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# 3-A SSI 2013 Annual Meeting

*Customer Expectations:  
Productivity and Hygienic Design*



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PRESENTER: DON WICKSTRUM –  
PRESIDENT – OWNER



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**TOTAL SYSTEM DESIGN  
CAPABLE OF WASHDOWN**

By providing unique robotic and automation solutions that are able to withstand the actual process solutions, as well as the wash-down chemicals and procedures within a food plant, while holding up the large temperature swings.





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**Innovation in Robotic End Of  
Arm Tooling, offering several  
types of food safe tooling:**

Our vast experience working with the WDA, 3-A, and USDA has lead us to develop tooling that is not only food safe, but is very reliable and a breeze to clean.

One EOAT product line we have uses vacuum to pick the product with the use of **no** external vacuum sources, generators, or vacuum pumps!! Meaning no holes or tubes to clean!!




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**Customer Expectations:**

- More Production
- Hygienic design vs efficiencies
- Reduce Cleaning Time
- Understanding the Robot
- Reduce Customer Extraneous Complaints

"We needed a system that will not only perform the tasks we are asking of it, but also do so with greater ease. All of this while meeting our food safety initiatives."

"With ever increasing need to produce more while reducing costs, quality issues, and while increasing food safety, our automation must not only be cleanable and hygienic, but reliable and faster."


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**TOTAL SYSTEM DESIGN  
CAPABLE OF WASHDOWN**

By providing unique robotic and automation solutions that are tailored to each situation while upholding sanitary standards must be done while being able to withstand the actual process solutions, as well as the wash-down chemicals and procedures within a food plant, while holding up the large temperature swings is critical to how well it will perform during clean up day after day.




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**Hygienic Considerations for the Application:**

Each Task the system is asked to do, influences and changes the hygienic considerations




**Hygienic Considerations:**

- Direct Food Contact Surfaces, Such as EOAT designed to meet Sanitary Standards?
- Hygienic designs impact on payload and efficiencies
- Understanding How Movements Influence Hygienic Engineering
- Wash-down considerations for tooling


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**End of Arm Tooling: It's Connected.....**



**Design Considerations:**


Sanitary Standards for Hygienic Design

Remembering that EOAT is the number one factor, however it is connected somehow.

What is powering the EOAT? It has a path from its start to its destination

Tubes, wires, and holders effect drip draw drain

Wash-down considerations for tooling and its connectivity





### Consideration of Robotic Arm Sizing:

#### Sizing the Robot for the Application and Hygienic Needs:



Typically tooling that will meet sanitary standards will weigh more, and affect robot movements.

Heavier tooling will require a bigger robot, along with the consideration of how the robot moves to achieve drip, draw, and drain.

With the robot position being critical to keeping a sanitary design, this too alters the size, reach, and /or capacity.

### Consideration of Robotic Cleanability & Hygiene:

#### Just Don't Cover it and Forget it!

Robots were not initially designed with food and dairy in mind. Yes a cover can work, if done correctly, however consider what can be done to a robot to make it into a hygienic application

Cleanable robots with food safe features are a good start, but the whole arm needs to be addressed.

With the use of coatings and methods such as our Qleen Coat, and our food safe methods we have been able to turn industrial robots into food safe pieces of automation.

In seven years of following our customers and testing both independently these approaches have produced no signs of bacteria or growth of such.



### Cell Layout and Design Considerations:

- Designing a sanitary tool and sizing is just a start
- What the robot interacts with needs to be considered and of hygienic design.
- In what areas will the robot be in what position?
- Safeguards need to be implemented to ensure that hygienic does not compromise operator safety.
- With the robot position being critical to keeping a sanitary design, this too affects the size of the cell by being impacted by reach, speeds and /or weight capacity.
- VISION drive applications improve quality, perform checks and assure continued quality procedure adhesion



### Secondary Safeguards:

How can programming, safeties, and DCS help protect against unsafe movements?:



- Robots unlike fixed automation can be altered with programming effecting the mechanical designs surrounding the system.
- Safeguards need to be implemented to ensure that the integrity of the hygienic design is maintained
- With the robot position being critical to keeping a sanitary design, its important to lock out movements that are compromising to the integrity of the design, such as DCS by Fanuc Robotics



### Giving the Robot Eyes

With Vision being used to provide the constant quality checks that a human can do, Hygienic designs for the cameras themselves must be considered

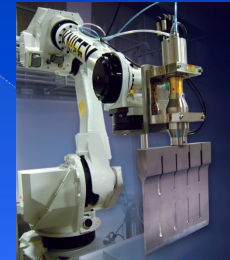
Vision guidance helps tell the robot where to go, but make sure its within the safety of the hygienic design!



### Hygienic Design Should Never Compromise Safety:

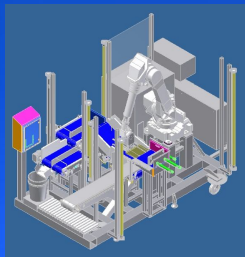
Barriers, Light Curtains, Environment and Maintaining a safe to operate system:

- Robots that are to be hygienic in design still need to meet OSHA/RIA standards.
- Safeguarding: Light Curtains, Mesh Fence, Welded Wire Fence, Polycarbonate Sheeting, and designed risk analysis.
- How does each type of safety device affect the overall hygienic properties of the cell?



### Bringing it all together to make a system work:

Consider all the angles, influences and moves:



- Making Robotic Arms that are hygienic and cleanable
- Make it the right size for the job
- EOAT design is critical but remember...its connected
- Consider robots that are to be hygienic in design still need to meet OSHA/RIA standards.
- Safeguarding: Light Curtains, Mesh Fence, Welded Wire Fence, Polycarbonate Sheeting, and designed risk analysis.

# Thank You For Your Time!

