

Request for Quotation (RFQ)

Title: Industrial Depalletizer Robotic Cell — Infeed Pallet to Singulated Case Outfeed

RFQ No.: EPF-RFQ-2025-001

Issuing Company: EPF, Co.

Issue Date: September 12, 2025

Proposal Due: October 3, 2025 @ 5:00 PM ET

Primary Contact:

EPF, Co. — Capital Projects

Attn: RFQ Lead — Casey Ellison

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0) Purpose & Background

EPF, Co. seeks firm fixed-price proposals for a turnkey industrial depalletizer robotic cell that singulates corrugated cases from incoming pallets onto an outfeed conveyor. The solution will be delivered, installed, commissioned, and validated at EPF's Sterling Heights facility. This RFQ defines the required scope, technical and commercial conditions, documentation, acceptance criteria, and proposal format.

1) Scope Summary

Vendor (Turnkey Integrator) Scope: - System engineering, risk assessment, detailed design, fabrication, assembly, wiring, programming, testing, delivery, installation, commissioning, and training. - Provide complete robotic depalletizing cell including robot(s), end-of-arm tooling (EOAT), case sensing/vision, conveyors, guarding, controls, safety, and HMI. - Provide all drawings, BOM, manuals, source code, and spare/recommended parts list. - Meet all performance targets and acceptance criteria stated herein.

EPF Scope (by Owner): - Provide incoming power feed to main disconnect, plant network drop, and compressed air to cell boundary. - Provide pallets and cases for FAT/SAT and production validation. - Provide floor space and building permits as required; assist with offloading and placement per agreed rigging plan.

2) System Description (Required Function)

- Receive full pallets of mixed or single-SKU corrugated cases on an infeed conveyor.
- Automatically locate, pick, and place one case at a time to an outfeed singulation conveyor in the specified orientation.
- Handle interlayer sheets and top frames (if present) per Section 6.
- Detect empty pallet, index pallet out, and stage next pallet automatically.

- Provide HMI for recipes, SKUs, alarms, diagnostics, and maintenance.
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3) Performance Requirements

- **Throughput (sustained):** 12 cases/minute (cpm) averaged over 8-hour shift, with **peak** capability \geq 18 cpm for \geq 60 seconds.
 - **Uptime / Availability:** \geq 95% during SAT performance test window (Section 18).
 - **Pick Success:** \geq 99.0% singulation accuracy without double-feeds; auto-recovery or operator prompt for exceptions.
 - **Changeover:** SKU change via HMI recipe in \leq 60 seconds without tools.
 - **Orientation:** Deliver cases long-side-leading (unless recipe specifies otherwise) with spacing \geq 6 in (150 mm) on outfeed.
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4) Materials & Pallet/Case Specifications (EPF Data)

Pallets:

- Standard: 48 in \times 40 in (1219 \times 1016 mm) GMA; wood stringer pallets; 4-way entry.
- Max load height: 72 in (1829 mm) including pallet; Max gross pallet weight: 1200 lb (544 kg).
- Pallet top deckboard gaps \leq 3.5 in (90 mm).

Cases (corrugated RSC/regular slotted): - Dimensions (L \times W \times H):

- Min: 6 \times 4 \times 3 in (150 \times 100 \times 75 mm)
- Max: 24 \times 16 \times 16 in (610 \times 406 \times 406 mm)
- Mass per case: 1.0–35.0 lb (0.45–15.9 kg).
- Surface: kraft or white; may include tape seams/labels; occasional low-gloss shrink wrap.

Unitization:

- Patterns: column-stack and interlocked; up to 6 layers; interlayer slip-sheets occasionally present; optional stretch wrap up to 3 revolutions.
- Mixed-SKU pallets up to 2 SKUs per pallet (worst-case alternating layers).

Environment:

- Temperature 60–85°F (16–29°C), RH 30–70%, non-condensing; dust-moderate packaging area.
 - Noise target at cell boundary \leq 80 dBA (operator position).
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5) Mechanical & Layout Requirements

- **Footprint:** Fit within 18 ft \times 20 ft (5.5 m \times 6.1 m) envelope (vendor to propose optimized layout).
- **Infeed Conveyor:** Chain-driven live roller (CDLR) pallet conveyor, 4,000 lb capacity; top of roller (TOR) 18 ± 1 in (457 ± 25 mm).
- **Outfeed Conveyor (cases):** Belt or MDR; TOR 30 ± 1 in (762 ± 25 mm) with speed to achieve throughput/spacing.

- **Pallet Handling:** Automatic pallet stop, centering, and presence detection; empty pallet discharge to outfeed pallet conveyor or stacker.
 - **Guarding:** Perimeter fencing with interlocked doors; polycarbonate vision panels at robot area; maintenance access clearances ≥ 36 in.
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6) Robotics, EOAT & Sensing

- **Robot:** 6-axis industrial robot suitable for 35 lb payload plus EOAT; reach to cover full pallet footprint and outfeed.
 - **EOAT:** Vacuum or hybrid (vacuum + mechanical) case gripper with zoned cups, vacuum sensing, and check valves for porous/irregular surfaces.
 - **Vision/3D Sensing:** 3D camera(s) or lidar/structured light to localize case top surfaces and edges; algorithms for top-layer detection, de-wrap bias correction, and double-pick prevention.
 - **Interlayer Handling:** Detect slip-sheets; remove to designated bin or park on pallet per recipe.
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7) Controls, Safety & HMI

- **PLC Standard:** Rockwell Automation ControlLogix/CompactLogix with GuardLogix safety (preferred); vendor alternatives accepted with justification.
 - **HMI:** PanelView or equivalent 12 in+ touchscreen; intuitive recipe management; diagnostics, alarm history, and maintenance pages.
 - **Networks:** EtherNet/IP for I/O and drives; managed switch within panel; IGMP snooping; one (1) plant VLAN uplink at boundary.
 - **Electrical:** Main disconnect with lockable handle; short-circuit current rating (SCCR) ≥ 65 kA; 480 VAC 3-phase, 60 Hz; 120 VAC control power via transformer; all panels UL 508A labeled.
 - **Safety:** Category and Performance Level to meet required risk reduction (SIL/PL per risk assessment). Interlocked doors, e-stops, safety scanners as required.
 - **Utilities:** Compressed air 80–100 psig dry/oil-free; vendor to state average and peak SCFM.
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8) Software Deliverables & Standards

- Source code for PLC, safety, robot, HMI, and vision (unobfuscated) with comments and symbol databases.
 - I/O list, tag database, UDT/ADD-On Instructions naming standard, and network IP plan.
 - Simulation/offline programming files if used; calibration procedures; backup & restore method.
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9) Documentation Deliverables (at FAT; updated at SAT)

1. General arrangement (GA) drawings with loads/anchor plan.
2. Electrical schematics (NFPA 79) and panel layouts with bill of materials.
3. Pneumatic schematics and EOAT exploded views.

4. Risk assessment report and verification/validation plan.
 5. Spare/recommended parts list (min/critical spares).
 6. Preventive maintenance plan and lubrication schedule.
 7. User manuals (operation, maintenance, troubleshooting).
 8. Training materials and sign-off sheets.
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10) Compliance & Standards (latest applicable editions)

- Applicable OSHA regulations; machine guarding and lockout/tagout.
- A3/RIA industrial robot safety (e.g., ANSI/A3 R15.06).
- ISO 10218-1/-2 industrial robot safety and ISO/TS 15066 (if collaborative features are proposed).
- NFPA 70 (NEC) and NFPA 79 Electrical Standard for Industrial Machinery.
- UL 508A Industrial Control Panels (US) and CSA equivalents (if applicable).
- CEMA/ANSI for conveyors; applicable local codes and ordinances.

Vendor must list any exceptions or alternate standards explicitly in the proposal.

11) FAT, SAT & Acceptance Criteria

Factory Acceptance Test (FAT): at vendor's facility prior to shipment.

Vendor to prepare test plan; EPF to witness.

- Demonstrate sustained 12 cpm with three (3) EPF case sizes and one (1) mixed-SKU pallet.
- Demonstrate peak 18 cpm for ≥ 60 seconds.
- Singulation success $\geq 99.0\%$, no double-feeds; recovery handling for stuck/damaged cases.
- HMI recipes, alarms, diagnostics, and e-stops; safe torque off; door interlocks.
- Documentation package (Section 9) 95% complete.

Site Acceptance Test (SAT): after installation at EPF.

- 8-hour performance run: $\geq 95\%$ availability; $\geq 99.0\%$ singulation accuracy; ≥ 12 cpm average.
 - Operator training completion and sign-off.
 - As-built documentation delivered; punch-list closed.
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12) Training & Handover

- Operator training (2 sessions \times 4 hours) and maintenance training (1 session \times 6 hours).
 - Training materials (slides, work instructions) in PDF and native formats.
 - Final handover includes source code archives, passwords/keys, license documents, and asset list.
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13) Warranty & Support

- Minimum 12-month warranty from SAT acceptance or 18 months from shipment, whichever occurs first.
 - Define response times (remote within 4 hours business days; on-site within 48 hours) and escalation path.
 - Include optional service contract pricing (annual) and spare parts kit.
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14) Project Management & Schedule

- Provide detailed schedule (Gantt) with milestones: design release, procurement, fabrication, software complete, FAT, shipment, installation, SAT.
 - Target dates: FAT by **Week 14** from PO; SAT complete by **Week 18** from PO.
 - Weekly progress updates and issue log; single point of contact (PM).
 - Change control procedure for scope/schedule adjustments.
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15) Commercial Terms

- Pricing: firm fixed price; provide line-item breakdown (hardware, fabrication, software, FAT, shipment, install, SAT, training).
 - Payment Milestones (proposed): 30% PO; 30% Design Release; 30% FAT pass; 10% SAT pass.
 - INCOTerms: DDP Sterling Heights, MI (unless otherwise proposed).
 - Taxes: exclude state/local sales tax; note if applicable.
 - Liquidated damages (optional): propose performance LDs capped at 5% of contract value.
 - Performance bond (if required): indicate adder.
 - Validity: quotes valid \geq 60 days from due date.
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16) Proposal Submission Instructions

- **Due:** October 3, 2025 @ 5:00 PM ET; email PDF to **rfq@epf.example.com** with subject "EPF-RFQ-2025-001 – Depalletizer – <Vendor Name>".
 - Include completed **Appendix A-D** in original editable formats (Excel/CSV/Native).
 - Provide 2–3 recent, relevant references (contact name, company, phone/email) for similar systems.
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17) Evaluation Criteria (Weighted)

- Technical compliance & risk mitigation (30%)
- Performance vs. targets (20%)
- Schedule & project execution plan (15%)
- Total cost of ownership & energy/air consumption (10%)
- Service/warranty & lifecycle support (10%)

- Past performance/references (10%)
 - Exceptions (5%)
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18) Site & Utilities (EPF Provided)

- **Power:** 480 VAC 3-phase, 60 Hz, 100 A available at cell boundary.
 - **Air:** 100 psig dry/oil-free; 1-in NPT drop at boundary.
 - **Network:** 1× RJ-45 copper to plant VLAN; static IP to be assigned by EPF IT.
 - **Floor:** 8-in reinforced concrete slab; anchor embedment allowed per EPF engineering.
 - **Rigging:** Vendor to provide rigging plan; EPF to approve and coordinate dock access.
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19) Vendor Responsibilities (Detailed)

- Perform and document machinery risk assessment and implement risk reduction.
 - Provide full guarding & safety devices; validate safety function performance level.
 - Provide clear access for maintenance; label all devices and cables; provide wire markers and device tags.
 - Provide commissioning spares and all lubricants/consumables for SAT.
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20) Exceptions & Clarifications

Vendor must list any exceptions, deviations, or clarifications in a dedicated section. Items not listed are assumed compliant.

21) Appendices (to be completed and returned with proposal)

Appendix A — Technical Response Form (Fill-In)

A1. Robot & EOAT

- Robot make/model: _
- **Payload @ CG (lb/kg):** _
- Reach (mm): _
- **EOAT type (vacuum/mech/hybrid):** _
- Vacuum generator: [] Ejector [] Electric pump; Max SCFM: ____

A2. Vision/Sensing

- 3D sensor make/model: _
- **Localization method:** _
- Double-pick prevention: ____

A3. Conveyors & Pallet Handling

- Infeed pallet conveyor type & capacity: _
- **Case outfeed conveyor type/width/speed:** _

A4. Controls & Electrical

- PLC/CPU model & Safety PLC: _
- **Network topology:** _
- Panel SCCR (kA): ____

A5. Utilities & Consumption

- Avg/peak air (SCFM): _
- **Full-load amps (FLA):** _

A6. Performance

- Guaranteed sustained cpm: _
- **Peak cpm (≥ 60 s):** _
- Pick success %: _
- **Availability %:** _

A7. Layout

- Proposed footprint (L×W): _
- **Clearance to walls/aisles:** _

A8. Options (pricing separate)

- Empty pallet stacker
- Slip-sheet removal module
- Additional vision camera
- Redundant vacuum pump
- Remote support package

Appendix B — Pricing Breakdown (Template)

Line	Item	Description	Qty	Unit	Unit Price (USD)	Extended (USD)
1	Mechanical hardware	Robot, EOAT, conveyors, guarding, frames	1	lot		
2	Electrical & controls	Panels, devices, wiring, field I/O	1	lot		
3	Software	PLC/safety/HMI/robot/vision programming	1	lot		
4	Engineering	Design, drawings, risk assessment	1	lot		

Line	Item	Description	Qty	Unit	Unit Price (USD)	Extended (USD)
5	FAT	Build, debug, FAT execution	1	lot		
6	Freight & insurance	To EPF, MI (DDP)	1	lot		
7	Installation & start-up	On-site labor, travel, per diem	1	lot		
8	SAT & training	On-site testing, training	1	lot		
9	Options	(list)				
10	Total					\$0.00

Appendix C — Schedule & Milestones (Template)

Milestone	Target Weeks After PO	Notes
Design Release / Drawing Submittal	3	Includes GA, schematics
Procurement Complete	6	Long-lead items ordered
Fabrication Complete	9	Panels built, conveyors fabricated
Software Complete (Alpha)	10	Bench-tested
FAT	14	EPF witness
Ship	15	DDP Sterling Heights
Install	16	Mechanical/electrical
SAT	18	Performance run

Appendix D — Compliance Matrix (Vendor to Complete)

Section	Requirement	Compliant (Y/ N)	Notes / Reference
3	Throughput sustained 12 cpm; peak \geq 18 cpm		
3	Availability \geq 95% in SAT		
4	Case size & weight ranges		
5	Footprint within 18×20 ft		

Section	Requirement	Compliant (Y/ N)	Notes / Reference
6	EOAT with vacuum sensing & anti-double pick		
7	GuardLogix or equivalent safety PLC		
8	Source code deliverables		
9	Docs at FAT; as-built at SAT		
11	FAT/SAT criteria		
10	Standards compliance (OSHA, A3/RIA, ISO 10218, NFPA 79, UL 508A)		

22) Proposal Validity & Confidentiality

Proposals shall remain valid for at least sixty (60) days from the due date. All information contained in this RFQ and subsequent communications is confidential and shall not be disclosed to third parties except as required to prepare the proposal.

23) Right to Award

EPF, Co. reserves the right to accept or reject any or all proposals, to waive irregularities, and to award in the best interest of the company.

End of RFQ