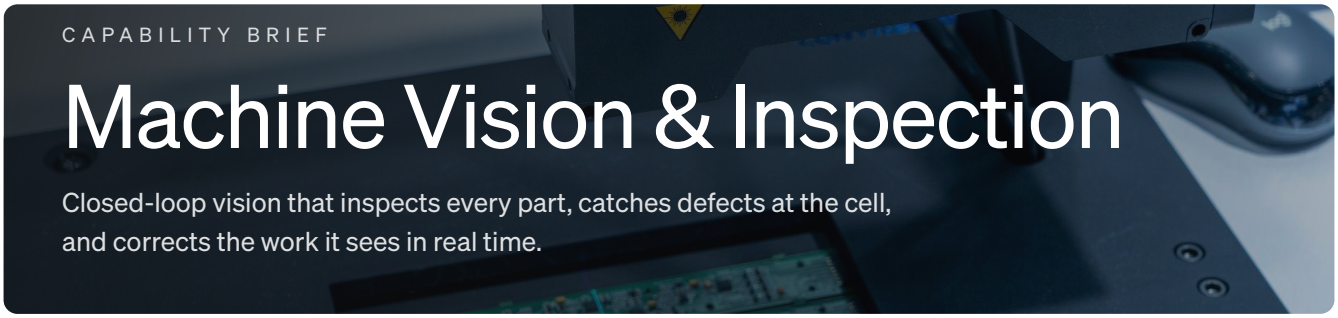

CAPABILITY BRIEF

Machine Vision & Inspection

Closed-loop vision that inspects every part, catches defects at the cell, and corrects the work it sees in real time.

Sampling inspection ships the defects it never looked at. Fixed vision rigs solve one part under one light, then break the moment the part changes, the fixture shifts, or the line goes high-mix. Quality escapes reach the customer; rework and scrap pile up upstream. Closed-loop, learned vision inspects 100% of parts, adapts to variation it was trained on, and feeds what it sees straight back into the cell's motion.

Vision is integral to the Relling cell, not a downstream gate. The cell sees the part, acts, then verifies its own work before release, correcting placement, force, and path from what the camera reports. Reconfiguring for a new part is a software change, not a re-rig, and all inference runs on-premise so part images and process data never leave the floor. Every routine is qualified at Relling HQ before the cell ships.

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

Closed-loop correction

Inspection results drive the cell directly, adjusting grasp, placement, and force in real time so the system fixes deviations instead of only flagging them.

B

100% inspection

Every part is measured, not a sample. Defect rates, dimensions, and pass/fail are logged per unit for full traceability and trend detection.

C

Learned defect models

Vision is trained on real defect libraries, not hand-tuned thresholds, so it generalizes across part variation and lighting instead of breaking on it.

D

Lighting robustness

Controlled illumination and learned models hold detection accuracy across shift changes, ambient light, and surface finish without per-part retuning.

E

On-premise inference

All image processing and model inference run on the cell. Part geometry, defect data, and process imagery stay inside the plant network.

02 Why now

THE CASE FOR MOVING NOW

Escapes are expensive

A defect that reaches the customer costs orders of magnitude more than one caught at the cell. 100% inspection at the point of work turns escapes from a recall risk into a logged, contained event upstream.

Quality mandates need proof

Aerospace, medical, and automotive customers demand per-part traceability, not sampling statistics. Logged inspection data on every unit gives auditable evidence that each part met spec, tied to the moment it was made.

Inspection labor doesn't scale

Manual visual inspection is slow, inconsistent across operators and shifts, and hard to staff. Learned vision holds one standard at line rate, freeing skilled people for work that actually needs judgment.

OEMS WE WORK WITH

BECKHOFF · Rockwell Automation · SIEMENS · FANUC · KUKA · ABB · YASKAWA

03 What the service covers

TASKS ON THE LINE

A — Presence / absence
Confirm every fastener, clip, gasket, and connector is present before the part advances.

B — Dimensional metrology
Measure critical dimensions and tolerances inline, flagging parts that drift out of spec.

C — Surface defect
Detect scratches, dents, voids, contamination, and finish flaws across part surfaces.

D — Weld & seal inspection
Verify weld bead continuity, seam integrity, and seal coverage on every joint.

E — OCR & barcode
Read and verify lot codes, serials, date marks, and barcodes against expected values.

F — Assembly verification
Confirm correct components, orientation, and seating before the next operation runs.

G — Fill-level check
Validate fill height, dispense volume, and dose accuracy on filled containers.

H — FOD detection
Find foreign objects, debris, and stray material in cavities, trays, and packaging.

WHAT A CELL HOLDS

≤ 2 wk	±0.05 mm	100%
Install to running on your floor, not months of integration	In-hand placement for fit- and safety-critical parts	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.

B · PRE-BUILD AT RELLING 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.

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.

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

SPACEX · NASA · BOEING · TESLA · RIVIAN · ANYSIGNAL · coinbase