

## DEFENSE LOGISTICS AGENCY

# ManTech (SBIR) Develops Stretch Roll Forming of Complex Extrusions

### The Challenge:

• Modern commercial and military airframes use complex parts produced from extrusions of many differing shapes and sizes. The current process for developing these parts requires a different die for each part. In the case of a small batch size, particularly for maintenance, too much time is spent in setup/retooling and the large footprint is detrimental to onsite part production.



Cumbersome Dies, inefficient Tooling, Manual Process



Large Footprint, Multiple Tools



Small Footprint, Digital accuracy, Cost effective, Green Technology

### ManTech Response:

- DLA's SBIR program identified and developed Stretch Roll Forming as a means to produce extrusions at any level of maintenance, including maintenance depots and aircraft carriers
- Stretch Roll Forming is an agile, portable, green, "dieless" CNC process for forming extrusions
- DLA SBIR investment of \$760K

### Impact:

- The benefits will directly influence new and existing DoD programs, as well as provide a positive impact on commercial programs including airliner manufacturing.
  - **Process improvement:** Simplified process with fewer steps, Reduces setup and retooling time, increases part quality, Reduces Waste Material, Clean/Green, Small footprint, Portable, Just-In-Time, and One-off spares
  - **Quality improvement:** Improves Strength, Increases Fatigue Life, Reduces Weight
  - Supports "**Complex of the Future**" goals of "100% Parts Availability", "Improved capability of local manufacturing" as well as "Rapid low-rate reverse engineering and manufacturing capability"

**Potential Savings of \$20M/year in Production and Maintenance Costs**

*Participants include; Defense Logistics Agency (DLA) Small Business Innovation Research ( SBIR), Fairmount Technologies, Spirit AeroSystems, Cessna Aircraft Company, and The Center for Innovation and Enterprise Engagement at Wichita State University*