

Genesis Case Study #: J5605-001
Application: Robotic Lathe Tending – 2 Okuma Lathes
Market Segment: Automation
Product: Drive Train Gear – Sun Pinion
Cyclotime: 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, gages 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. The robot places the finished 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

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 25' outbound conveyor
- Dual 2-jaw 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