orders based on order of priority



## Challenges – Mexico Plant

- Production employees cannot read/understand the English Oracle forms
- Subassembly level work prioritization is often not clear
- Subassembly stock is desired to shorten lead times
- Minimize line side inventory

Job	Assembly	Description	Item Status	PO	Status	Qty	Max Qty	Min Qty	SO	Scheduled	WFO Required	Priority	Self	Trace	Pr	Auto WFO	Std
111249	111249	HOUSING ASSY E25 RELEASED	S	Unreleased	92	92	92	92				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	N	Unreleased	20	20	20	20				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	N	Unreleased	45	45	45	45				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	N	Unreleased	2	2	2	2				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	S	Unreleased	139	139	139	139				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	S	Unreleased	93	93	93	93				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	S	Unreleased	174	174	174	174				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	S	Unreleased	52	52	52	52				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	S	Unreleased	28	28	28	28				10/13/11					001
1129003	1129003	HOUSING ASSY E25 RELEASED	S	Unreleased	110	110	110	110				10/13/11					001

## Solution – Mexico Plant

- Work-orderless completion in Oracle
- Subassembly level Kanban tags in Spanish
  - Tag contains BOM and DWG

```

MOL Completion(SLP)
Assembly >
SO Num ]
Sub >
Loc ]
UOM :
Kanban >
Qty :
<Save>
<Quality>
<Cancel>
    
```

Reposición KANBAN

Montaje  111967

Descripción Housing 1242mm

Destino X05

Cantidad  10

Lista de materiales 111215

Dibujo 111895





## Solution – Mexico Plant

- Non-Replenishment KANBAN
  - Used for build to order subassemblies
  - Kanban is generated by the analyst



```
WOL Completion(SLP)
Assembly >
SO Num ]
Sub >
Loc ]
UOM :
Kanban >
Qty :
<Save>
<Quality>
<Cancel>
```

No Reposición KANBAN	
Montaje	
Descripción	Window 2101mm
Destino	X05
Cantidad	
Lista de materiales	111216
Dibujo	111216



## Solution – Mexico Plant



- Replenishment KANBAN
  - Used for stocking subassemblies

Reposición KANBAN	
Montaje	
Descripción	Receiver Module 90
Fuente	X03
Destino	X04
Cantidad	
	Qty
Lista de materiales	130441 1
	109546 1
	117642 1
	115649 1
Dibujo	113149



## Solution – Mexico Plant

- Replenishment KANBAN
  - Used for stocking subassemblies
  - Two KANBANs per part number
  - KANBAN Quantity = .5 week projected Usage
  - No safety stock built in

Reposición KANBAN	
Montaje	
Descripción	Receiver Module 30
Fuente	X03
Destino	X04
Cantidad	
Lista de materiales	Qty
	130441 1
	109546 1
	117642 1
	115649 1
Dibujo	113149

## Solution – Mexico Plant

- Non-Replenishment KANBAN
  - Used for Build to order subassemblies
  - One KANBAN per part number
  - KANBAN Quantity = customer demand
  - No safety stock built in
  - Generated automatically from Oracle
  - Removed from production when done

No Reposición KANBAN	
Montaje	
Descripción	Window 2101mm
Destino	X05
Cantidad	
Lista de materiales	111216
Dibujo	111216

## Results

- No subassembly stock outs
- Reduced finished good lead time by half
- Clear work priority for subassemblies
- Consistent product quality due to Spanish procedures operating instructions
- KANBAN quantities reviewed monthly and adjusted when projected quantities change by more than 25%

## Results





# **Manufacturers Alliance**

Thank you for joining us!

Visit: [www.mfrall.com](http://www.mfrall.com)

Call: 763-533-8239

Email: [ma@mfrall.com](mailto:ma@mfrall.com)