

Genesis Case Study #: J5604-001  
Application: Robotic Lathe Tending – 2 Okuma Lathes  
Market Segment: Automation  
Product: Drive Train Gear – Planet Pinion  
Cycletime: 60 Seconds / part



### Summary

Full tubs of raw forgings are loaded by fork truck into a Genesis Bulkpick 2 part sorter. The Bulkpick automatically transfers the forging from the tub to the robot via powered conveyors. A Fanuc iRVision/2D camera package verifies the correct part number is present and provides position offsets to the robot. The robot picks the forging, re-oriens the part in a re-grip station, and rotates to the OP10 OKUMA lathe. Upon completion of the OP10 process, the robot unloads a completed OP10 part and loads a raw forging into the lathe. The robot re-grips the part and moves to the OP20 OKUMA lathe. The finished part is robotically unloaded from the lathe, and the OP10 part is loaded. Next, the robot moves to a customer supplied gauge, and exchanges a finish gauged part with a finished part from OP20. Finally, the robot places the finished gauged part onto an accumulating outbound, powered conveyor.

### Project Challenges

- Accommodate a full tub of raw parts (9 part numbers, up to 30 LB per part) with no changeover
- Achieve a cycle time of 60 seconds
- Allow access to lathes for tool change and process adjustment without interrupting the robot cycle.
- Okuma Thinc control panel needed to be fully accessible during production without interrupting production cycle.
- 95% uptime
- Fully integrate system with customer supplied automated parts gauge.

### Genesis Solution

- Single-robot workcell with a Fanuc R-2000iB/125L robot mounted on a 60" platform between the lathes
- Genesis Bulkpick parts sorter (Alternative to random 3D bin picking)
- Fanuc iRVision/2D package with Red LED lighting system
- Integration with (2) customer-supplied OKUMA LU-300 lathes
- Allen Bradley-based control package with 10" HMI and Ethernet I/P communications
- Programmable Safety Relay with Ethernet I/P monitoring
- Powered 14' outbound conveyor
- Dual 3-jaw ID grippers with custom part contacting details
- Interlocked manual inspection drawer with part nests
- Custom re-grip station (compatible with all part sizes)
- Custom Genesis 12' safety enclosure matching the front profile of the OKUMA LU-300 lathes