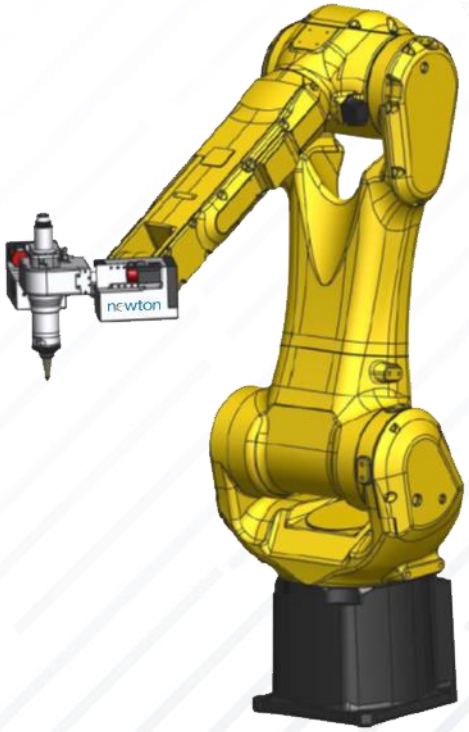
GREAT DESIGNS IN STEEL

Presentations will be available for download on SMDI's website on Wednesday, May 22

GREAT DESIGNS IN STEEL

NEW ADVANCEMENTS IN ROBOTIC LASER CUTTING

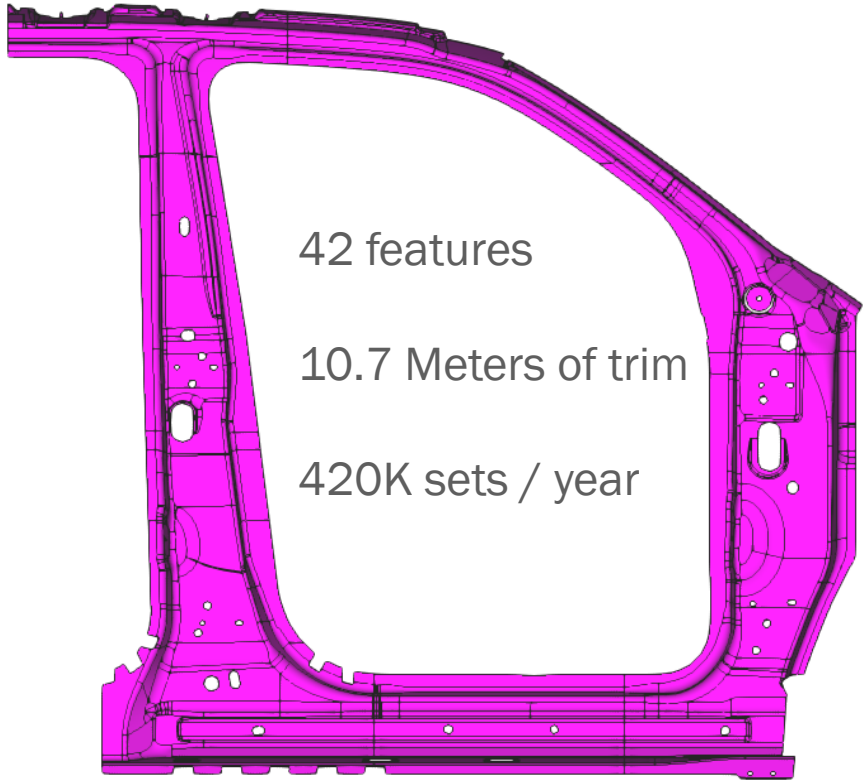


Christon Manzella

Shape Process Automation

ROBOTIC CUTTING

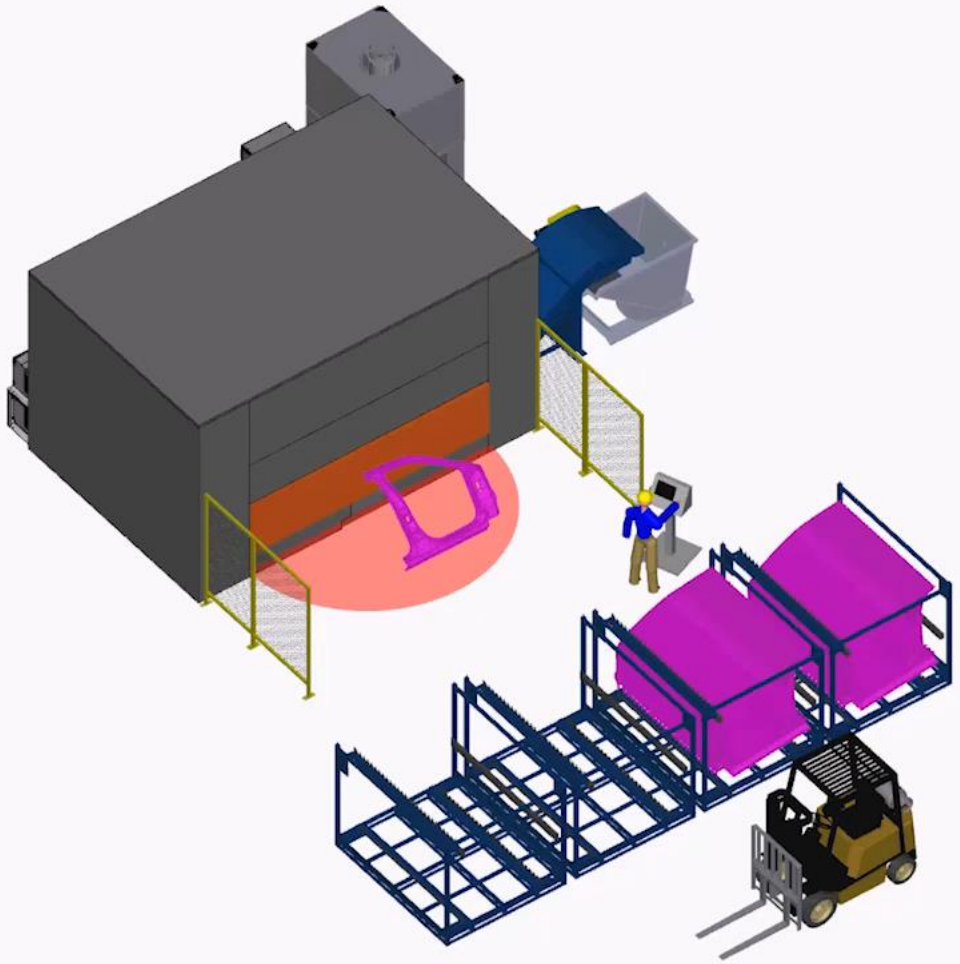
Explore robotic laser cutting and automation as a means to reduce manufacturing cost of UHSS parts



RAM 1500

- Labor
- OEE – Overall Equipment Effectiveness
- Increase Cpk
- Floor Space
- Process Advancements

TRADITIONAL CUTTING MACHINE



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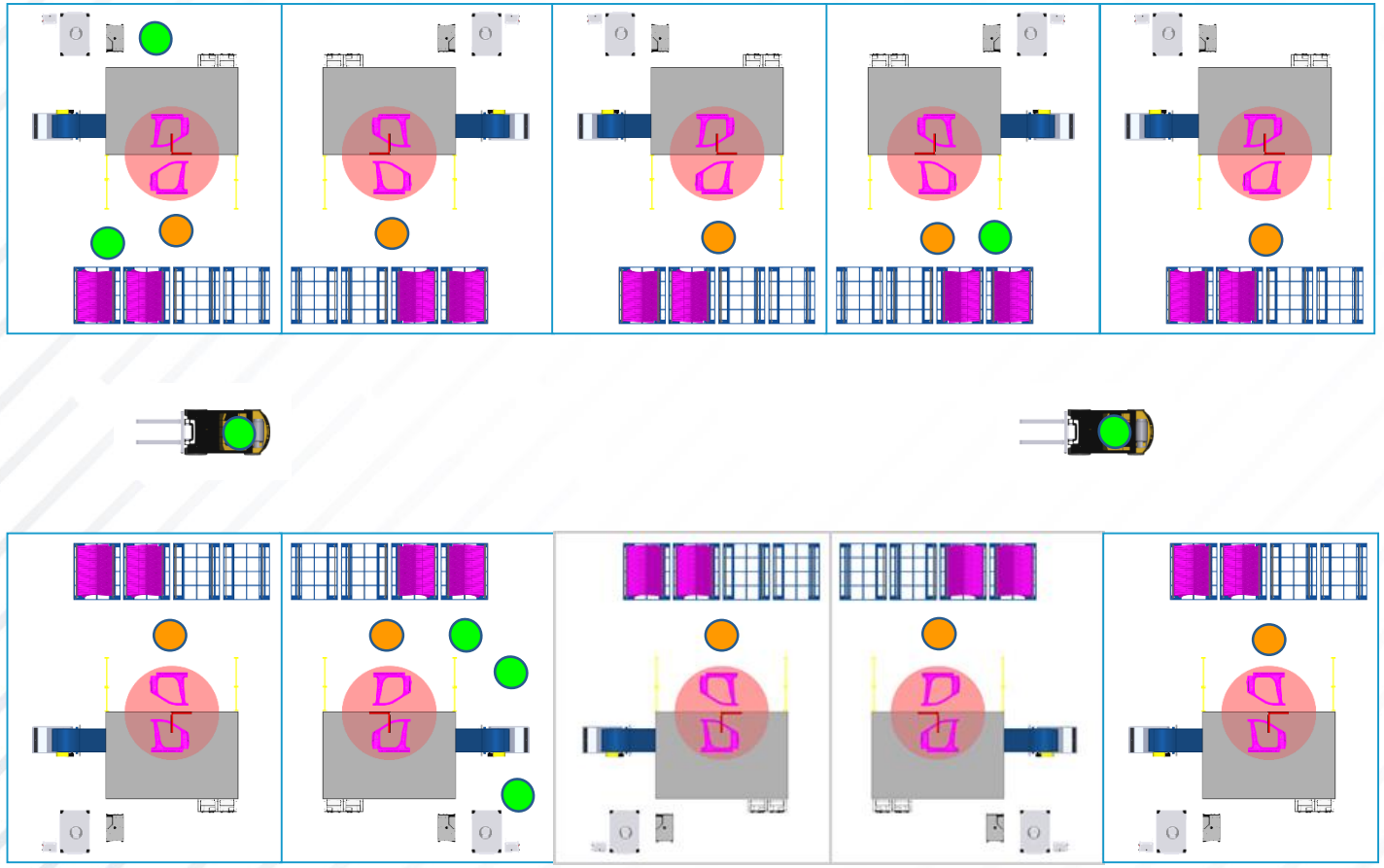
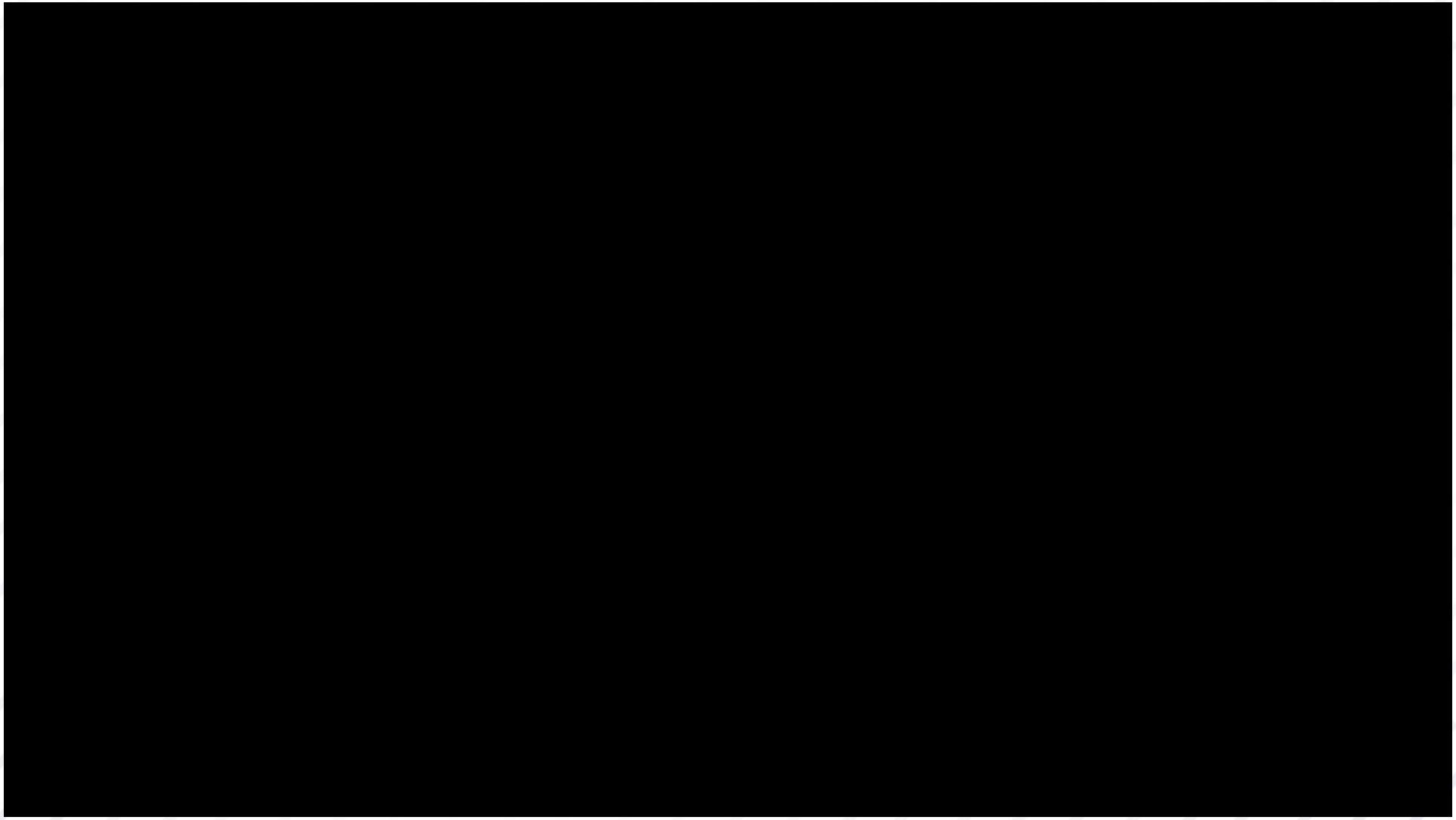
TRADITIONAL FLOOR SPACE, LABOR, FIXTURES

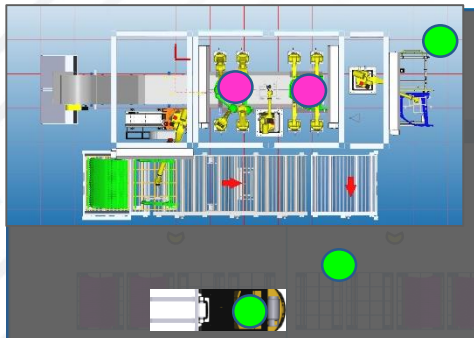


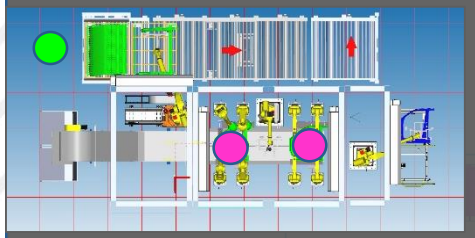
Item	Island
Square Foot	20,000
Direct Labor	10
Indirect Labor	
Forklift Drivers	2
Programmer	2
Maintenance	2
Quality	2
# of fixtures	
Left hand	10
Right hand	10

NEW ROBOTIC CUTTING



ROBOTIC CUTTING FLOOR SPACE, LABOR, FIXTURES



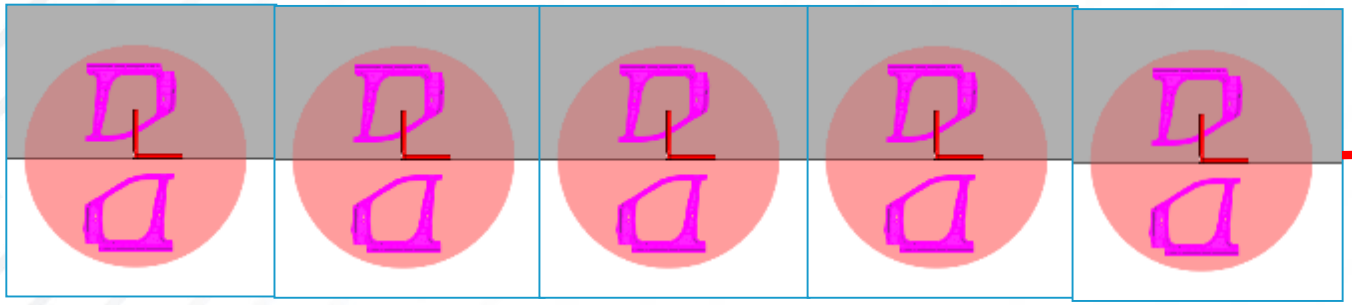


Savings:

Floor space:	70%
Direct labor:	100%
Indirect labor:	50%
Fixtures:	80%

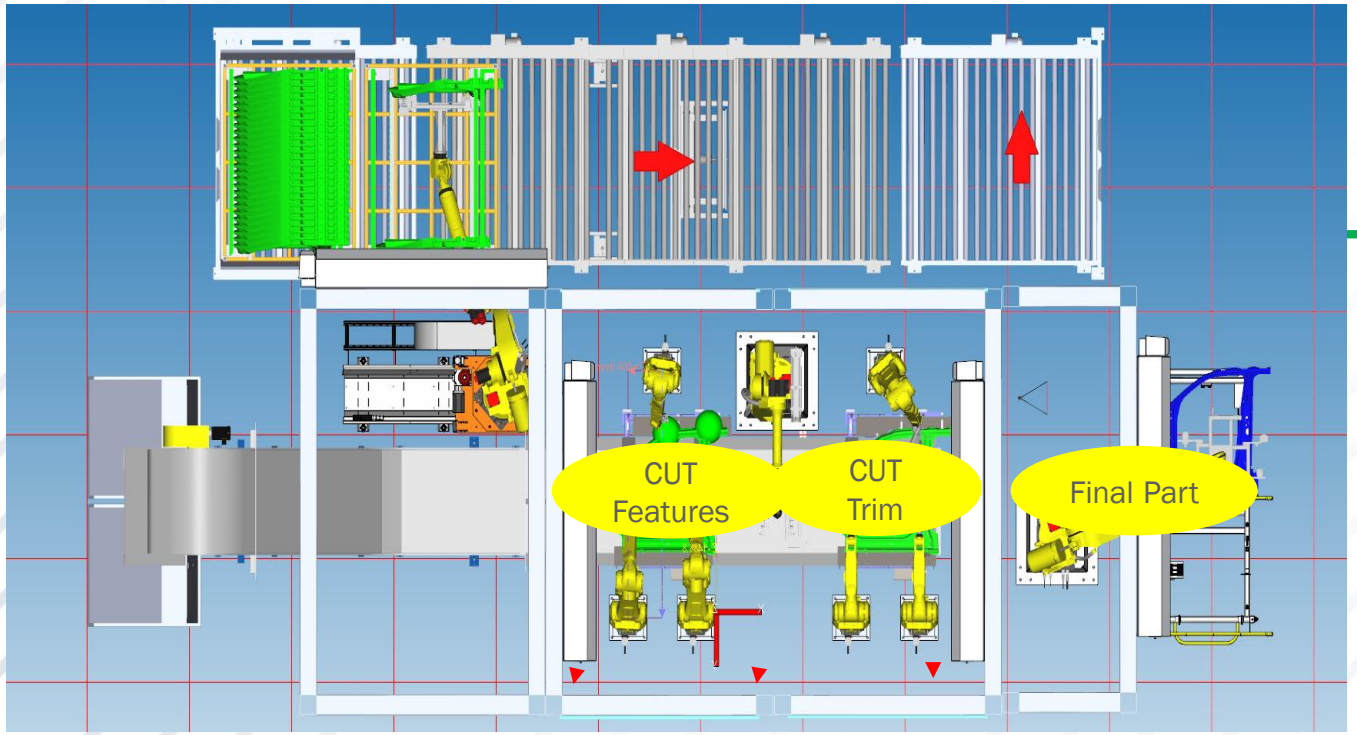
Item	Traditional	Robotic
Square Foot	20,160	6,050
Direct Labor	10	0
Indirect Labor		
Forklift Drivers	2	1
Programmer	2	1
Maintenance	2	1
Quality	2	1
# of fixtures		
Left hand	10	2
Right hand	10	2

OEE - # OF PART PATHS



Traditional

10



Robotic

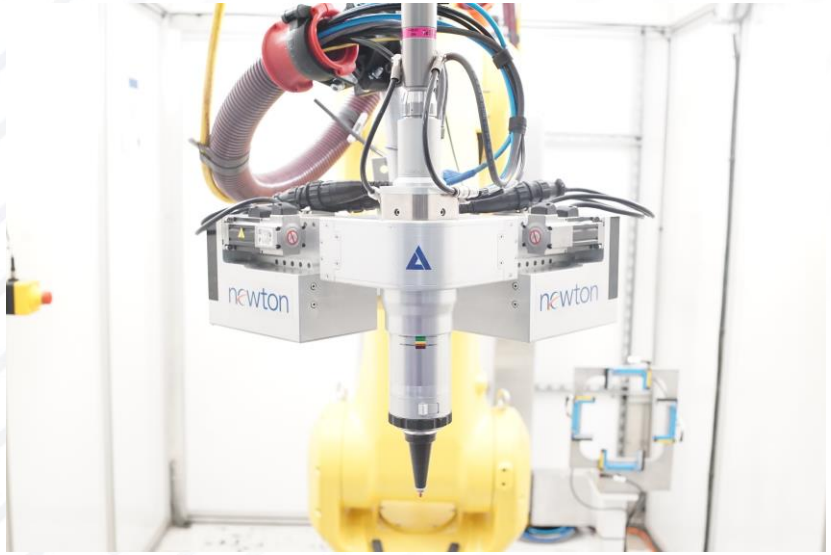
1

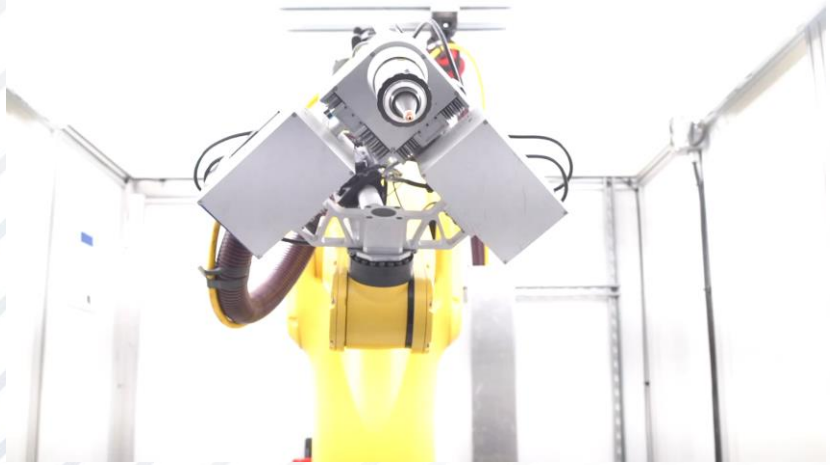
Repeatability
High Cpk

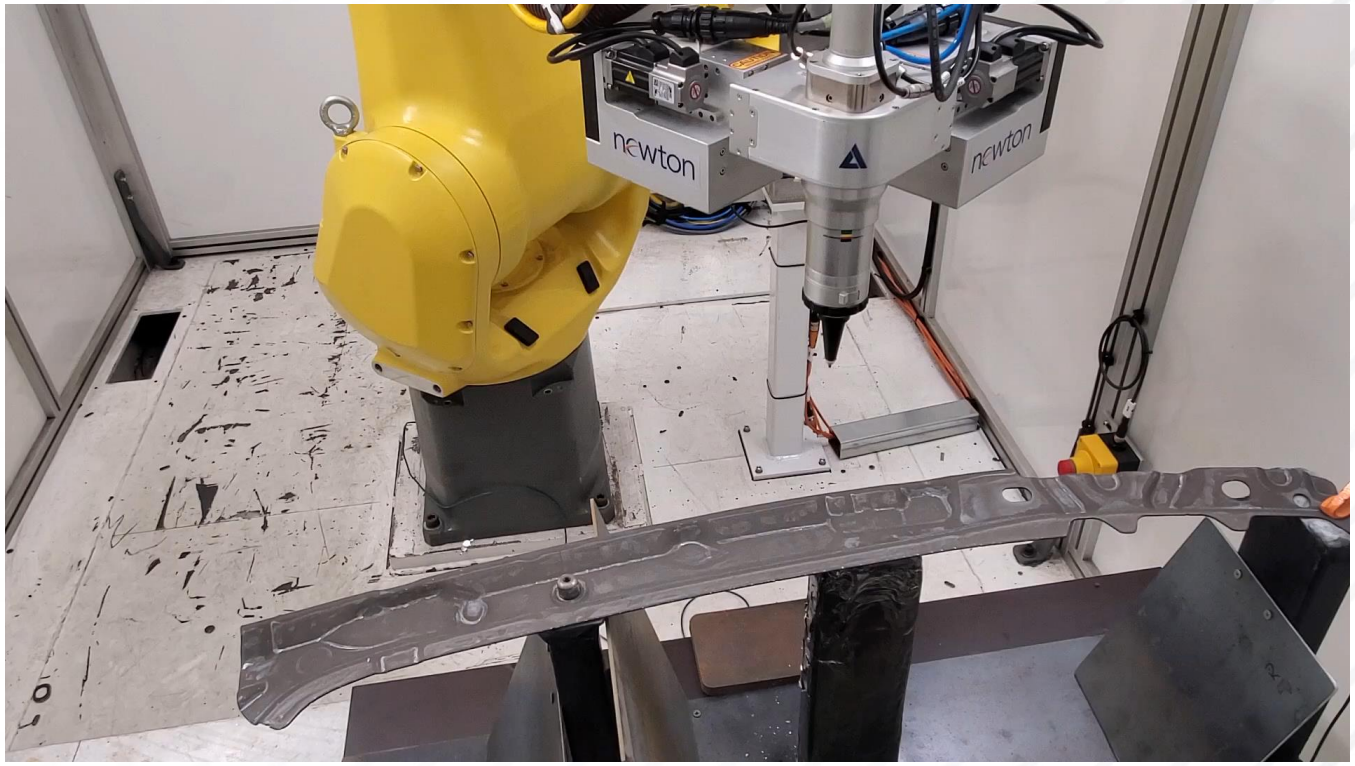
OEE

NEW CUTTING TECHNOLOGY

GDIS

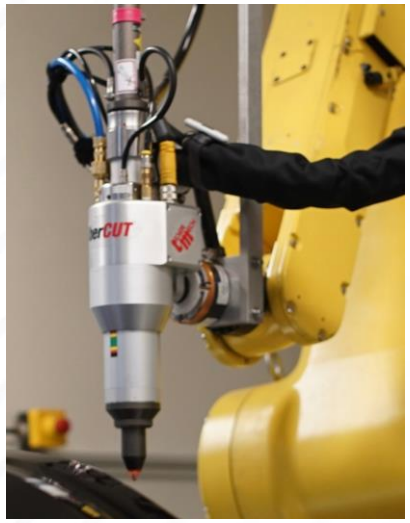






newton

NEW ROBOTIC CUTTING

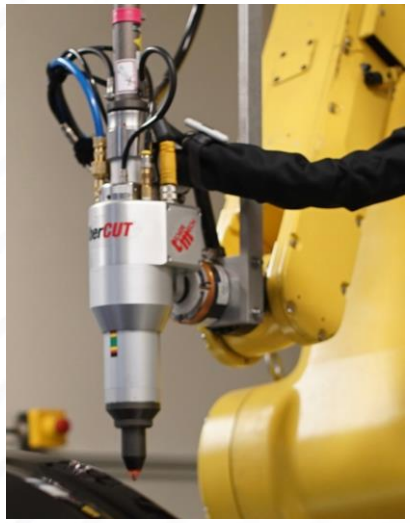


Robot Articulation

newton

Feature	Size	Robot	newton	Cutting time
		Cut Time	Cut Time	REDUCTION
Circle	15	1.3	0.39	70%
Slot	10x20	1.8	0.45	75%
Rectangle	10x20	2.3	0.71	69%
Hex	15	3.5	0.98	72%

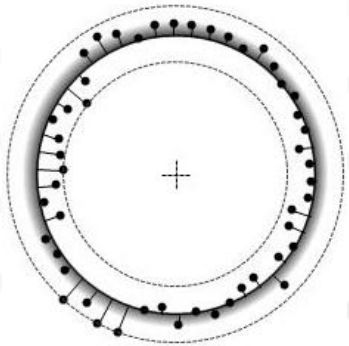
NEW ROBOTIC CUTTING



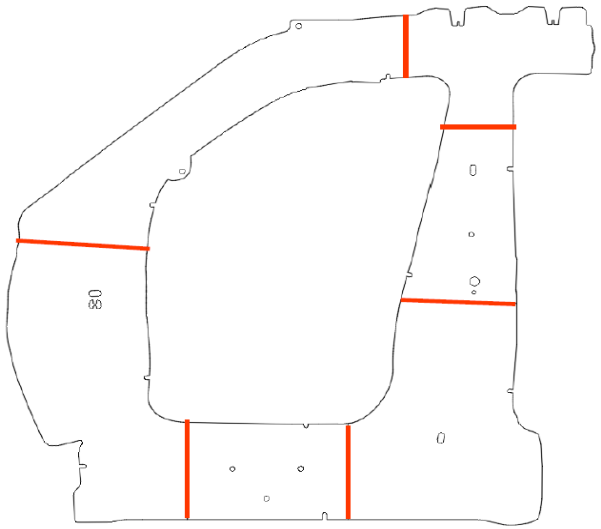
Robot Articulation

newton

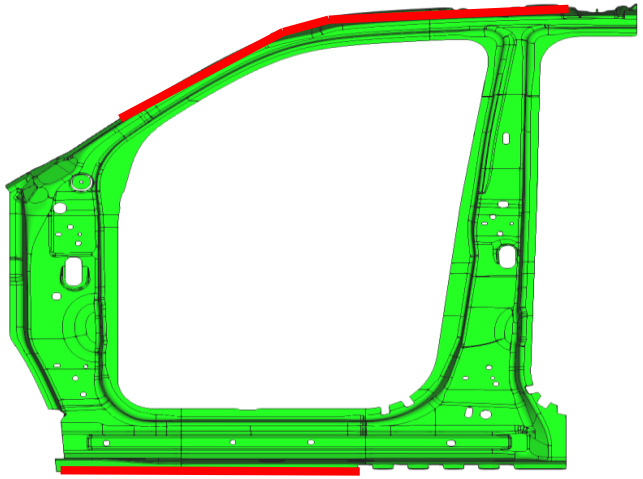
Feature	Size	Robot	newton	Tolerance
		Tolerance	Tolerance	Improvement
Circle	15	+/- 0.20	+/- 0.10	50%
Slot	10x20	+/- 0.20	+/- 0.10	50%
Rectangle	10x20	+/- 0.25	+/- 0.10	60%
Hex	15	+/- 0.25	+/- 0.10	60%



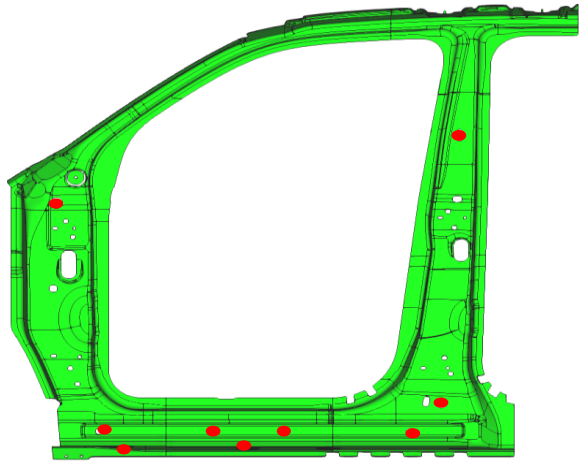
POTENTIAL VALUE ADD PROCESSES



Predeveloped
Blank provider



Near net Shape
Blank Provider Hot Stamper



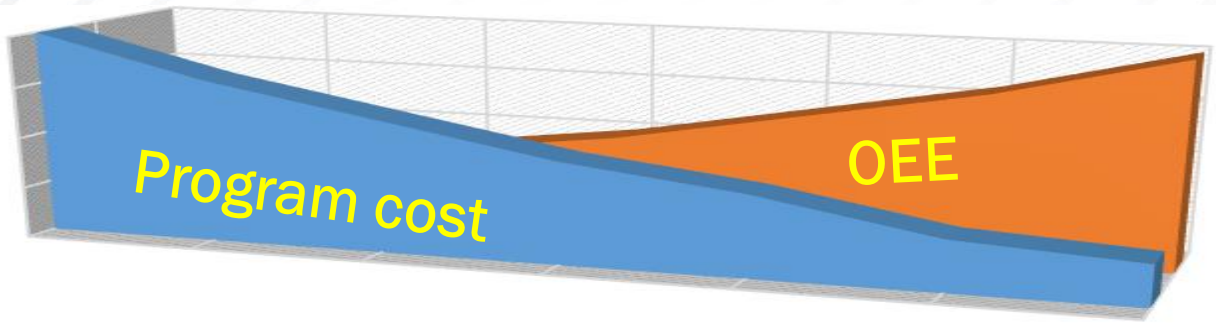
In-Die Pierce
Hot Stamper

Decrease laser cycle time with complementary technologies

OEM, Stamper, and Blank provider collaboration

NEW TECHNOLOGY REDUCES PROGRAM COSTS

Island of automation vs Inline automation	Floor space Labor	Robot Reduction due to new technologies
Inline automated robotic laser cutting	16 robots	
NEWTON cutting technology	12 robots	25%
Near Net shape	10 robots	38%
Predevelop holes, In-die pierce	8 robots	50%



Thank you!

Questions?

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