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### THE FUTURE OF ROBOTIC WELDING

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### Fixing the welding labor crisis

Securing skilled welders to maintain your manufacturing facility will continue to be a critical challenge. The stats are in. It will get worse. As the baby boomers retire and millennials enter the work force, the supply of available labor willing to do repetitive tasks is shrinking dramatically.

#### What are you doing to prepare?

Maintaining the status quo is not an option for manufacturers who struggle to secure quality labor. Robotic welding systems allow employees to focus on quality and throughput instead of maintenance and manual operations. Using workers for more important tasks results in a more satisfied workforce and longer tenure.

200,000 unfilled skilled welding jobs predicted by 2020 for the welding industry.

\*Source: American Welding Society

#### Optimize your manpower.

If it's repetitive, dirty and unsafe, give that job to a robot. *Increase productivity* without adding labor.





### Optimize your manpower

#### Need reliable, cost-effective welds?

#### You can count on a robot!

Hire a welding robot to do the repetitive and dangerous work in your welding cell. You'll get more consistent products, higher production and lower costs that help you be competitive internationally.

- Same weld every time
- Avoid labor shortage
- Help keep employees safe, happy and engaged
- Lower costs



### Agenda

- 1 Standard Weld Cell
- 2 Robot as a Positioner
- 3 Fixtureless Welding

Each cell is compatible with Lincoln® Electric or Miller® equipment and any brand of dress-out accessories.





### Standard weld cells

#### **Benefits**

- Cost-effective short lead time
- 2 Simple to operate
- 3 Small footprint

#### Standard weld cells

- Excellent option for a first-time robot user
- Pre-engineered for faster delivery
- One piece platform offers small footprint and easy installation
- All utilities are integrated into the frame for faster start-up time
- Dual zone cells allow for loading and unloading while the robot is welding
- Dual zone cells allow for different parts to be produced in each cell

#### Limitations

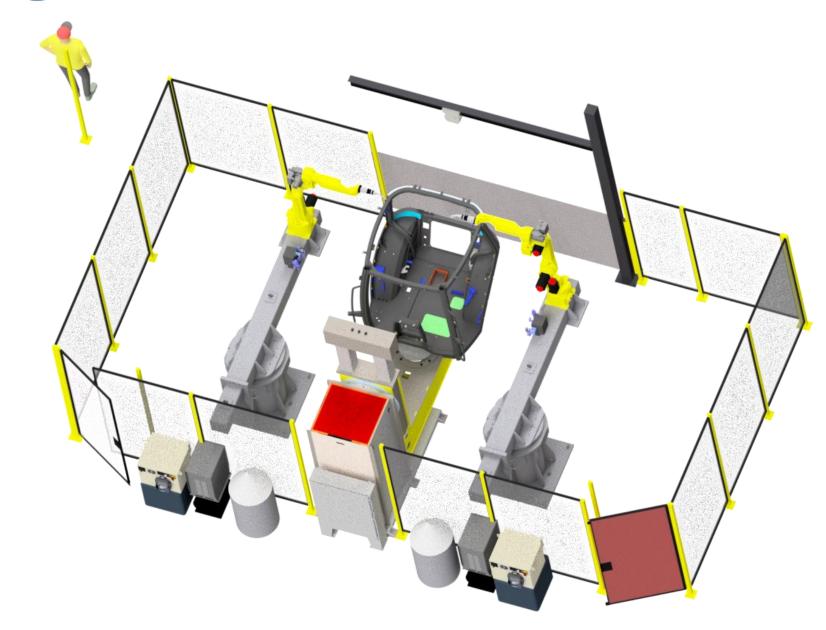
- 1 Full-time operator needed to tend machine
- 2 Limited size of weldments
- 3 Doesn't support one piece flow



### Material handling robot as positioners

# Let a material handling robot position simple or complex weldments.

This change lowers production costs, provides more repeatable quality and minimizes injury risks. It's a safer, faster way to handle products – including large, heavy and awkward parts.









### Material handling robot as positioners

#### **Benefits**

- Robot can handle large weldments as 6-axis positioner
- 2 Cell doesn't need to be manned full time for welding
- 3 Easily integrated into factory flow

#### Robotic positioner weld cells

- Manual load/unload time significantly reduced
- No overhead assist required
- Automatic gripper change for different parts
- 6 degrees of freedom
- Reduce risk of injury
- Typically lower cost for large weldments
- Parts can be easily conveyed to and from the system reducing material handling in up and down stream production

#### **Limitations**

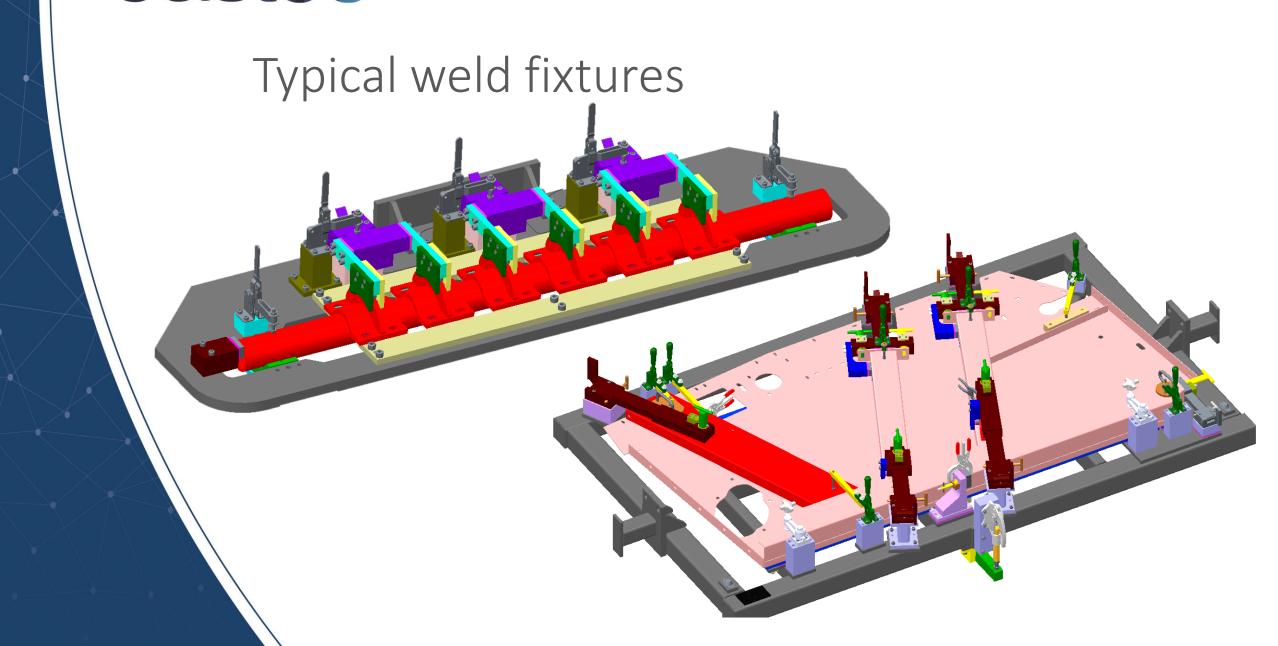
- 1 Larger investment with smaller parts
- 2 Longer lead time

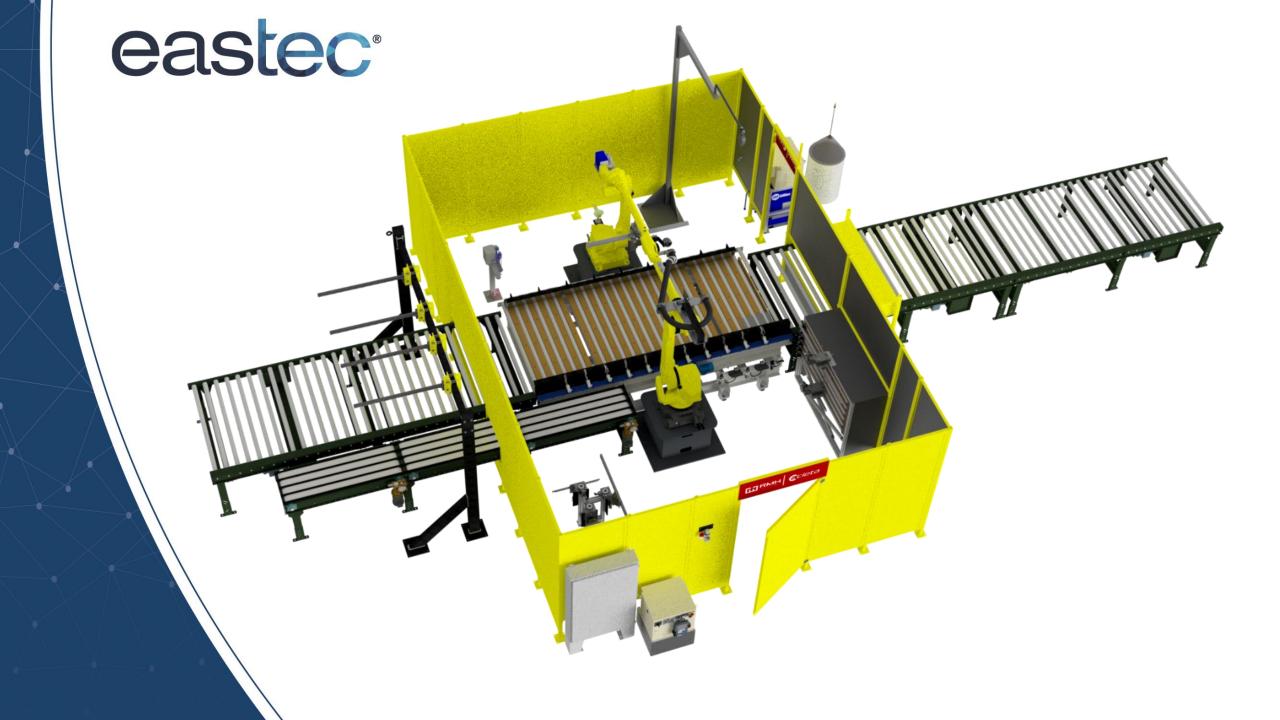


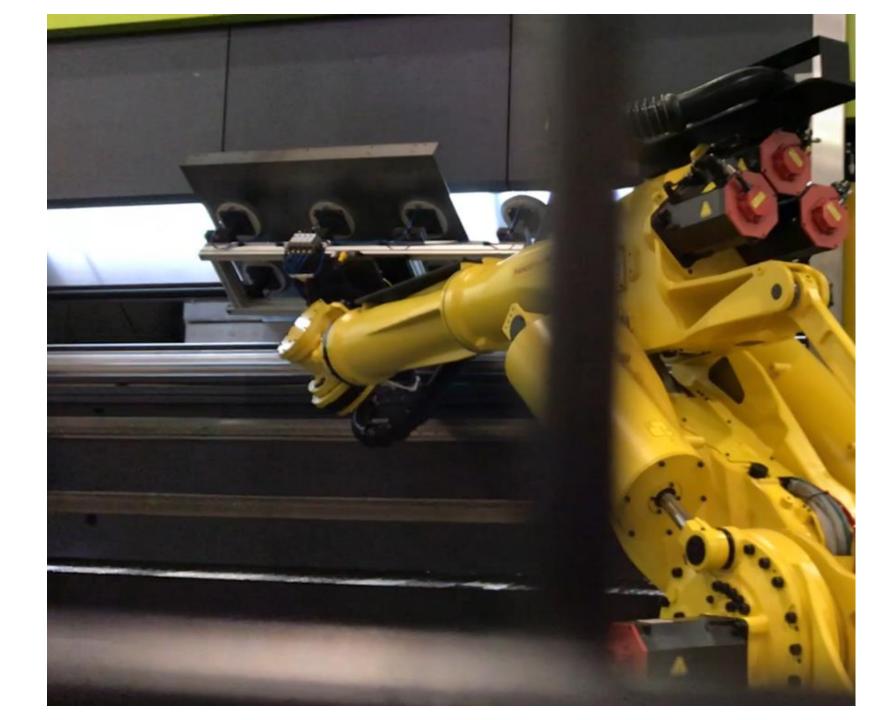
### Fixtureless weld cells

# Combine handling robots with welding robots to eliminate the need for dedicated fixtures used in traditional weld cells.

Reduce costs and time spent buying, maintaining and storing fixtures, and use a more efficient footprint. Change over on the fly and create one piece flow, minimizing inventory and work in process for savings beyond traditional ROI calculations.



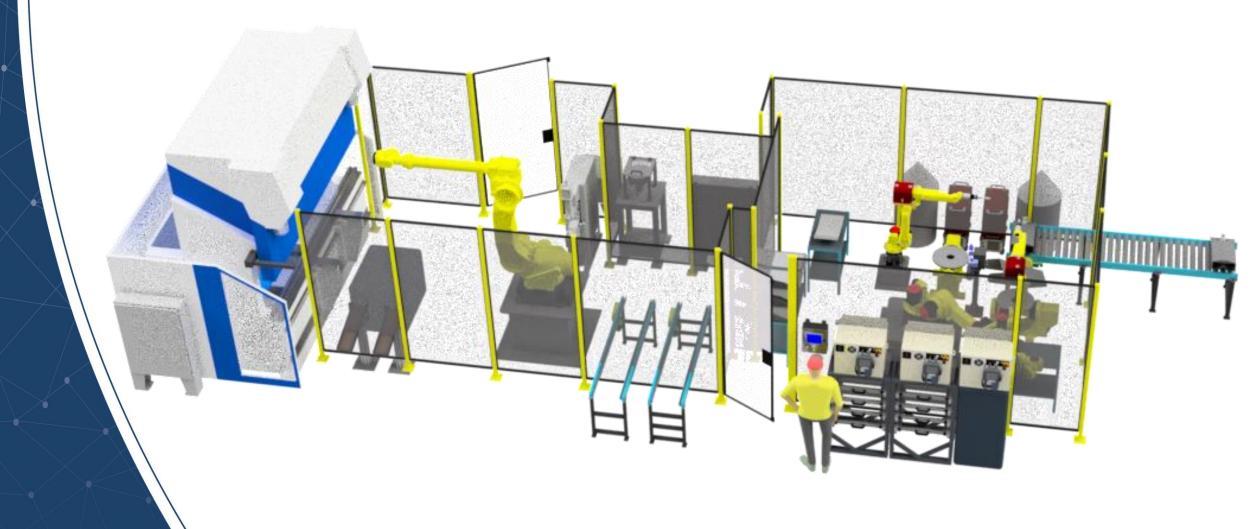


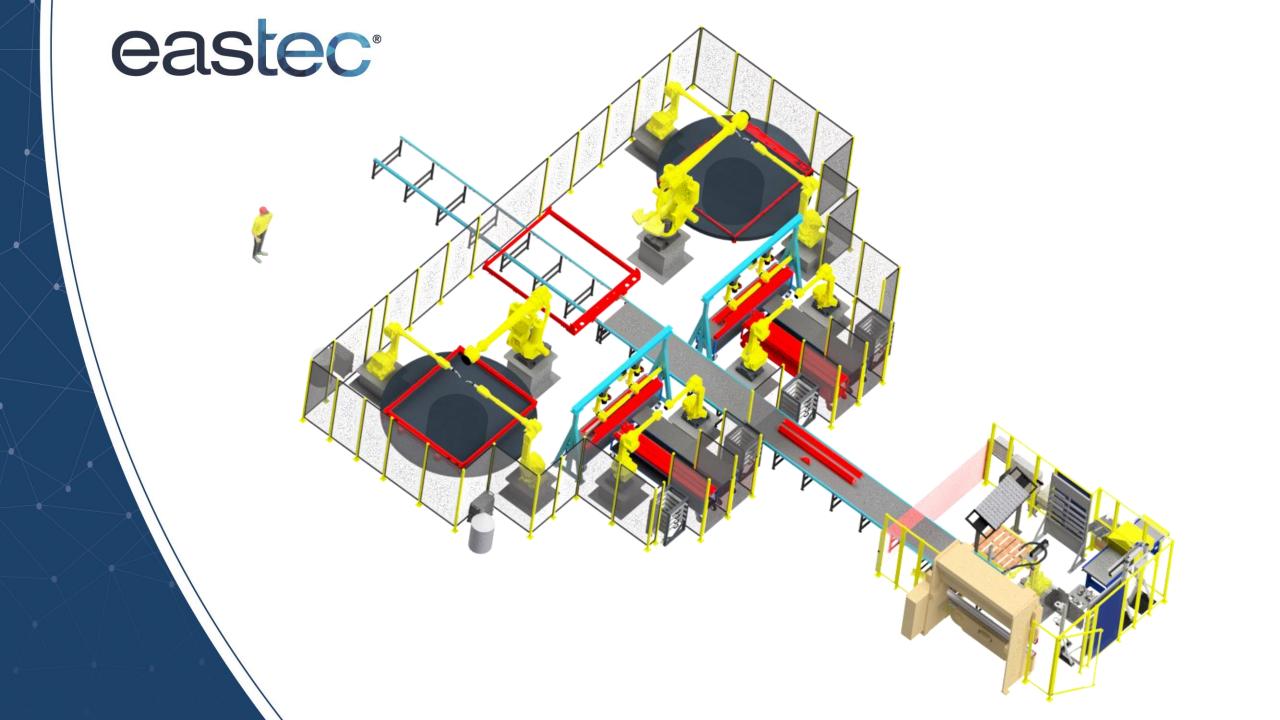




# Metal processing cell Cutting | Bending | Welding









### Fixtureless weld cells

#### **Benefits**

- Reduced direct labor costs
  Reallocation of labor
- Reduced/elimination of weld fixturing
- 3 Lights off operation

#### Fixtureless weld cells

- Reduced direct labor cost
- Lights-off operation
- Increased productivity and consistent output
- Improved quality
- Enhanced safety
- Improved working environment
- Creation of new and better jobs
- Reduced/elimination of tooling
- Minimal maintenance (no tooling to wear)

### Full production system



# TOP 10 things to consider when selecting a robotic integrator

- 1 IS THE COMPANY EXPERIENCED IN OFFERING TIME-TESTED, WORLD-CLASS SOLUTIONS?
- 2 DOES THE COMPANY UNDERSTAND YOUR BUSINESS?
- 3 DOES THE COMPANY HAVE A DEDICATED PROJECT MANAGER FOR YOUR PROJECT?
- 4 IS THEIR SERVICE DEPARTMENT 24/7?
- 5 ARE YOU BUYING THE RIGHT SYSTEM FOR YOUR APPLICATION?

- 6 HOW TRANSPARENT AND PRECISE IS THE QUOTATION?
- 7 IS THE SYSTEM SAFE?
- **8** CAN I GET SPARE PARTS WHEN I NEED THEM?
- 9 IS TRAINING PROVIDED?
- 10 DOES THE COMPANY HAVE PROVEN INDUSTRY-WIDE LEADERSHIP AND TRUST WITH CUSTOMERS AND VENDORS?



## Questions?

In our fast-paced, global economy, every detail matters.

What are you doing to prepare for the future and stay competitive when status quo is not an option?

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