



INDUSTRY BRIEF

Aerospace & Defense

Low-volume, high-mix precision work under full traceability and ITAR control, where fixed automation can't justify the tooling.

Aerospace and defense lines run low volumes across a high mix of parts, each held to tight tolerances and full part-level traceability under AS9100 and ITAR controls. Work is contact-rich and dexterous: layup, fastening, sealing, harness routing, deburring. Programs change faster than fixed tooling can be justified, and the skilled tradespeople who do this work are aging out faster than they can be replaced. Most of it resists conventional automation.

Relling deploys one workcell that learns a library of these skills and reconfigures in software per part, with all inference running on-premise inside your facility. No part data, geometry, or program leaves the floor. Every cell is qualified against your standards at Relling HQ before it ships, then tuned on-site, install to running in two weeks or less. Qualified before delivery, sovereign once installed.

AT A GLANCE

Footprint	~2 × 2 m
Payload	12.5 kg
Reach	1.3 m
Placement	±0.05 mm
Power	Single-phase
Install	≤ 2 weeks

01 The work we take on

THE TASK PROFILE

- A**

Low-volume, high-mix

Programs run dozens to hundreds of units, not millions, across many part numbers, so dedicated fixed tooling rarely pays back before the configuration changes.
- B**

Tight tolerances

Structural and engine components hold tolerances measured in thousandths of an inch, with surface and dimensional requirements that leave no margin for drift.
- C**

Full traceability

Every operation, operator, and serialized component is logged to AS9100 standards, with complete genealogy required from raw stock through final acceptance.
- D**

ITAR and on-premise

Technical data is export-controlled and cannot leave the facility, forcing all compute, models, and records to stay sovereign behind the plant boundary.
- E**

FOD control

Foreign object debris is mission-critical; every tool, fastener, and offcut is accounted for, and loose material in an assembly can ground an aircraft.

02 Why now

THE CASE FOR MOVING NOW

- Defense output is surging**

Onshoring and rearmament are driving production rate increases that legacy lines and fixed tooling cannot absorb. A software-reconfigurable cell adds dexterous capacity per part without retooling, closing the gap between mandated rates and available throughput.
- The skilled trades are retiring**

Machinists, layup technicians, and harness builders are aging out faster than apprentices replace them. A cell that learns a library of these skills captures scarce tradecraft and holds the line on output as the experienced workforce thins.
- Data must stay sovereign**

ITAR controls and program security make cloud inference a non-starter for export-controlled work. Relling runs every model on-premise behind your boundary, so traceability, geometry, and technical data never leave the facility while quality mandates stay fully met.

OEMS WE WORK WITH



03 What we automate in aerospace & defense

TASKS ON THE LINE

- A **Precision machine tending**
 Load and unload high-value billets and forgings into mills and grinders under tight repeatability.
- B **Composite layup assist**
 Place, debulk, and align prepreg plies onto contoured tools with controlled orientation and tension.
- C **Drilling and riveting**
 Drill, countersink, and fasten structural joints to spec on wing, fuselage, and panel assemblies.
- D **Sealant application**
 Apply fillet and fay-surface sealant in controlled beads along fastened seams and joints.
- E **Harness routing**
 Route, dress, and secure wire harnesses through brackets and clamps in tight bays.
- F **Deburring and finishing**
 Deburr edges and finish precision machined parts to drawing without scratching critical surfaces.
- G **Traceable kitting**
 Pick and stage serialized components into traveler kits with logged genealogy per assembly.
- H **Dimensional and FOD inspection**
 Verify key dimensions and confirm zero foreign object debris before closeout and acceptance.

WHAT A CELL HOLDS

≤ 2 wk

Install to running on your floor, not months of integration

±0.05 mm

In-hand placement for fit- and safety-critical parts

100%

Inspection on every part — checked, not sampled

Representative configuration. Final specs are issued with the proposal.

04 Working with us

FROM YOUR PART TO A QUALIFIED CELL, IN ~TWO WEEKS ON-SITE

A · SCOPE & PO

We start with your part

We work from your part, volumes, takt, and the line you'd deploy on. A short scoping engagement confirms fit, defines acceptance criteria, and puts a fixed scope and price in writing — capital purchase and robotics-as-a-service, side by side.

C · ON-SITE CONFIGURATION

It arrives pre-built

The qualified cell shows up ready. On-site work is tuning, not assembly: under two weeks to integrate with your line, MES/ERP, and safety, followed by a supervised run on real product.

B · PRE-BUILD AT RELING HQ

We build & qualify it first

We build the cell on our own production floor and run it against your parts until it meets the acceptance criteria. The trial-and-error happens here, not on your line — so what ships is already proven.

D · ACCEPTANCE & FIRST UNIT

Proven, then handed over

We run supervised until your safety engineer signs off and the cell hits its numbers. Your technicians operate it day to day; maintenance and software updates are covered.

05 Let's talk

We started Relling to help this country make more of what it needs. If you have a task that's hard to staff or hard to automate, send it over — we'll tell you straight whether a cell fits, and scope it if it does.

Talk to us: jai.relan@rellingsystems.com · rellingsystems.com

EXCEPTIONAL ENGINEERING, TEAM FROM

