ACT-15282 is a robotic cell for automatic polishing of machining lines on IBR blade sides, fillet radius, and air flow path. The cell utilizes robotic arm and series of abrasive belt tools and rotary spindle programmed to gradually polish all IBR blades in pre-determined sequence. As belts and other abrasive are used the robot swaps tools with fresh abrasives to continue its polishing operations on the rest of IBR blades. Parts are loaded on servo controlled rotary table, automatically positioned by locating first blade before the polishing process begins. Offline motion programming software allows development of complex tool paths on contoured surfaces such as concave ad convex blade sides. Latest in robotic safety devices and methodologies compliant with RIA regulations are used. The entire system is surrounded by a dust and sound reducing enclosure with door safety interlocks.

Specifications:
- Robot arm payloads: 50kg
- Automatic tool changer
- Servo controlled rotary table with part chuck
- Tool magazine with belt and spindle tools
- ACTView Human Machine Interface software
- Common base and full enclosure

Options:
- Offline programming software for tool path generation
- Dust collector
- Tool alignment digital display setup station
- Rotate and tilt table upgrade
- Part specific chuck fingers
- Part specific programming service
POLISHING OPERATIONS
ACT’s robotic system will perform automatic polishing of blade airfoil sides (both convex and concave), fillet radius no both sides of the blade, and hub flow path. Polishing is done with robotic arm manipulating BGT-style belt tools loaded with pre-determined belt types as well as spindle tool handling various abrasive bits. These belt tools, spindle, and abrasive bits are located in a tool magazine from which the robot automatically picks them up based on programmed sequence. There are enough tools to allow uninterrupted operation even if abrasive belts or bits reach maximum wear before entire IBR is finished. Robot simply picks another tool loaded with the same abrasive and continues polishing process. Parts are loaded on rotary table and clamped with pneumatic 3-jaw chuck. This table can be upgraded to include +/- 90deg tilt axis. Leading and trailing edges are not touched with polishing programmed as close as 0.5mm.

STANDARD COMPONENTS:

ACTView HMI
Human Machine Interface software is loaded and runs on touch screen industrial PC. The interface provides graphical screens to allows operators and maintenance easy part selection, extensive diagnostics, parameter adjustments, helpful manual controls, machine and station status, etc. Settings for functions such as part scanning, tool wear, and more can be easily edited.