

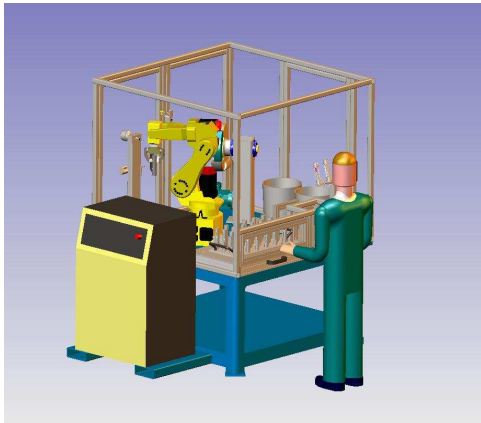
Case Study – Deburring & Polishing Receivers



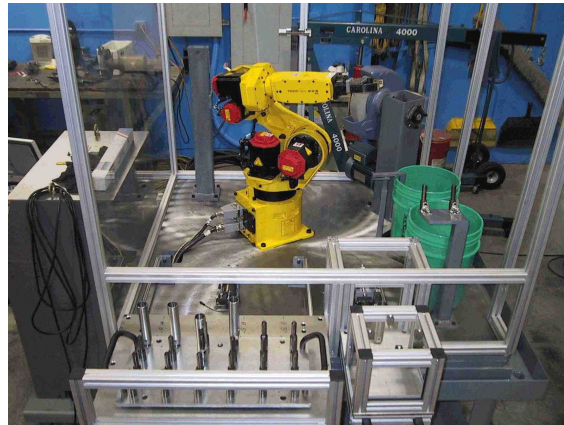
The customer was completely new to robotic automation. The hand deburring and polishing process was inconsistent and time consuming. Since the parts are traceable rifle receivers that are held to a high quality standard, automating the clean up of the machined parts with a robot workcell proved to be the right solution.

System Requirements

- To deburr (mill), brush and polish the parts and dip into a rust inhibitor material
- Process one part number
- Run economically and effectively in small batches
- Create an operator friendly environment; be able to adjust cutting depths easily
- Make the cell small enough to fit next to the machine tool
- Collect the fines for easy disposal
- Stay within a budget price



The SolidWorks 3D concept of the cell



The mill deburring, brushing and polishing cell

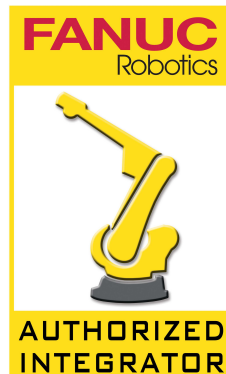


Description of the Solution

- TEC supplied a steel machine base with clear plastic sides, fines collection tubes and fines collection perimeter troughs.
- TEC designed and built a 24 part count shuttle infeed device. The fixtures used on the plates provide a solid and repeatable location for the robot to pick up incoming parts. The clever use of fixture location method is used to depalletize the incoming parts and palletize the outgoing parts.
- The TEC robotic end-of-arm tool is a gripper with part-specific encompassing details.
- A TEC tool tree was fitted to the steel machine base; it includes a milling tool and brush.
- A TEC turnover stand is used to datum the part during regripping of the part – this is so all areas of the part can be machined.
- TEC used the FANUC M-6iB/6S 6-axis floor mounted robot with the R-30iA controller and iPendant teach pendant

Customer Benefits

- Under 3 minutes machining time per part
- Reliable and consistent (and therefore traceable) part throughput and part dimensions
- Small footprint
- Easy to learn cell for new employees



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