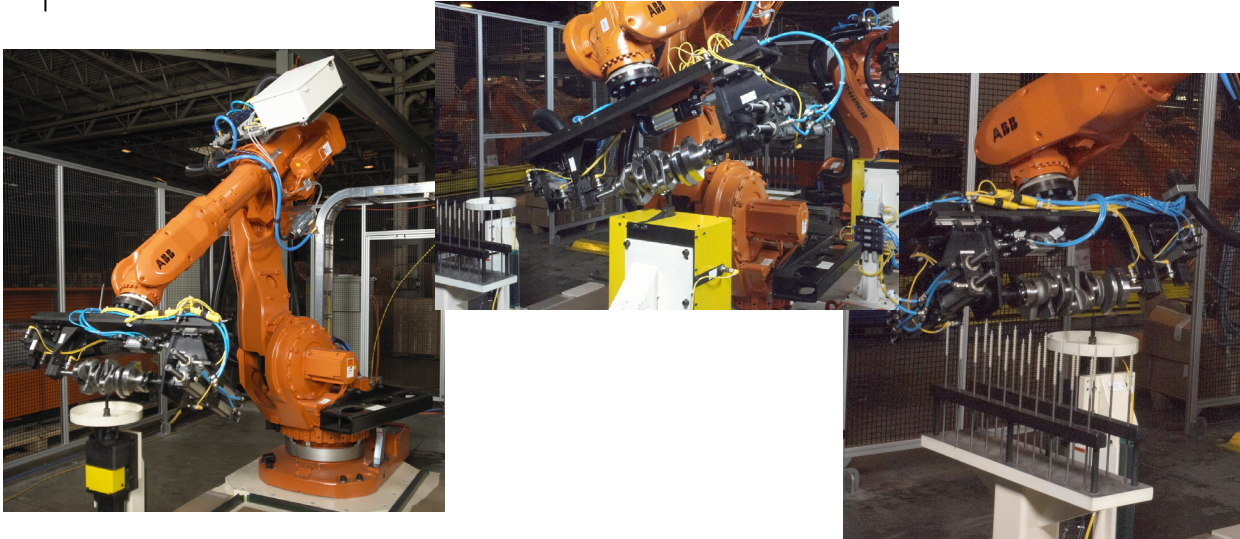


System Profile

Robotic Crankshaft Deburring



- Industry:**
- Automotive
- Part:**
- 4.0 liter Crankshaft
- Installation Date:**
- 2005

Description: Automates the process of deburring and wire brushing the oil passage holes in crankshafts. Part presented to the robot deburr station via conveyor system which transfers the parts to inside the deburring cell, consistently in the same orientation. The deburring tool is stationary and is mounted on the same base as the robot.

Part is removed from the conveyor pallet/fixture by the robot and repositioned in front of the deburring tool. The deburring tool is mounted stationary to a tool base mounted onto the common base. The robot moves the part to the deburring tool which deburrs the holes on one side of the crankshaft (four mains through holes and six pin-to-main holes). The end effector rotates the crankshaft 180° and the robot proceeds to hold and move the crankshaft while the remaining holes are deburred. The robot then presents the crankshaft to the brush out stand where a brush mounted to a pneumatic slide probes the oil holes for any foreign material. Part is then placed onto the pallet fixture by the robot and then conveyed out.

- Equipment:**
- (1) IRB 6600 robot
 - Robot/equipment common base
 - Crankshaft end of arm tool
 - Oil hole deburring tool
 - Brush out tool
 - Brush rotate table for automatic tool change
 - Guarding
 - Safety gates
 - Light curtains
 - PLC
 - Programming
 - Installation Supervision

- Customer Benefits:**
- Improved part quality
 - Reduced cycle time by 10%
 - Reduced manual intervention
 - Ergonomic enhancement – reduction of manual stations
 - Reduced or no part changeover
 - Continuous operation
 - Flexibility of production process on assembly line



System Profile

Robotic Crankshaft Deburring

- Technical Data:**
- Cycle Time: (1) robot 70 sec., (2) robots 36 sec.
- Unique Elements:**
- The “large” part is presented to the “small” deburring tool. With the robot handling a heavy mass (part and end of arm tool), tool chatter is reduced creating a much smoother chamfer.
 - Robot/equipment on one common base greatly reduces installation setup and start of production on customer’s floor.
- Customer provided equipment:**
- In-feed conveyor
 - Out-feed conveyor
- Project/Steps to Implementation:**
- Concept
 - Prototype/feasibility study
 - Specification
 - Proposal engineering
 - Project management
 - Mechanical engineering
 - Electrical engineering
 - System assembly
 - System programming and debug
 - Electrical design/engineering
 - Manufacturing/build
 - System installation on-site
 - System installation supervision
 - System training
 - Documentation
- Project Responsibility:**
- Robot Automation
- Photos/Video:**
- Yes

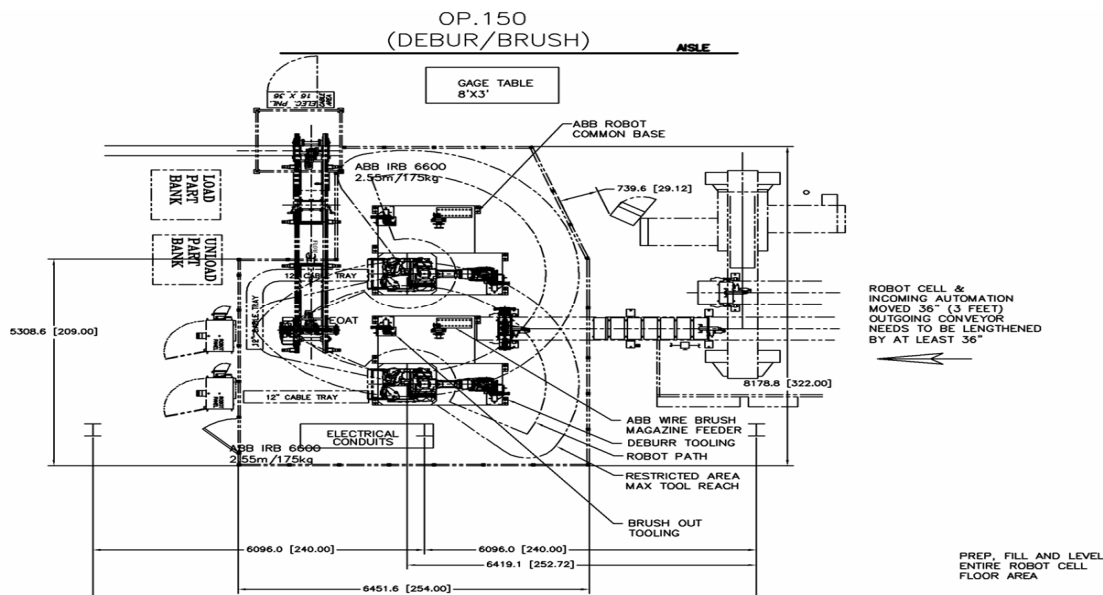


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