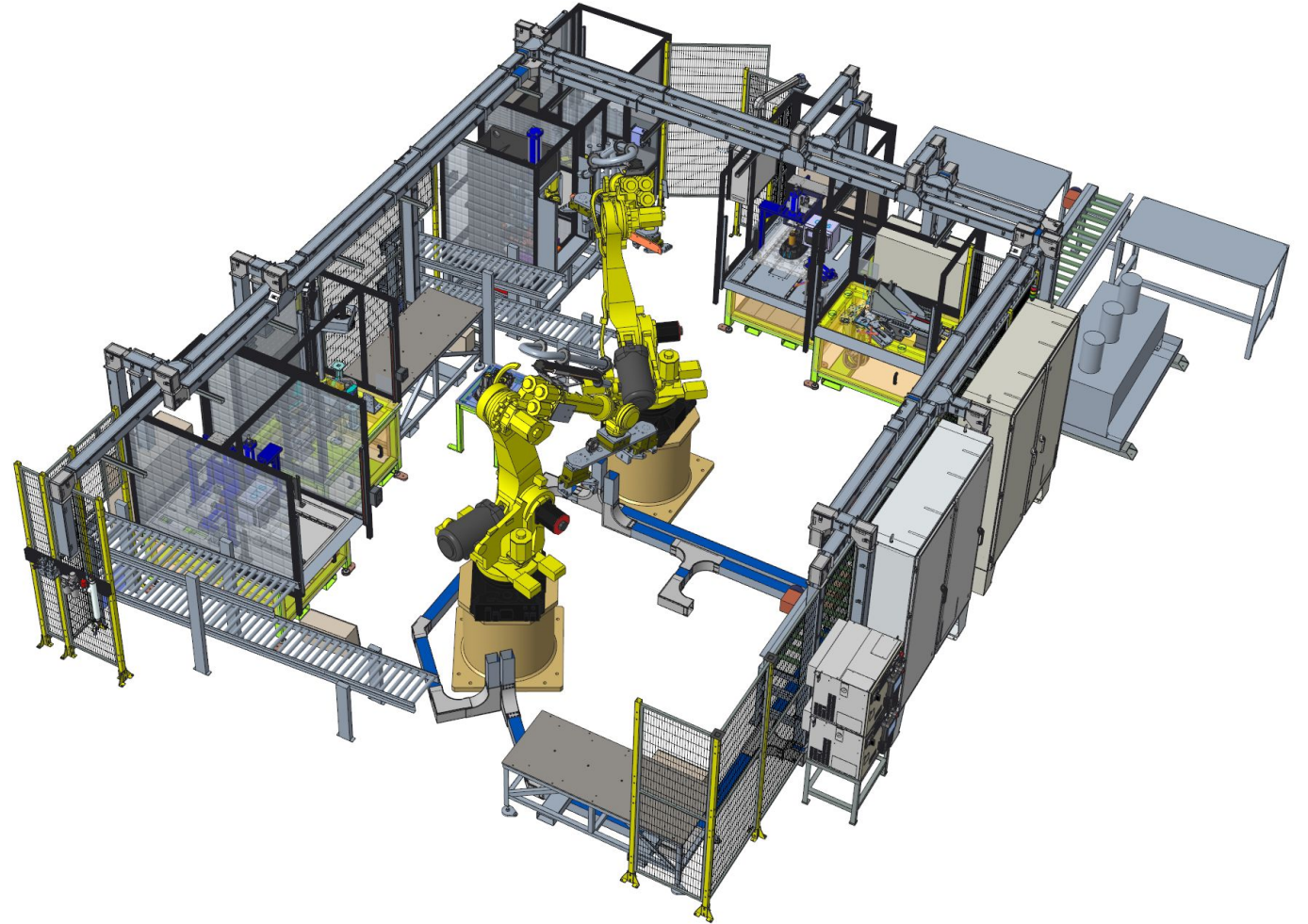


+Vantage Case Study: Turnkey Inspection & Testing Cells

Transmission Housing Inspection,
Testing & Assembly Cell



Turnkey Inspection & Testing Cells



- Parts:

- Transmission Housing

- Customer Problem:

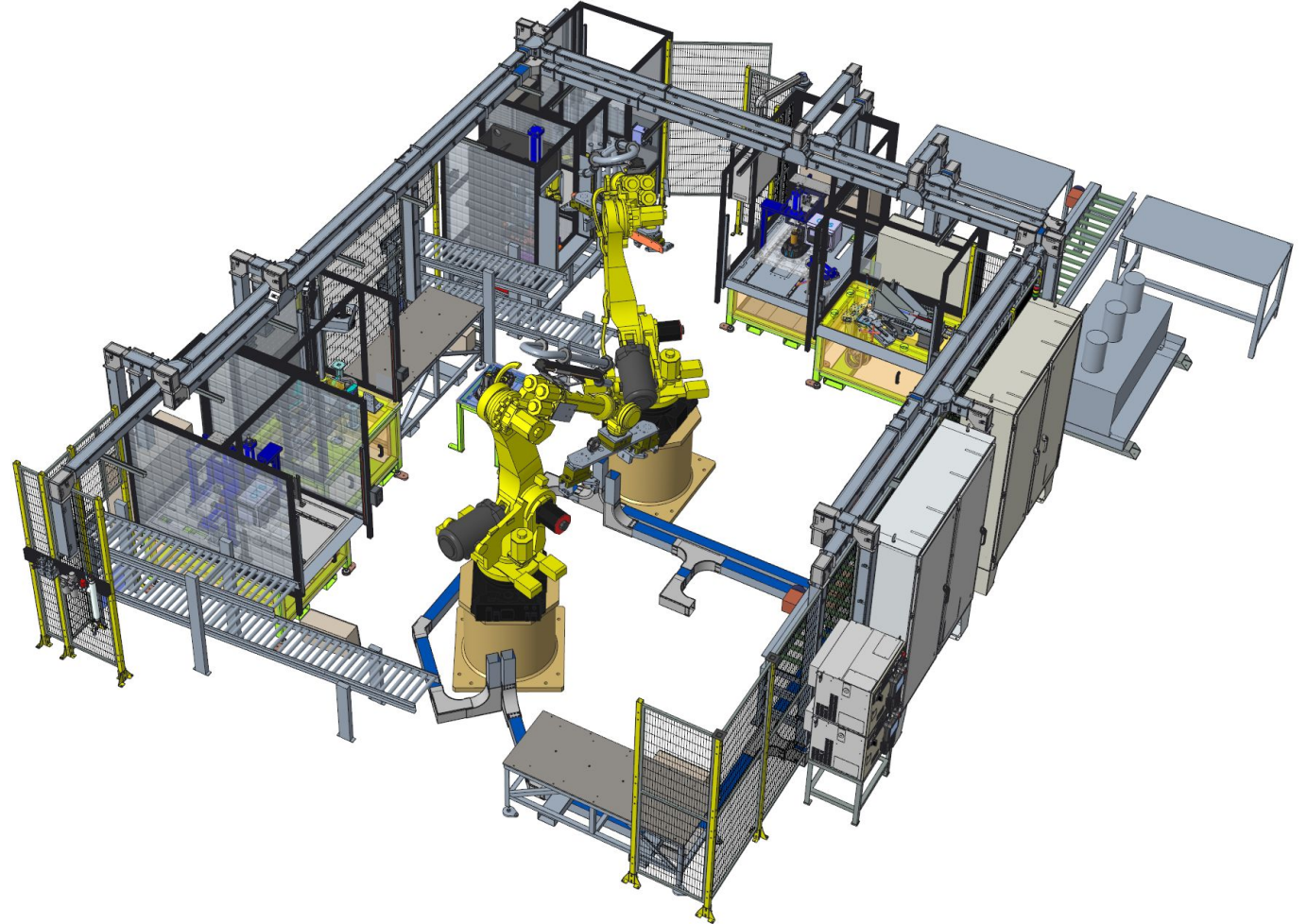
- The assembly, testing, and gaging process was too labor intensive
- Critical end of line machining processes require reliable and repeatable verifications
- System capable of running both case's & cover's all in one manufacturing system

- The project:

- This system consists of two robots managing part handling for automation. Various End of line operations are performed in this cell such as leak test, bushing press, contact probe gaging, vision inspection and part stamping for classification.

- Process:

1. Incoming Powered Zoned Conveyor
2. Robotic Integration & EOAT
3. Hydraulic Busing Presses
4. Leak Test Systems
5. Contact Probe Inspection Systems
6. Vision Inspections Systems
7. Part Stamping
8. Cell full integrated, debugged, and assembled

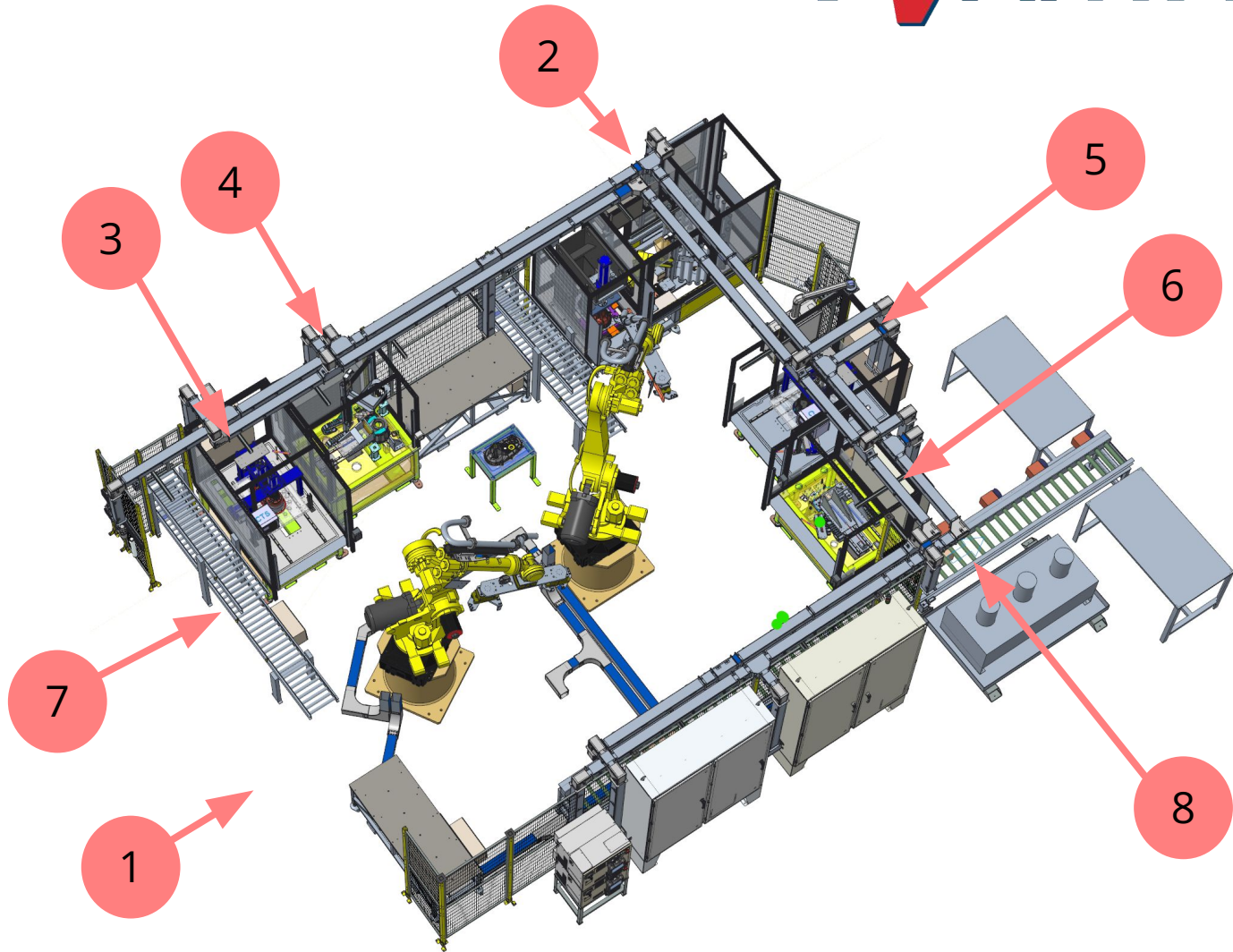


Turnkey Inspection & Testing Cells

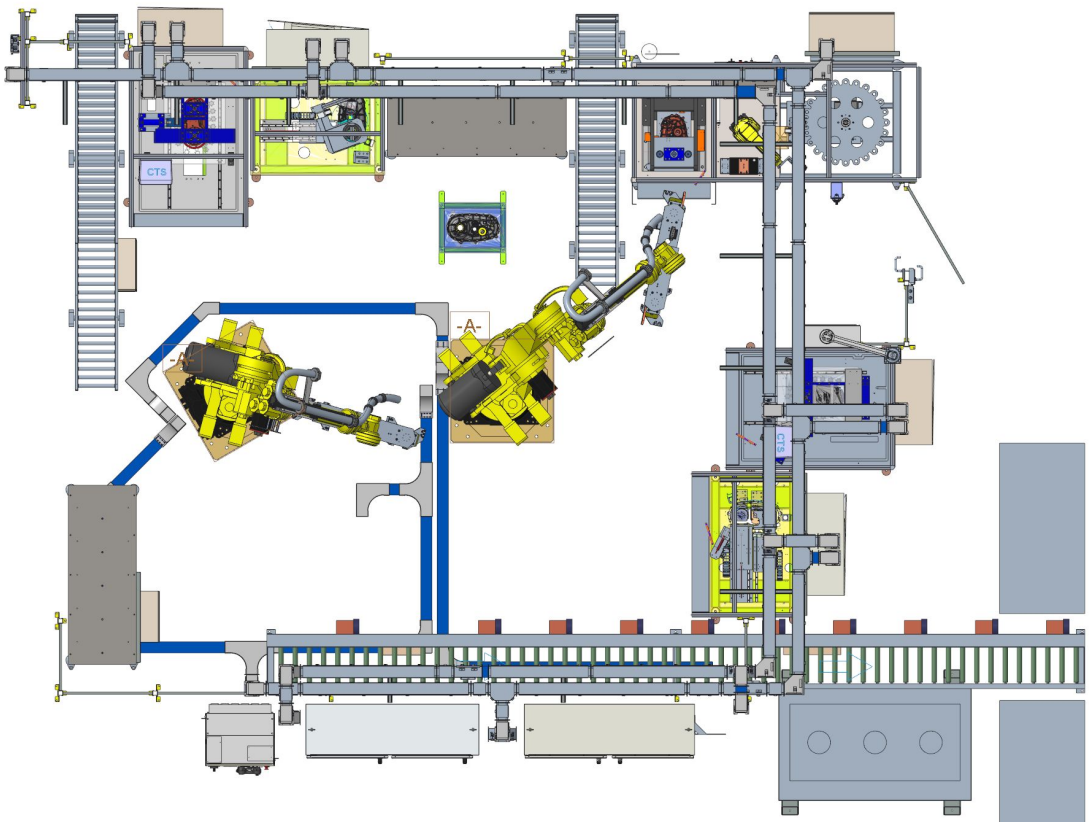


• Overview:

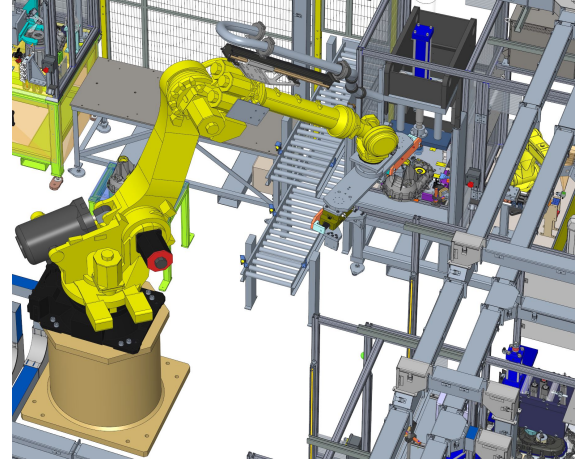
1. Incoming Station
 - Customer Provided Powered Conveyor
2. Bushing Press Station
 - Automatic Bushing Press
 - Robotic Material Handling
3. Front Leak Test Station
 - Part Dependent Leak Test Station
 - Part Impact Marking
4. Front Inspection Station
 - Part Dependent Leak Test Station
 - Part Impact Marker
5. Rear Leak Test Station
 - Part Dependent Leak Test Station
 - Part Impact Marking
6. Rear Inspection Station
 - Part Dependent Leak Test Station
 - Part Impact Marker
7. Reject Conveyors
 - Gravity Roller Conveyors
8. Outgoing Conveyor
 - Roller Power Conveyor



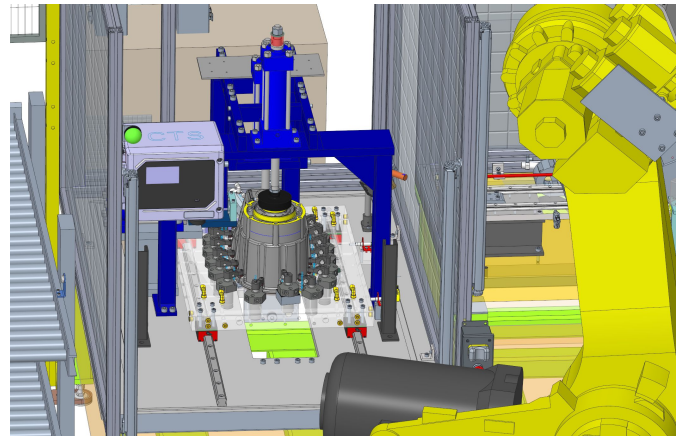
Turnkey Inspection & Testing Cells



Layout



Robotics Material Handling



Automated Leak Testing and Bushing Press



Turnkey Inspection & Testing Cells



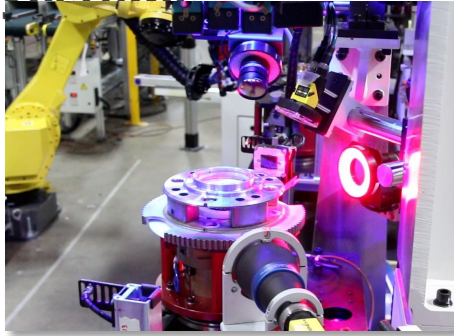
Turnkey Inspection & Testing Cells



Core Product Overview



Inspection Systems



Vision, Laser, Pneumatic, Dynamic, Torque, as well as Classification and Identification

Automation & Robotics



Fully automatic systems to streamline your manufacturing process and increase production

Systems



Custom design or upgrade/retrofit existing lines with the latest sensors and manufacturing technology

Engineering & Service



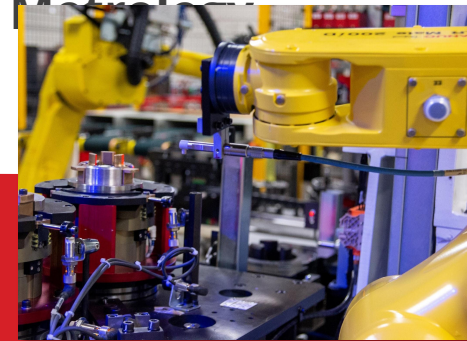
Let the +Vantage team's decades of experience solve your manufacturing challenges

Assembly Systems



Manual and semi-automatic multi-station assembly systems for pressing, torquing, & riveting

Industrial



Contact and non-contact gages for precision measurements. In-line and audit room.

Automation Made Seamless

Global Customer Reach



1,500

MACHINES BUILT

250

YEARS COMBINED EXPERIENCE

12

SYSTEMS INSTALLED IN +12 DIFFERENT COUNTRIES



USA (HQ)

12651 Newburgh Rd
Livonia, MI 48150
tel: [+1 734 432 5055](tel:+17344325055)

Canada

London, ON Canada
tel: [+1 226 234 1515](tel:+12262341515)

Mexico

Micro Parque Finsa Eje 2 #470-2
Ramos Arizpe, Coah. 25210
tel: [+52 1 844 270 9389](tel:+5218442709389)

China

14/F Suncome Cimic Tower
800 Shangcheng Rd
Pudong New Distric Shanghai. 200120
tel: [+86 137 7103 2628](tel:+8613771032628)



Automation Made Seamless

Company Overview



Company Size

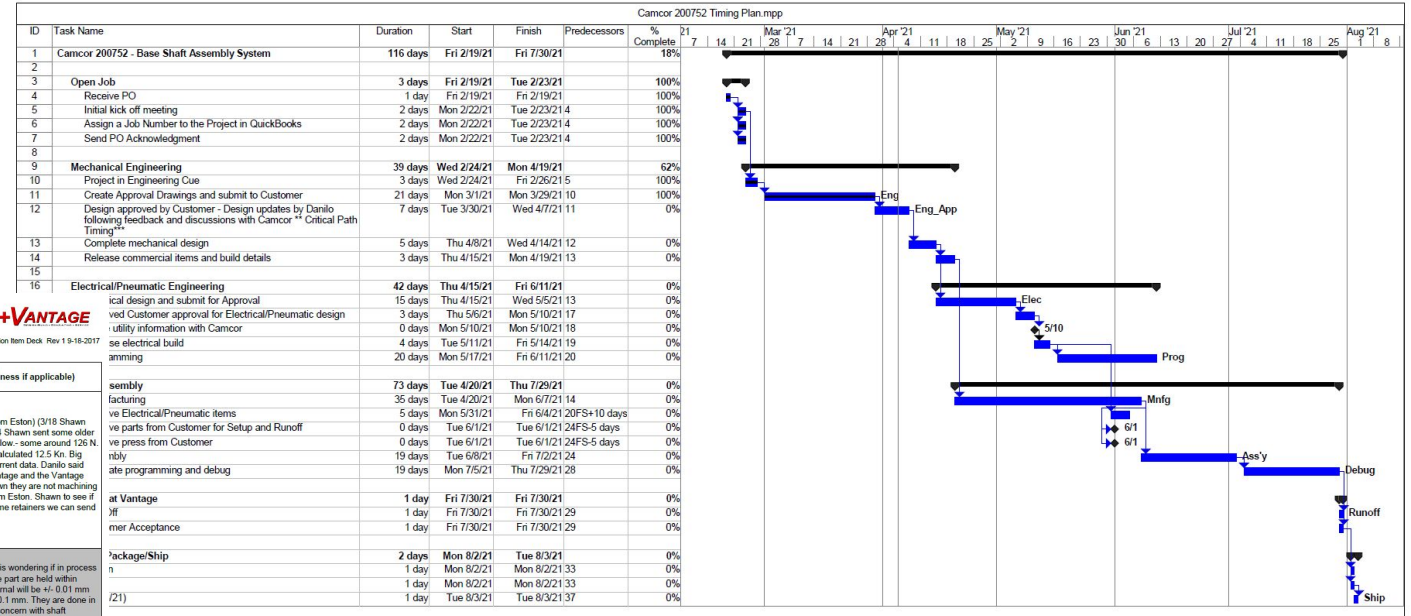
- 70 Employees Globally
- 100,000 sq. ft in Livonia
 - Additional office space globally

Certifications

- ISO 9001:2019
- Coherix System Integrator
- Fanuc Authorized Integrator
- Q-DAS ASCII Certification
- Schunk Official Partner
- Solartron Orbit 3 Integrator



Project Management



+Vantage - Action Item Deck

Project: Camcor 200752 Assembly System

Revised 3/24/21

Item	Operation	Item Description	Key Contact for Item	Actions	Date Open	Target Close date	Actual Close Date	Comments (and note effectiveness if applicable)
5	Press	max expected press force for retainer	Shawn		3/8/2021	3/12/2021		(3/10 Shawn working to get this info from Eston) (3/18 Shawn still waiting for info - will try again) (3/24 Shawn sent some older 2018 and 2019 data - loads are VERY low - some around 126 N) Danilo talked with Promess and they calculated 12.5 Kn. Big difference - Shawn still trying to get current data. Danilo said Shawn could send sample parts to Vantage and the Vantage could send parts to Promess. Per Shawn they are not machining parts now - would need to get parts from Eston. Shawn to see if he can get 5 shafts from Eston and some retainers we can send to Promess)
9	Eng	Shawn to look at in process tolerances for journals - Danilo is considering to use Vees to support journals during press.	Shawn		3/10/2021	3/12/2021	3/24/2021	(3/18 +/- .1 current tolerance. Vantage is wondering if in process spec could be that all diameters on one part are held within tighter tolerance) (Per Bobby Large journal will be +/- 0.01 mm and smaller inside journals can be +/- 0.1 mm. They are done in different operations. Bobby indicating concern with shaft bending. Critical item to get press force info - see item 5 so analysis of potential bending can be performed) (3/24 will close - see item 5 and 15)
11	Feeding system	Vantage using Feeding Concepts for feeding systems. Request deviation from Camcor spec that was sent 3/12. PO has been placed.	Shawn		3/18/2021	3/19/2021	3/24/2021	(3/18 Shawn will investigate. Vantage has developed this project with Feeding Concepts before specification was received.) (3/24 Deviation approved to use Feeding Concepts - commercial issue - Vantage did not have machine spec revision in quoting stage)
12		Bobby requesting to look at feasibility to check retainer height 0.3	Danilo/Todd		3/18/2021	3/31/2021		(3/24 request in in Proposal department - should have by next week)
13	Feeding system	1/2 cubic feet retainers and coffee can of balls	Shawn		3/18/2021	4/1/2021		(3/24 Shawn working with Eston to try and get parts)
14	Shipping/install info	Shawn requesting info re. shipping and utilities	Shelley/Zach		3/22/2021	7/23/2021		(See email sent 3/22/21 from Shawn. Utility information can be provided sooner after electrical design)
15	Eng	FEA Study for press operation	Danilo	Ref Item 5 and item 9				(3/24 Danilo did Preliminary FEA study on current design based on 20Kn and 12.5Kn. If 20Kn force applied, will deform shaft. 12.5Kn would not deform shaft. Is below max yield)



10

+V

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Proud Partners of:



Robotics



Vision Systems



Marking Systems



PLC

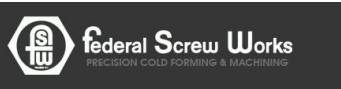


Torquing/Pressing



Our Featured Customers

+VANTAGE



On-Site Service & Support



100% Dedication to Customer Service

Global Support On-Site Representatives

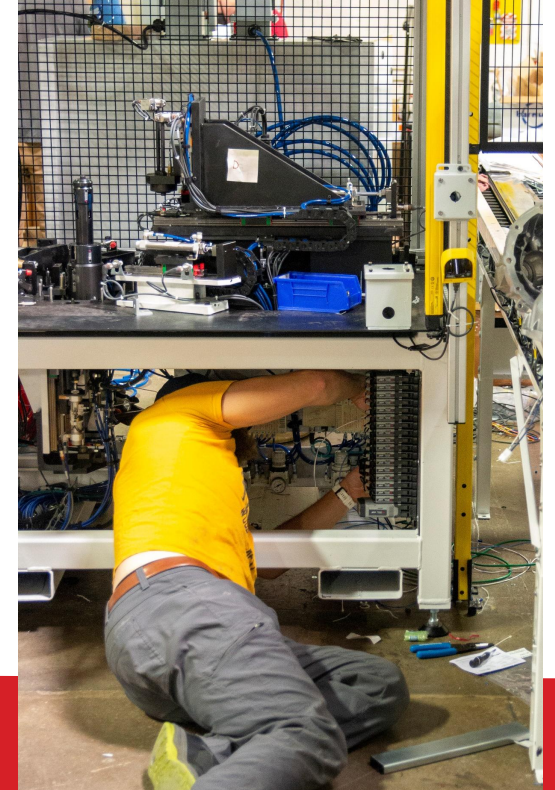
Quick Response Unit and Down Time Recovery

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24/7 Service Support

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Livonia, MI 48150
tel: +1 734 432 5055

Automated Inspection

Mexico

Micro Parque Finsa Eje 2 #470-2
Ramos Arizpe, Coah. 25210
tel: +52 1 844 270 9389

Quality Assurance

Canada

London, ON Canada
tel: +1 226 234 1515

Zero Defects

Thank You for Reading!

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Pudong New District Shanghai. 200120
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+VANTAGE
Metrology & Assembly Solutions

14

+V

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