

Automatic Guided Carts Revolutionize Manufacturing

Sponsored by:

DAIFUKU
WEBB



Presented by:

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AGCs Address the Following in a Manufacturing Environment

- Ergonomics of the job
- Cost reductions
 - Reduction of non-value added labor
- Reduction of lift trucks
- Flexibility in production
- Expansion of capabilities
- Cost of ownership
- Time to implement
- Integration with other systems
- Safety of plant employees

Alternatives to using AGCs in Manufacturing Processes

- Tow lines



- Powered conveyor



- Lift trucks



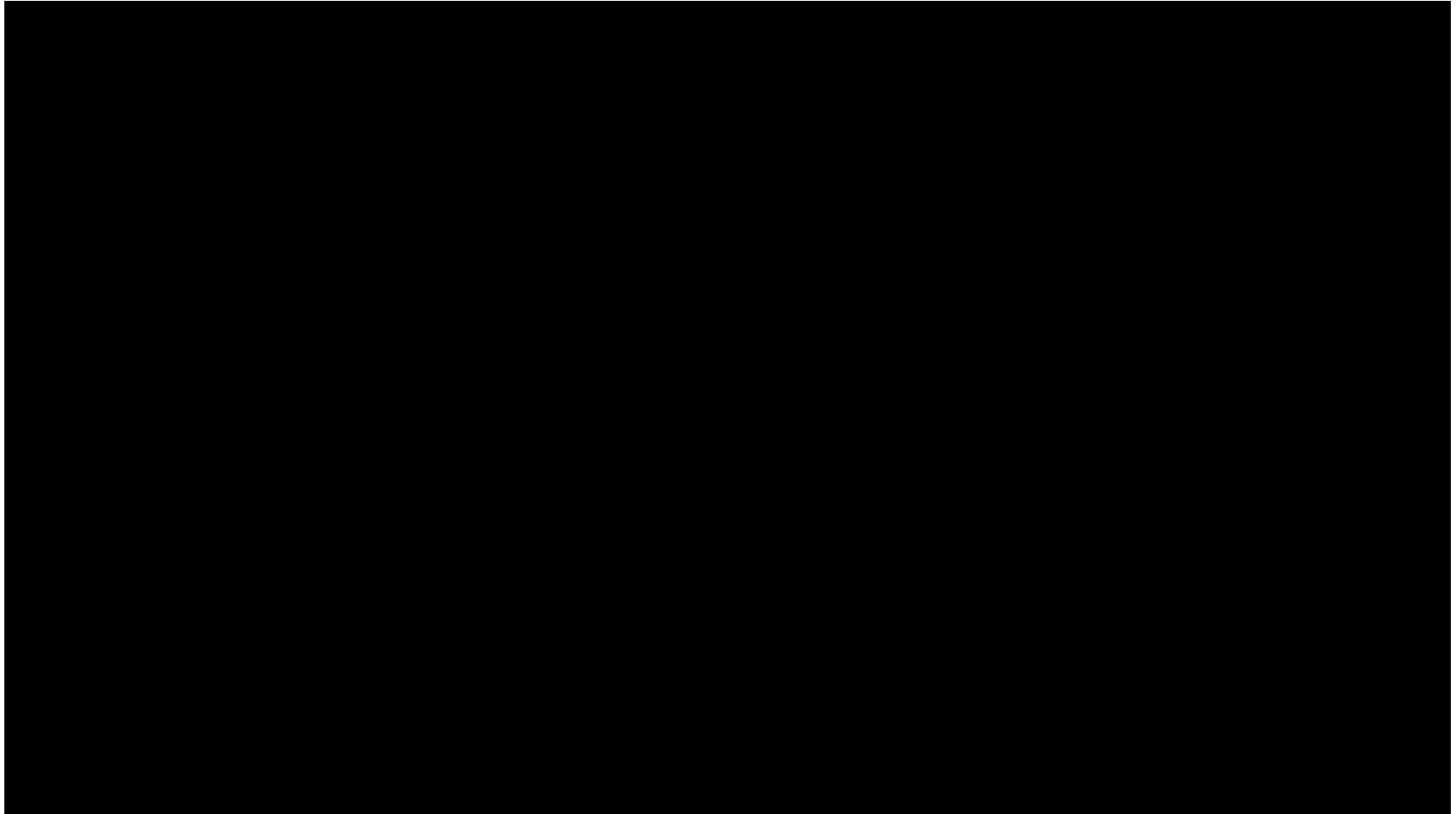
- Manual labor



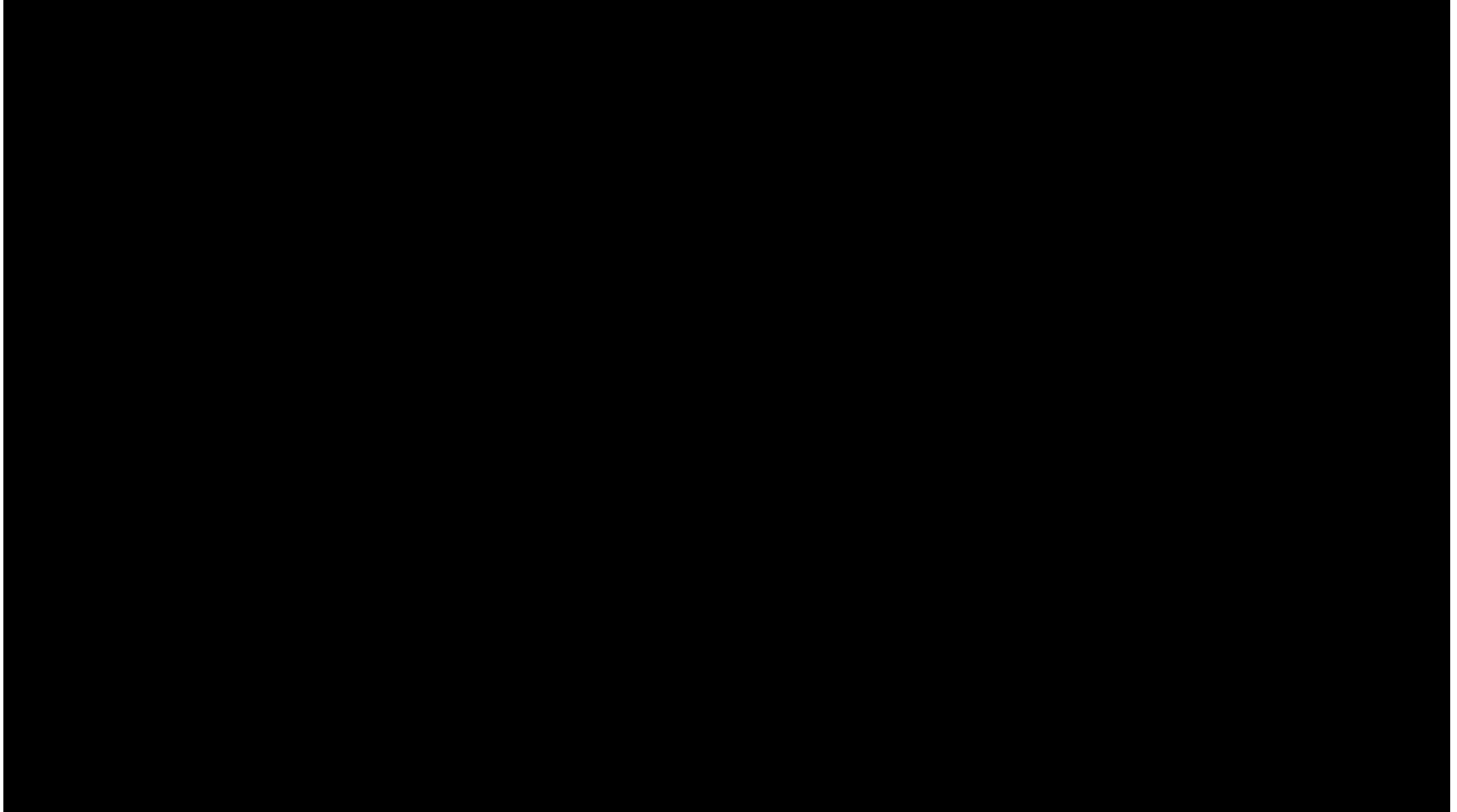
Researching AGC Solutions

- Customer site visits
- Manufacturers' websites
- Sales brochures
- White papers
- Technical articles
- You Tube

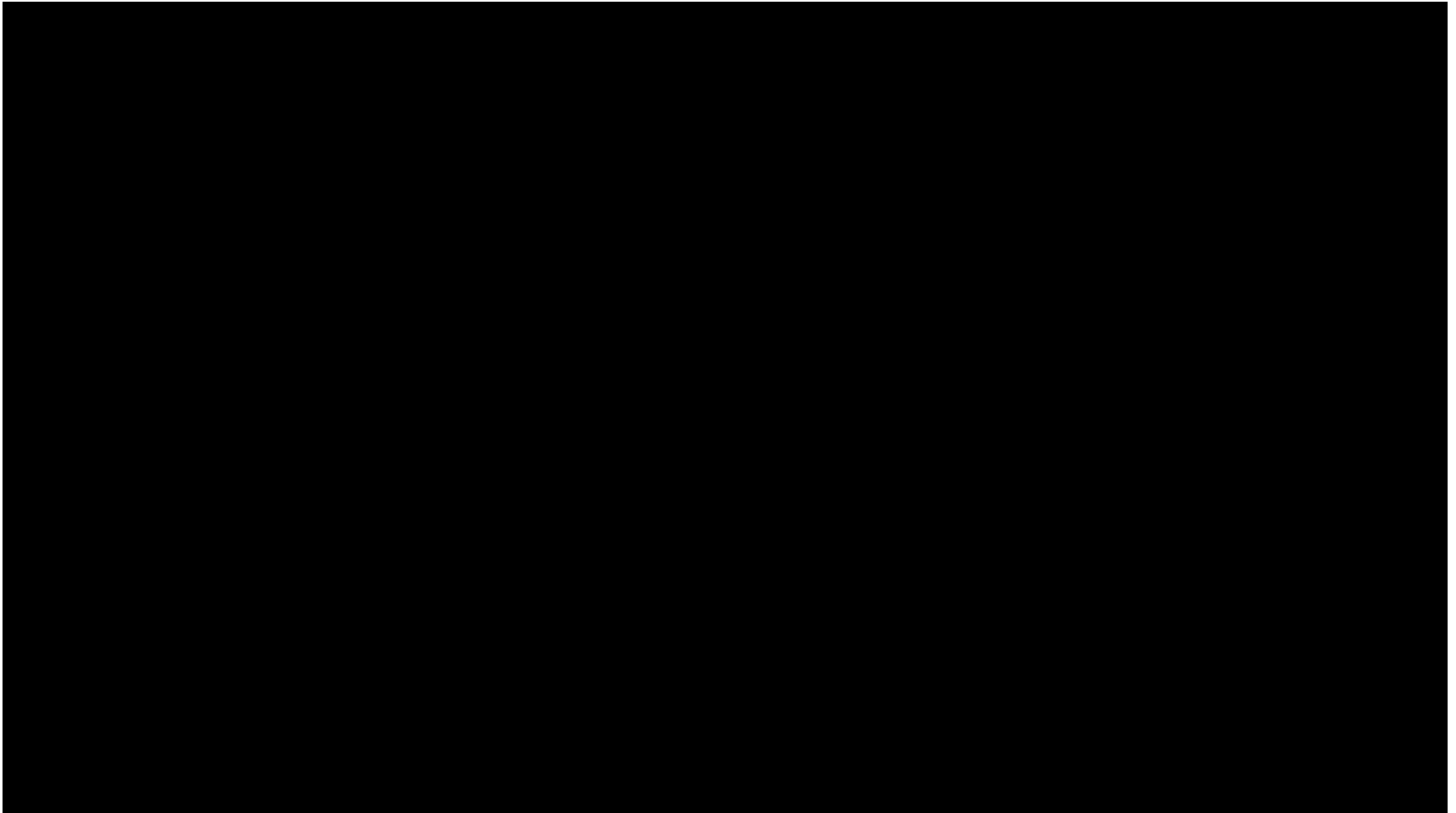
You Tube- Harley Davidson



You Tube- GM Volt Battery



You Tube- Inside Tesla



AGC Applications

- Line side delivery
- Assembly systems
- Material movement systems



Benefits of AGCs in Manufacturing

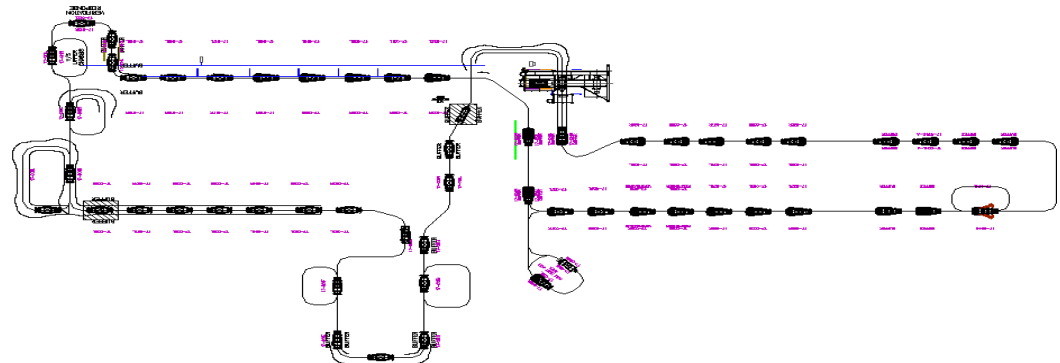
- Flexible load handling options



- Easy installation
- Cleaner and quieter than conventional conveyors
- Less barriers



- Easily scalable
- Easy modifications



Case Study: Danfoss - Loves Park, IL



Case Study: Danfoss - Loves Park, IL

- Application:
 - Assembly- HVAC drives, industrial automation drives, waste water drives
- Old Method
 - 4 Stations along side gravity conveyor line
- Assembly Issues
 - Fixed work stations
 - Moving large drives
 - Loading and unloading finished drives from carts
 - No easy method for increased volume in production
 - Parts delivery required forklifts
 - One operator per work station



Case Study: Danfoss - Loves Park, IL

- Challenges:
 - 11 different sizes of drives
 - Solve ergonomic issues
 - Increase production volume
 - Flexible assembly process and line
 - New line had to be LEED compliant
 - ROI should be 18 months or better



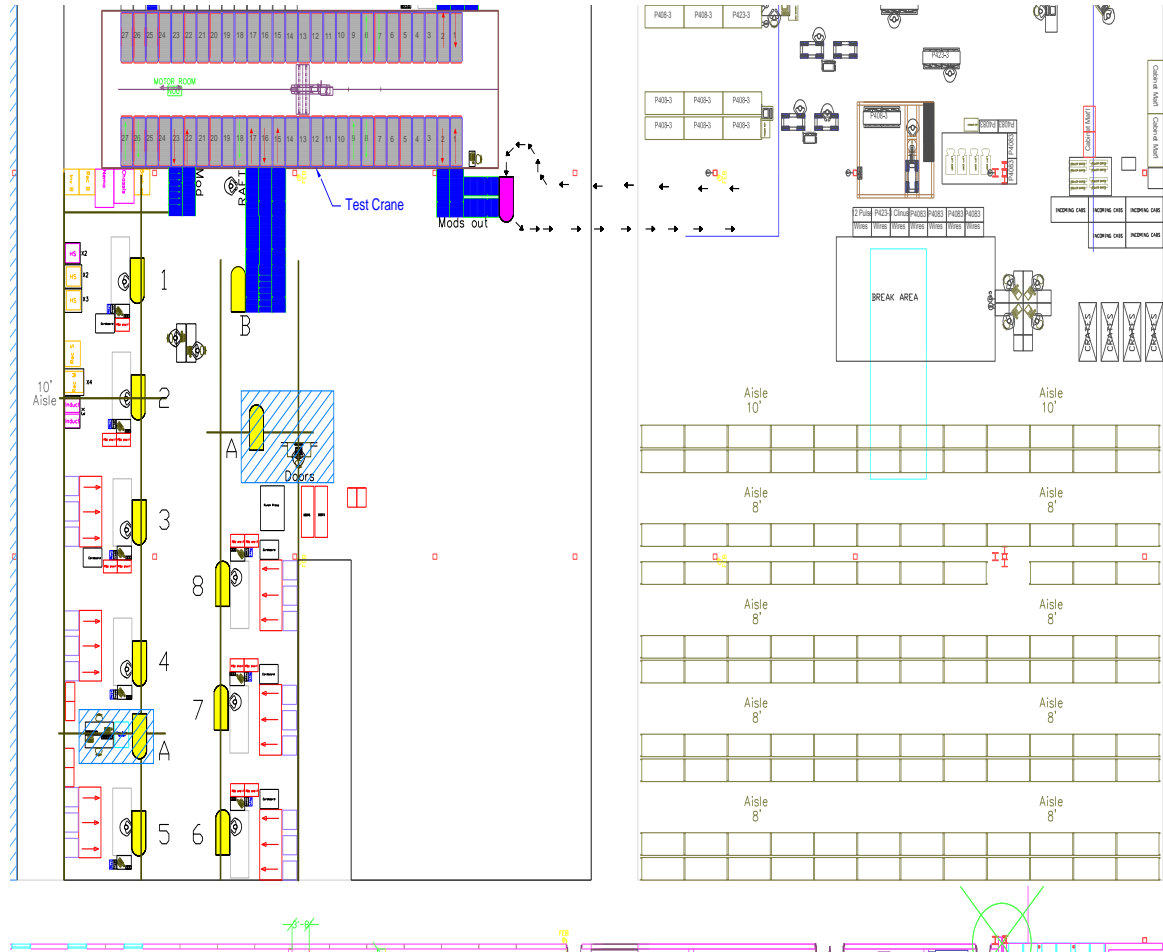
Case Study: Danfoss - Loves Park, IL

- Possible Assembly Solutions
 - Tow line system
 - Powered roller conveyor
 - Powered air lifts
 - AGC system
 - Push carts
- Ultimate Solution
 - AGC assembly line



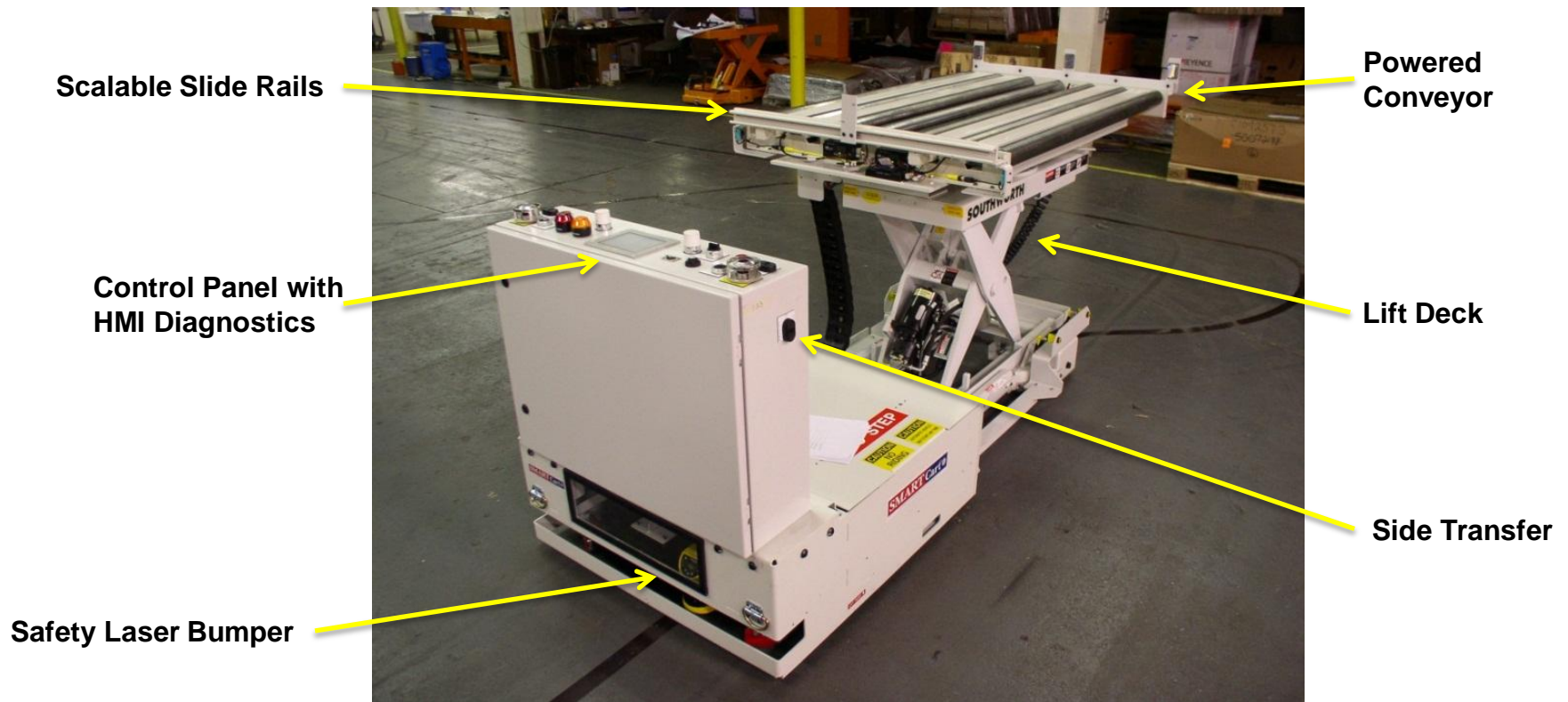
Case Study: Danfoss - Loves Park, IL

- AGC Line Layout
- Results
 - Lean parts delivery
 - Line handles 3X unit volume production
 - No ergonomic issues
 - No lift truck traffic in assembly area
 - 12-14 months ROI
 - Flexible space
 - No non-value added product moves



Case Study: Danfoss - Loves Park, IL

- Key AGC Design Features



Case Study: TISA - Princeton, IN

- Application:
 - Automotive seat and door panel assembly
- Old Method
 - Gravity conveyor with part racks, bins and shelving
- Assembly Issues
 - No flexibility in assembly line
 - Multiple assembly lines
 - Excess inventory on assembly line
 - Need to shorten production time

Case Study: TISA, Princeton, IN

- Challenges:
 - Reduce inventory
 - Reduce body movement of operator
 - Increase in production volume
 - Flexible assembly process
 - ROI: 12 months or less
 - Eliminate non-value add moves

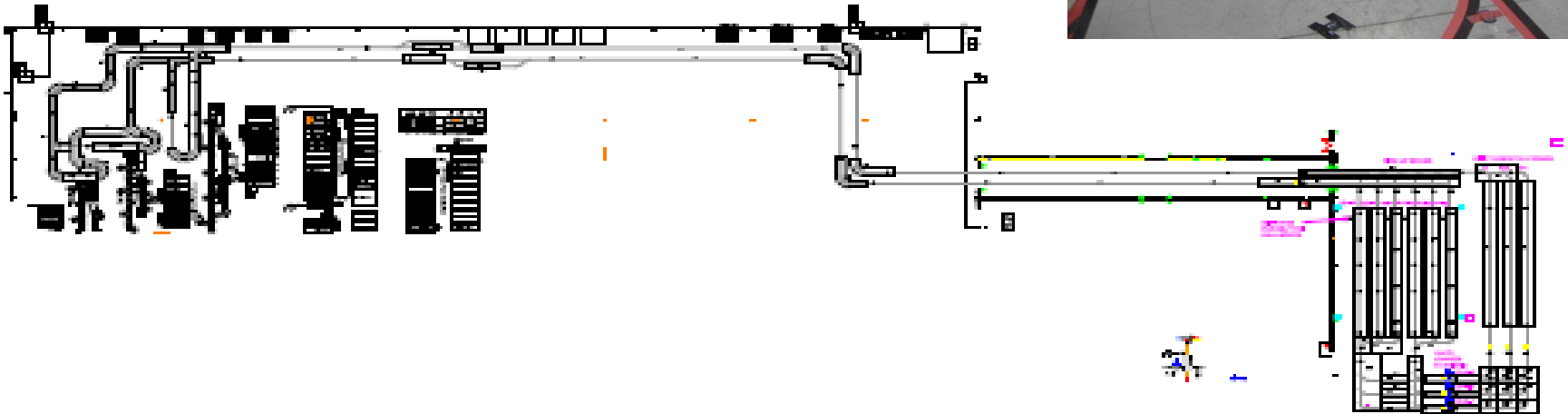
Case Study: TISA, Princeton, IN

- Possible Solutions
 - Powered roller conveyor
 - Tunnel AGC delivery system
 - Push carts
- Ultimate Solution
 - Tunnel AGC delivery system



Case Study: TISA, Princeton, IN

- AGC Line Layout & Results
 - Phase I and Phase II
- Plant 1 to Plant 2 Material Delivery, (19) AGCs



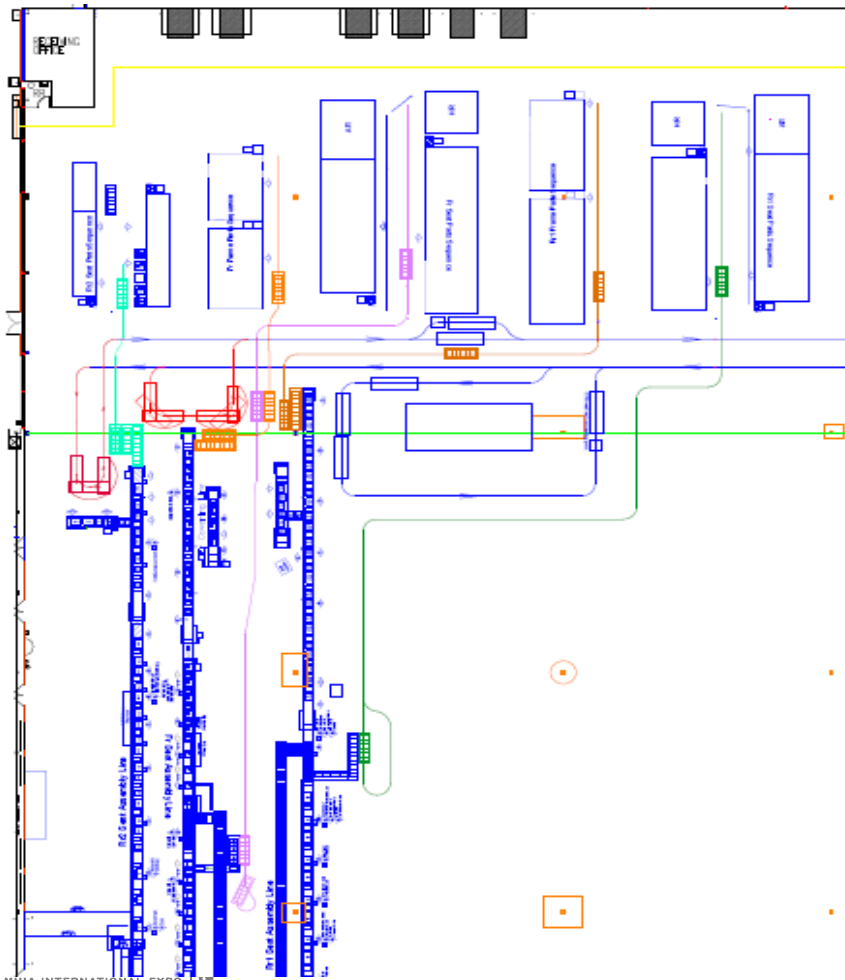
Case Study: TISA, Princeton, IN



Case Study: TISA, Princeton, IN

- Project results
 - Went from 19 to 25 AGCs in the system
 - Traffic control
 - PLC Interface with wireless pushbuttons
 - Approximately (20) intersections
 - Approximately \$750,000 for equipment, engineering, installation
- Reduction of:
 - (7) Workers/shift x 2 shifts
 - (4) Four fork trucks
- Less than one year ROI

Case Study: TISA, Princeton, IN



- Phase III
 - Picking station to line side delivery
 - AGCs move seat pallets station to station
- 17 more AGCs Intersecting Paths with TBIN to TISA Material Handling AGC Application



Case Study: AISIN Mfg. USA

- Company Background:
 - Aisin makes components for door frames, latching systems, seating, trim molding, and more

Case Study: AISIN Mfg., TN

- Application:
 - Material movement of castings
- Old Method
 - Manual push carts
 - Manual load & unload of trays
 - Ergonomic lifting issues
 - Safety concerns with lift truck traffic



Case Study: AISIN Mfg., TN

- Ultimate Solution:
 - Full reversing AGC with powered conveyor
 - Lift tables at pick and drop zones



- Results
 - Eliminated all push carts
 - Eliminated manual loading/unloading of trays
 - Ergonomic lifting issues eliminated

Case Study: AISIN Mfg., TN

- Results continued
 - Operators never leave work stations
 - Better Safety in Lift Truck Aisles
 - Less than 12 months ROI

- Customer

“The AGC system is a great addition to our facility. Installation was quick, easy and intuitive. With the successful integration of an AGC connecting a separated machining and surface treatment operations, we will be expanding the usage of automated transfer to streamline other areas of our plant. The project management and support were invaluable in meeting our timeline. It was only 4 days from the time the first AGC hit the floor until it was running in full production. I would highly recommend the use of AGC Systems to any plant looking to reduce non-value added handling of production parts.”

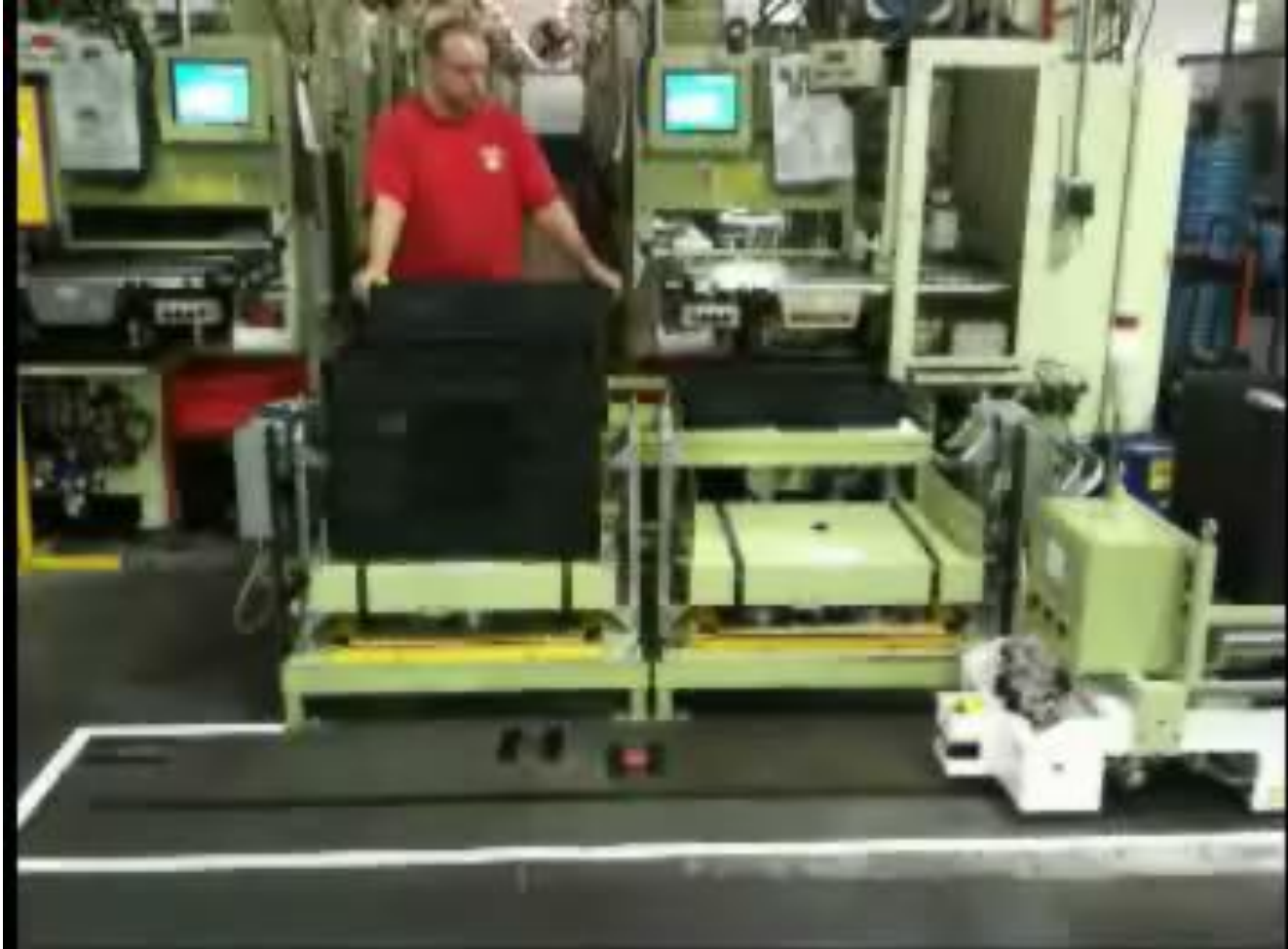
Kyle Felts

Production Specialist, Machining
Aisin Automotive Castings of TN

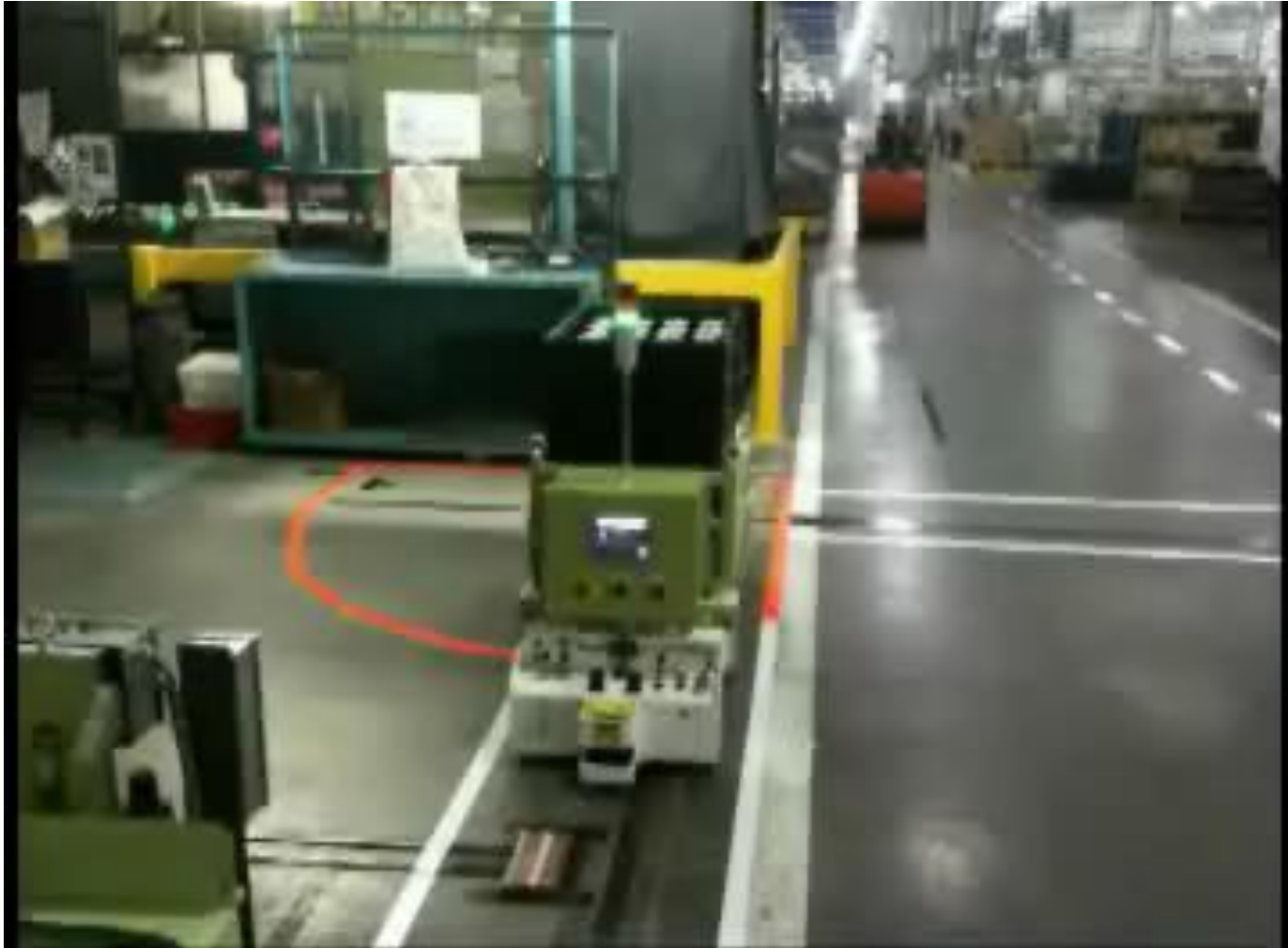
Case Study: AISIN Mfg., TN



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