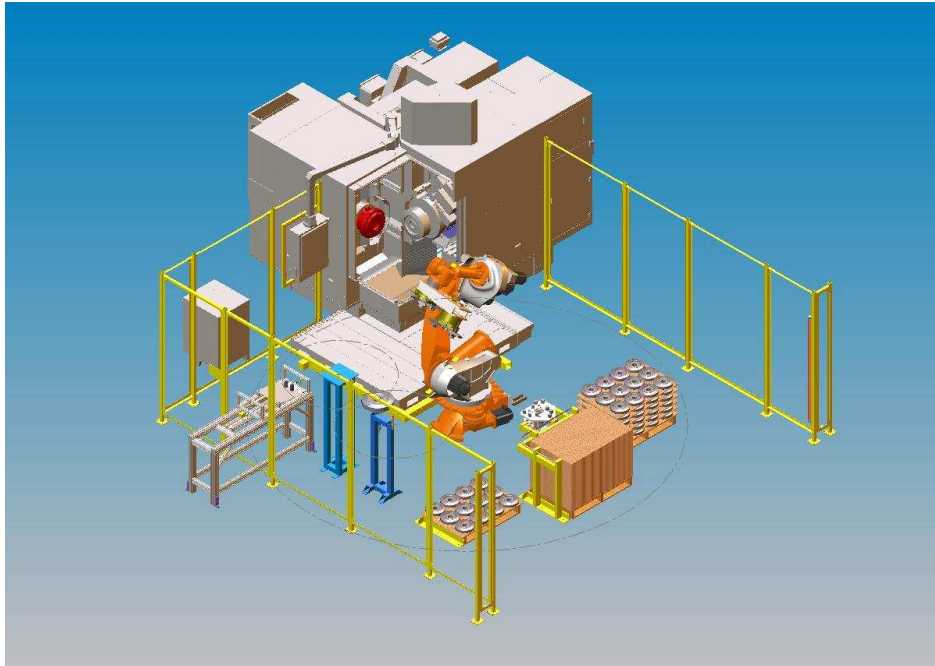


Case Study – Gear Load Unload Cell

Partnering with the machine tool builder, TEC automated the load and unload of a gear cutting machine.

System Requirements

- Process eight part numbers
- Run economically and effectively in batches of 500 or less
- Unload incoming parts from standard plant pallets and plywood divider boards
- Meet the financial goals set by the customer
- Keep the operator employed as the operator of this cell and additional cells
- Match or exceed the gear cutter takt time
- Eliminate all human touches





Description of the Solution

The system locates the next gear blank on the pallet and divider board with a laser mounted in the TEC end-of-arm tool. Once located, the robot grips the part with one of its 3-jaw OD grippers, moves to a regrip plate and sets the part down. The robot then regrips the part with the same gripper, moves to a TEC keyway finder located in a floor stand and senses and confirms the location of the keyway in the ID of the gear.

The robot sets the part down if needed so that when it enters the opening of the gear cutter, the end-of-arm tool assembly is clear of the machine tool. The robot then approaches the gear cutting machine, enters the machine with its empty gripper, grips the finished part, rotates its end-of-arm tool and places and seats and confirms the seating of the incoming 'to be cut' gear.

The robot places the finished part onto the outgoing part dunnage. When an incoming pallet has an empty dunnage layer, the robot moves to and grips a TEC vacuum tool that is used to grip and move the plywood divider boards. The vacuum tool is replaced into its tool holder when not in use.

Upon command or on a programmed basis, the robot places a cut part into the inspection shuttle and notifies the operator through the cell stack light and on the cell HMI that a gear is available for inspection.

Customer Benefits

- The robotic loader is well ahead of the machine cutting cycle including dunnage handling and inspection routines
- No human touches in the system – parts arrive on stacked pallets and leave in the same manner
- Heightened operator involvement with part quality in lieu of simple repetitive handling routines
- Heavy parts – up to 220 pounds each – are handled safely and quickly



TEC is a Staubli Robotics Strategic Partner

TEC Automation, Inc.

**30 Hickory Springs Industrial Drive
Canton, GA 30115**

**Phone 770-720-3333
www.tec-automation.com**