ACT-17287 is a multi-cell robotic system designed for easy production expansion. The system is made of center part feed conveyor and robotic grinding or polishing cells positioned on either side of it (minimum one robotic cell with conveyor). The system may grow by adding conveyor sections feeding another set of 1 or 2 cells.

Large parts are loaded and distributed by the ‘smart conveyor system’ to the attached cells based on automatic part recognition, tooling installed in the robot cells, and current part queuing of each cell. Robot cells include the robot, belt and wheel stations, tool magazine, part bins transfer table, part exit chute, re-grip station, reamer and debur spindles, dust collection ducting, enclosure, and common base.

Specifications:

- Minimum system made of conveyor and one robotic cell.
- Infeed conveyor with bin metering, vision, and bin transfer to cells
- Robot cell size: 10ft or 12ft x 12ft
- Robot arm payload: 50 or 80 kg
- Conveyor size: 2 x 16 feet
- Standard plastic bins 17.5 x 22.5 inch are used for part loading
- Automatic part recognition and distribution at conveyor
- Automatic part confirmation and position measurement in the robot cells for accurate picking of randomly placed parts.
- Abrasive stations for grinding and polishing
Multi-Cell Robotic Production
Model: ACT-15284

FIXTURELESS PART LOAD and SMART CONVEYOR

ACT Multi-Cell production system is based on conveyor distribution of simple plastic bins as part carriers to various cells integrated with the conveyor and placed on both sides of it.

This approach practically eliminates expensive part load fixtures. Part bins are metered and transported on the conveyor after vision part recognition and based on specific tooling present in each cell. The system also uses currently running part programs in each cell as well as number of bins in queue to optimally distribute parts between available robot work-cells. Sensors and metering mechanisms allow bin motion designed to keep center conveyor open for bins which need to be transferred through to other section of the production system. Touch screen HMI interface gives customers easy platform for operating and maintaining the system with extensive diagnostics.

EXPANDABILITY

The system is designed for future expandability as customer production needs grow. Each cell is capable of running different parts or multiple cells may run the same part. A starter system may be robotic cell by itself or single cell with conveyor. As production volume grows second cell can be added on opposite side of the conveyor or additional conveyor section attached to the end of 1st one with more robotic cells on each side of it.

ACT specializes in robotic surface finishing cells for operations such as cutoff, grinding, polishing, buffing, deburring, etc. and can supply a number of various configurations from our past projects library. These cells can be customized to customer’s applications or new configurations can be designed. Latest in robotic safety systems are integrated as well as enclosures with dust collection.

TYPICAL ROBOTIC CELL

Robotic cell included in the multi Cell production system may consist of the following:

- Robot arm with tool changer
- Robot mounted vision system
- Tool magazine with part grippers
- Belt and wheel grinding heads
- Buffing or polishing heads
- Part re-grip stations

HMI

HMI (Human Machine Interface) software is loaded and runs on touch screen interface. The interface provides graphical screens to allow operators and maintenance easy part selection, extensive diagnostics, parameter adjustments, helpful manual controls, machine and station status, etc. Remote connection is available for system production and status reporting.