

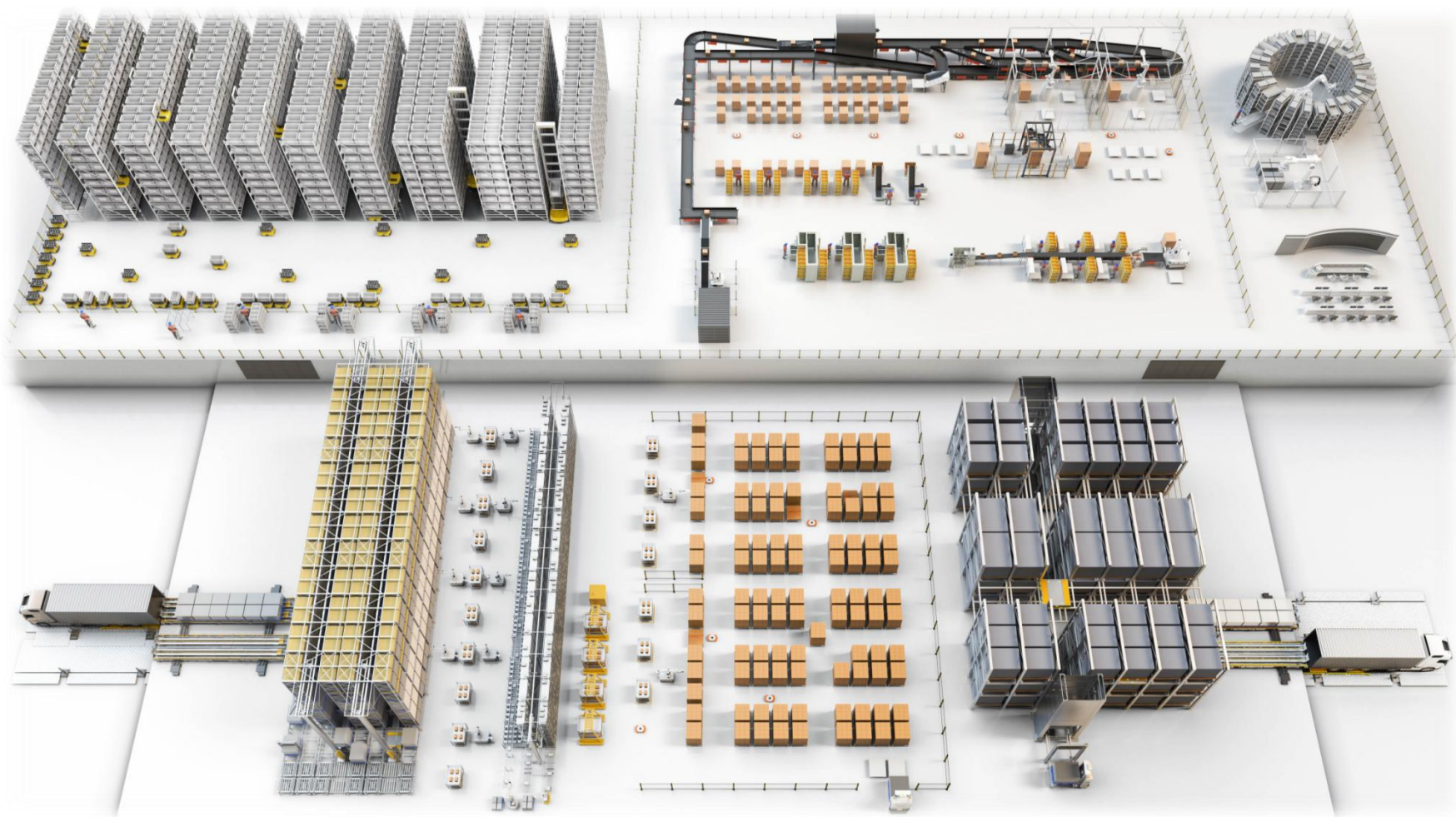
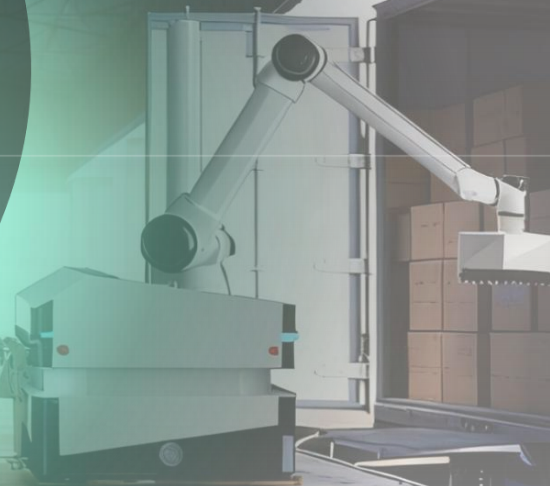


**Global pioneer in full-category
automated loading&unloading**

**From Loading & Unloading
to the Future of Industrialization**



Version No. 01



For customized solutions inquiries, please contact us | marketing@engoal-tech.com | www.engoal.tech



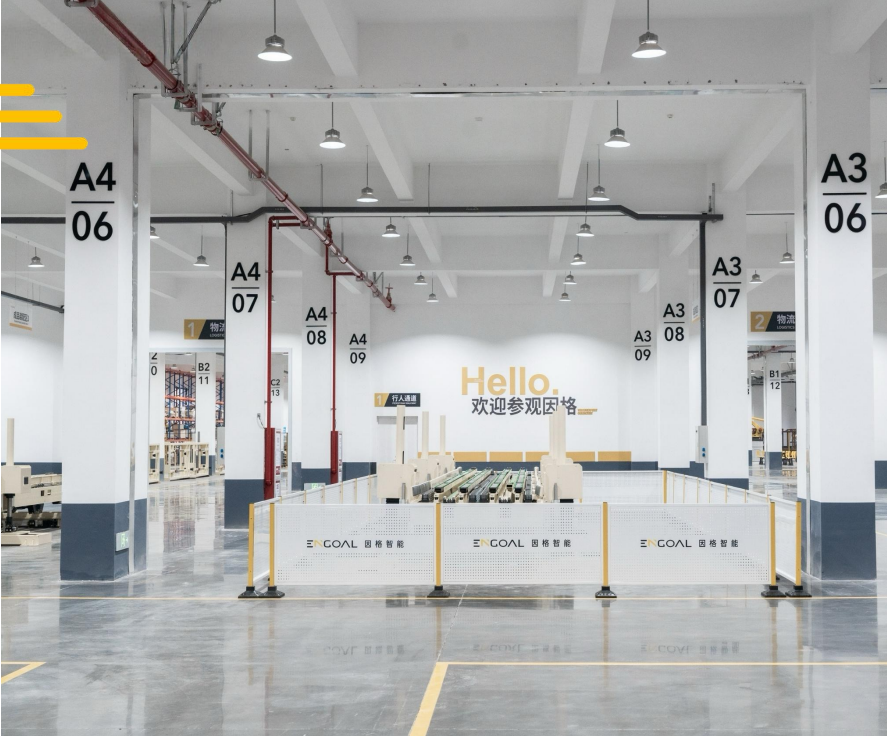
Brochure

Advanced Automation Core Components | Turnkey Integration Solutions

INTRODUCTION

As the global pioneer in **full-category automated loading and unloading**, Engoal harnesses the power of **AI and advanced robotics** to reshape the future of global industrial productivity.

Driven by deep-seated technical innovation, Engoal delivers **flexible solutions** for diverse materials and challenging conditions, transforming traditional manual processes into unmanned, high-efficiency systems. Our stable, safe, and efficient solutions are widely deployed across industries—including **automotive, electronics, new energy, logistics, and food&beverage**—empowering enterprises to transcend production limits and embrace the era of intelligent manufacturing.



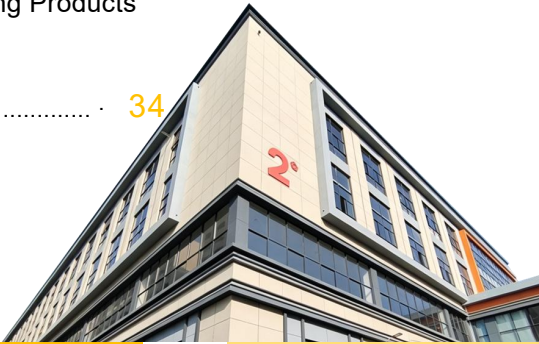
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Mission



Integrate AI & robotics to redefine industrial productivity.

Vision



Lead the industrial robotics revolution, unlocking infinite value for global production.

Core Values



Deliver excellence for customers; grow together with our team.



Milestones

2016-2017

- ENGOAL (Beijing) Intelligent Technology Co., Ltd. was established
- Secured contracts for 13 consecutive Amazon warehouse automation retrofit projects
- ENGOAL's first series of retrofitted automated loading and unloading products was launched

2018-2019

- Secured tens of millions in Series A funding; established ENGOAL Intelligent Suzhou headquarter
- ENGOAL's first automated loading and unloading system was successfully deployed at SAIC Motor, and subsequently replicated at renowned automake

2020-2021

- Expanded overseas, implemented internationalization strategy, and established overseas subsidiaries
- Launched the first rail-guided automated loading and unloading equipment specifically designed for the FMCG industry; the first-generation model successfully validated the technical feasibility

2022-2023

- Product iterations and upgrades, along with category expansion; standard product lineup now includes 7 series and 12 models tailored for specific application scenarios
- Strategic expansion into the new energy sector, partnering with industry leaders to launch industry leading product

2024-2025

- Automated loading and unloading products are fully deployed across multiple leading lithium battery factories
- Accelerating global expansion, with automated loading and unloading products exported to Southeast Asia, Europe, North America, and South America
- Developing proprietary AI-driven flexible algorithms and control technologies, integrating with autonomous driving interfaces to position for the future

2026

- Completion of ENGOAL's Zhejiang Production Base (Standardized Production, Large-Scale Delivery)
- Iterative development of the "AI+ Hardware + Scenario" technology roadmap, comprehensively upgrading automated loading and unloading products to expand into more overseas markets

Qualifications, Honors & Technical Patents

- Since its establishment, ENGOAL has obtained over 100 independent R&D patents, including software copyrights, invention patents, and utility model patents.
- The company has acquired certifications for the ISO 9001 Quality Management System, ISO 45001 Occupational Health & Safety Management System, and ISO 14001 Environmental Management System.
- It has gained market recognition with professional service provider qualifications and numerous industry awards.

100+ Patents

3 Software Copyrights

Industry Standard Product Award 2025

Trusted Enterprise of the Year Lithium Battery Industry

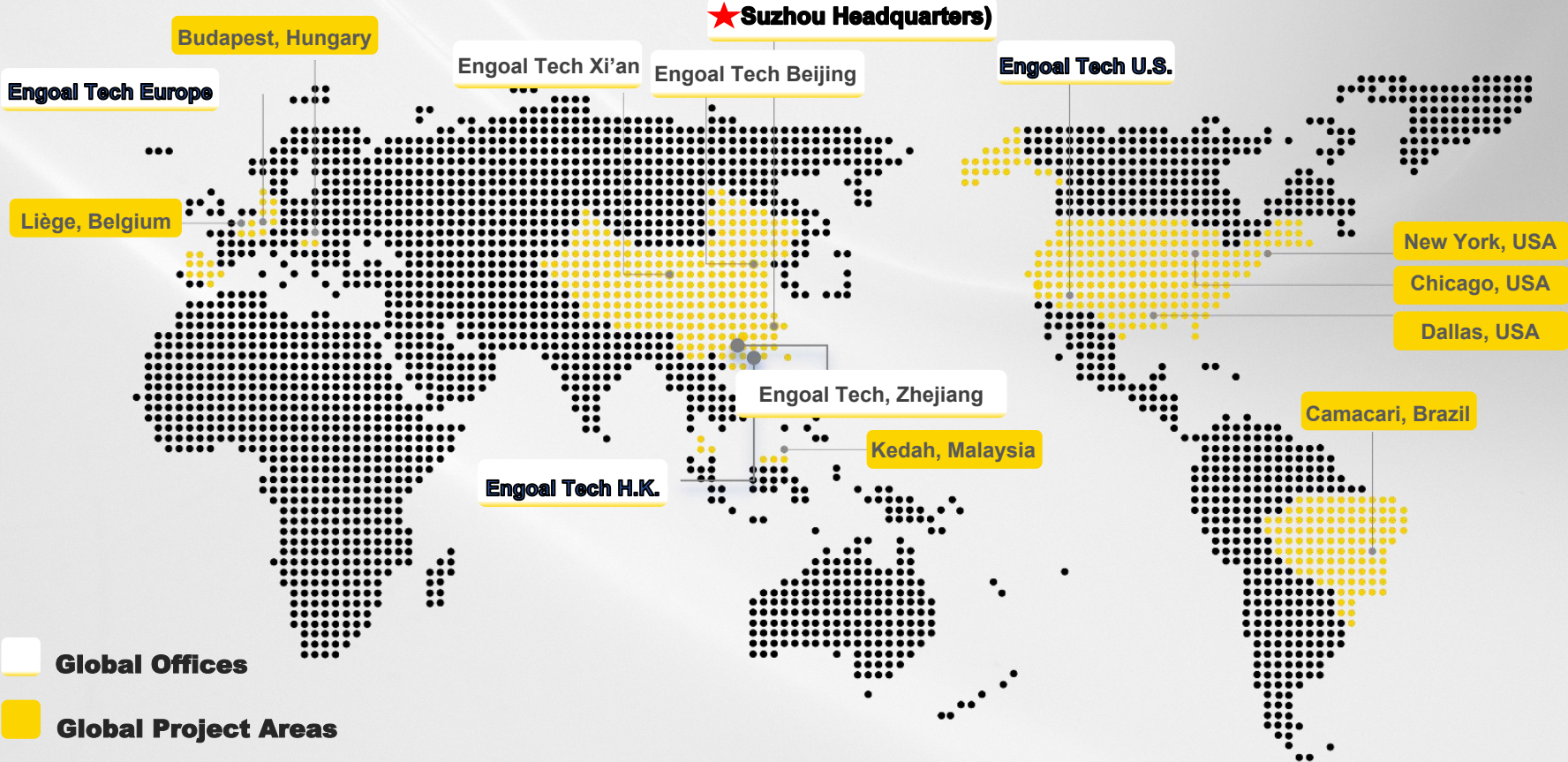


Government-Issued Enterprise Qualifications



ENGOAL | Global Footprint

With offices and branches across key economic regions worldwide, we deliver professional, localized support to our global customers



ENGOAL solves warehousing & logistics bottlenecks with automated loading/unloading, creating a fully unmanned closed-loop material flow.



Customer Recognition

The **Most** Extensive Coverage • The **Trust** of Market Leaders



Certified by **UL**, **ETL** and **CE**

Full-range safety protection from components to complete equipment for
worldwide applications



|

End-to-End Service & Support

Comprehensive lifecycle support from project initiation to long-term maintenance

Our Service Framework

After-Sales Service Excellence

Pre-Sales & Consulting

Solution Design
Feasibility Studies
Technical Proposal

Project Implementation

Project Management
Seamless Installation
System Commissioning

Data & System Enablement

Data Analysis
System Training
Performance Optimization

Maintenance & Integrity

Scheduled Maintenance
Seamless Operation
Extend Lifespan

Compliance & Certifications

Permit Acquisition
Certification Support
Regulatory Compliance

After-Sales & Maintenance

24/7 Support
Preventive Maintenance
On-Site Service

Logistics & Residency

Spare Parts Inventory
On-site Resident Engineer

Evolution & Support

Global Remote Support
System Upgrades
Future-proof



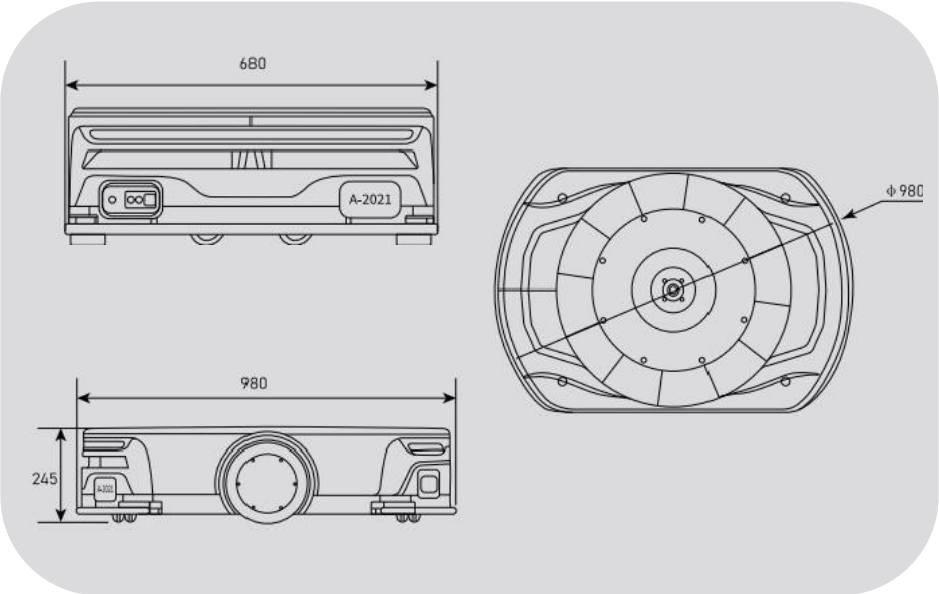
T6-800

AMR-Goods to Person



Application Scenarios

GTP solution fundamentally transforms the traditional "person-to-goods" model through the collaboration of the intelligent dispatching system and the T-series autonomous mobile robots (AMRs), enabling the automatic transport of shelves or pallets directly to workstations.

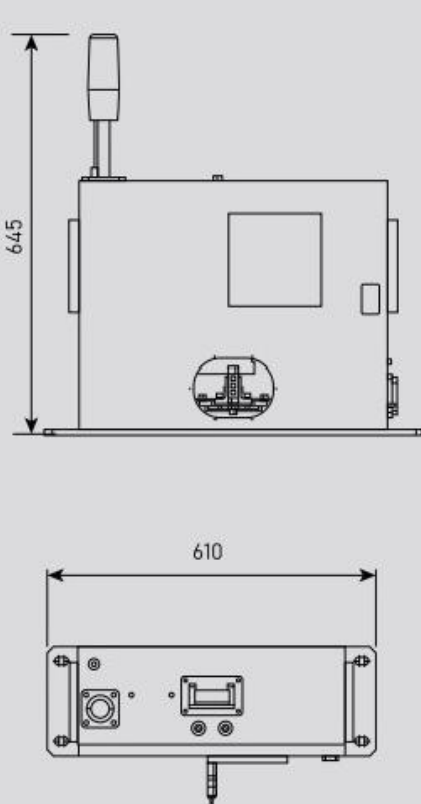


Technical Parameters

Parameters	Specification	Parameters	Specification
Dimensions	980*680*245 mm (38.6*26.8*9.6 in)	Navigation method	2D Code / SLAM + Inertial Navigation
Empty load rotating diameter	980 mm (38.6 in)	Obstacle avoidance	LiDAR obstacle avoidance
Lifting height	60 mm (2.36 in)	Safety	Traffic control, LiDAR obstacle avoidance, safety edge
AMR weight	160 kg (353 lb)	Charging method	Automatic or Manual
Maximum load	800 kg(1,764 lb)	Battery parameters	48V 27Ah LiFePO
Maximum speed	2.2 m/s,SLAMAMR 1.8m/s (4.92mph,SLAMAMR 4.03mph)	Fully charged time	1.5 hours
Straight-ahead tunnel width(empty/full load)	800 mm (31.5 in); carrier width + 150 mm (5.9 in)	Comprehensive battery life	8 hours
Positioning accuracy	±10 mm (±0.39 in)	Full charge/discharge cycle life	2,000 cycles at 80% DoD
Operating temperature	0-50° °C,-20° °C (optional) (32-122° F,-4° F (optional))	Ground bearing requirement (full load)	1,200 kg/m² (246 lb/ft²)
Communication method	WiFi 2.4G,WiFi 5G,Cellular 5G (optionl), infrared(optional)	Climbing capacity (H/L)	5%



AGV Smart Charging Pile CS01



Technical Parameters

Parameter	Specification
Dimensions	285*610*645mm(11.22*24.02*25.39in)
Power	2,500W
Input voltage	220V 50Hz/110V 60Hz
Maximum output voltage	54V
Maximum output current	40A/25A
Communication method	WIFI 2.4G/5G
Charging method	Automatic/Manual charging
Charging logics	Battery percentage, fixed time, idle state and compound charging logic



Mini Soter-L

Automatic Seeding Parcel Sorting Machine



Key Features



Efficient Sorting

1,200–1,500 items/hour –
outperforms manual putwall



High Flexibility

Single or double-sided bins,
customizable sizes & quantities



Rapid Deployment

Minimal training, quick proficiency
& fast rollout



Advanced Intelligence

Seamless integration with
WMS/WCS/ERP/MES; supports
forward/reverse logistics & custom
development



Cost Reduction & Efficiency

Low operating costs, dual induction
ports, fast ROI

Model number	Mini Sorter-L / Mini Sorter-T		
	Small	Medium	Large
Equipment Dimensions (L,W,H)	Customized		
Product Dimension (L,W,H)	L50-240mm,W50-170mm, H5-100mm (L1.97-9.45in,W1.97-6.69in, H0.197-3.94in)	L50-400mm,W50-300mmH5-200mm (L1.97-15.75in,W1.97-11.8lin,H0.197-7.87in)	L50-750mm,W50-500mm H5-250mm (L1.97-29.53in,W1.97-19.69in,H0.197-9.84in)
Product Weight	0.02-5kg(0.0441-11.021b)	0.02-10kg (0.0441~22.05lb)	
Minimum Sort Bin Width	240mm(9.45in)	400mm (15.75in)	600mm(23.62in)
Number Of Destinations	Customized		
Overall Sorting Efficiency	1,200-1,500pph		
Width of the Pack Wall	2,200mm (86.61in)(Customizable)		
Scanner Type	Top scanner or bar code reader		
Number of Inductions	2		



Smart M01

Vertical Express Bag Packaging Machine



Automatic bag opening



Automatic labeling



Automatic Sealing

Application Scenarios

It is widely applicable to best-selling items without sharp edges, resistant to drops and compression, and packaged in express bags, such as clothing. Underwear, socks, small general merchandise, etc.



Key Features



Fully automatic operation

Automatic bag opening, labeling, and sealing in one integrated process



Batch printing mode

No scanning required for popular items, enabling faster shipping and higher efficiency



Labor cost reduction

Reduces packing crew size while increasing individual productivity



Precision heat sealing

Delivers a clean, flat, and consistent seal every time

Technical Parameters

Parameter	Specification	
Packing Efficiency	Labeling mode	Up to 1,500 pcs/h
	Pre-packaging mode	Up to 1,800 pcs/h
Voltage	110/220V, 50/60Hz	
power	1,000W	
Pneumatic Power supply	0.6 – 0.7 MPa (87 – 102 psi)	
Bag Specification	PE continuous roll bags Length: 260-650 mm (10.2-25.6 in) / Width: 180-450 mm (7.1-17.7 in) / Thickness: 0.04-0.08 mm (0.0016-0.0031 in)	
Machine Footprint	982 × 904 × 811 mm (38.7 × 35.6 × 31.9 in)	
Net Weight	50 kg (110 lbs)	



Vertical Express Bag Packaging Machine



Automatic feeding



Automatic bag making



Automatic Sealing

Application Scenarios

It is widely used in logistics packaging such as express freight and e-commerce cloud warehouses, mainly for the packaging of electronic components, glass products, hardware tools, fragile foods and other products.





Key Features



Fully automatic

Feeding, bag making & sealing in one process



Servo-driven with fiber optic sensing

Auto start/stop based on product detection



Compact & reliable

table, quiet & easy to operate



Unlimited length

Wide packaging range + anti-air bag



Imported components + touch HMI

Easy parameter setup



Precise sealing & cutting

Photoelectric tracking + PID control



Technical Parameters

Parameter	Specification
Film width	560 mm (22.0 in)
Bag length	Unlimited
Bag width	60–260 mm (2.4–10.2 in)
Product height	40–95 mm (1.6–3.7 in)
Film roll diameter	1,200 mm (47.2 in)
Pneumatic power supply	0.6–0.7 MPa (87–102 psi)



Smart M01-L3

Automatic Desktop Bagging Packaging Machine



Automatic bag opening



Pre-printed label



Automatic Sealing

Application Scenarios

This automatic desktop bagging sealing machine is widely applicable to goods without sharp edges, resistant to drops and compression, and packaged in express bags, such as clothing and inner garments clothes, shoes and socks, some general merchandise, etc.





Key Features



Efficient automatic operation

Auto bag opening, sealing & labeling



Touch HMI with digital control

Easy operation



Automatic fault detection & alerts

Easy maintenance



Automatic material detection

Switch-free auto sealing



Dual labeling modes

Print-and-apply & pre-printed



Compact desktop design

Space-saving & robust



Technical Parameters

Parameter	Specification
Voltage	110/220V, 50/60Hz
Peak power	0.6 kW
Gas supply	0.5–0.6 MPa (73–87 psi)
Bag specifications (PE roll bags)	Thickness: 0.04–0.08 mm (0.0016–0.0031 in) Width: 100–400 mm (3.9–15.7 in) Length: 150–700 mm (5.9–27.6 in)
Print media	Thermal label paper
Packaging speed	Max 1,500 bags/hour
Machine dimensions (LWH)	1,050 * 850 * 650 mm (41.3 * 33.5 * 25.6 in)
Net weight	95 kg (209 lb)



Smart F02-X4030

Semi-Automatic Carton Sealer



Automatic sealing



Higher efficiency



Labor saving

Application Scenarios

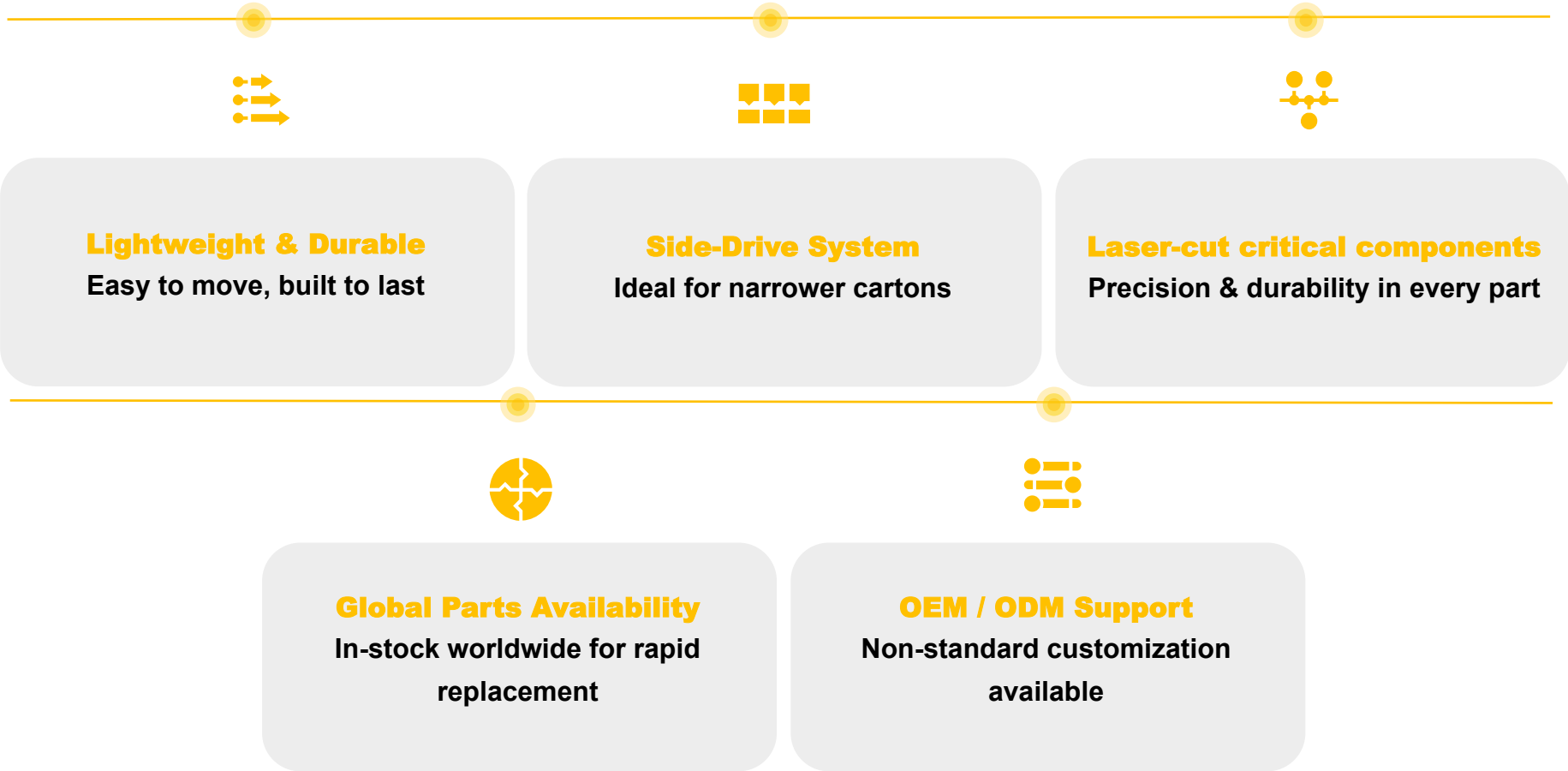
This semi-automatic carton sealing machine uses self-adhesive tape for fast, cost-effective sealing. It applies a straight "-" shaped seal to both the top and bottom of the carton simultaneously, completing the sealing process in a single pass. Equipped with a stainless steel workbench, the machine supports independent operation for easy packaging by workers.

Stable, reliable, and efficient. Suitable for a wide range of carton sizes, with fast sealing speed and long service life, it can be used as a stand-alone unit or integrated into an automated packaging line.





Key Features



Technical Parameters

Parameter	Specification
Applicable Carton Dimensions	Min Carton Size: 80(W) * 50(H)mm (3.1*2.0 in) Max Carton Size: 300(W) * 400(H)mm (11.8*15.7 in)
Belt Speed	23 m/min (75 ft/min)
Power	180W
Operating Voltage	110/220V, 50/60Hz
Tape Specification	Width: 36 mm or 48 mm (1.4 in or 1.9 in)
Worktable Height	570-750mm (22.4-29.5 in)
Machine Footprint	1510*660*760-1400mm (59.4*26*29.9-55.1 in)
Net Weight	125 kg (275 lbs)

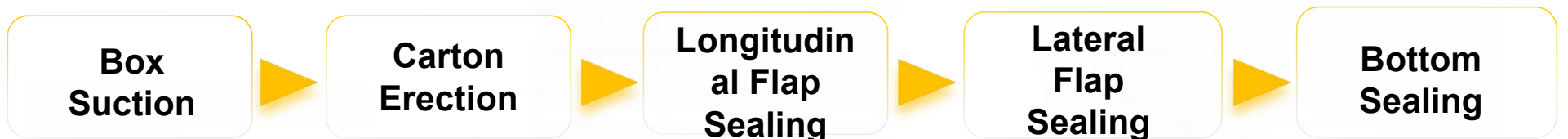


Smart K20

Servo Vertical Carton Erector



Workflow



Application Scenarios

The machine is a vertical servo high-speed carton erector. When changing carton specifications, the width and height of the machine's material bin, carton stopper, and discharge chute require manual adjustment, while the suction and pushing positions can be switched with one-touch operation via the touchscreen. This machine can also be customized as a fully servo-driven switching model according to customer requirements.





Key Features



Low energy & water consumption

Simple, quick operation and maintenance



Built-in safety protection

Overload protection + safety interlocks



Smart Alarm System

Alerts for tape-out or carton-out conditions



Large Carton Storage Capacity

On-demand replenishment for continuous operation



Vertical carton storage

Automatic empty carton feeding



Servo-driven suction & push mechanism

Fast, flexible, stable



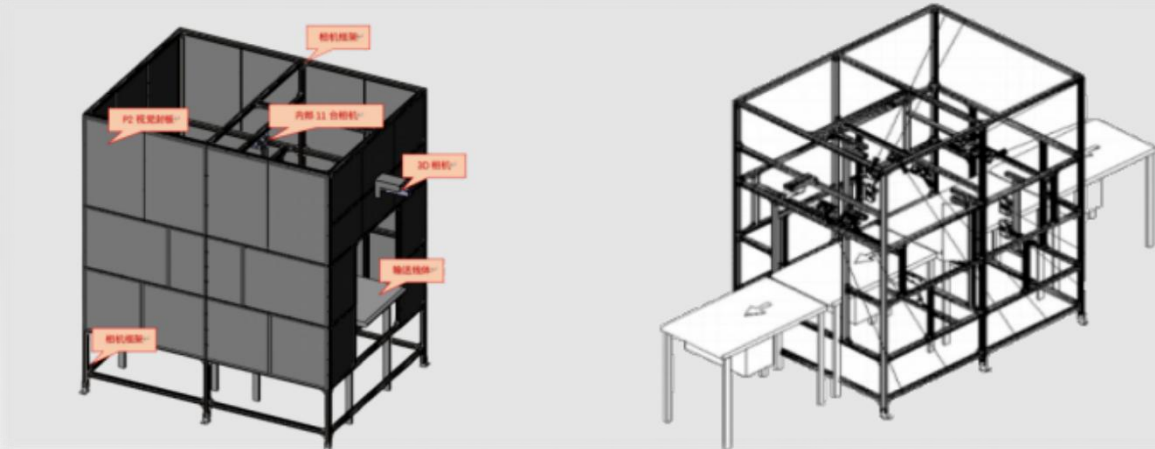
Technical Parameters

Parameter	Specification
Applicable Carton Dimensions (LWH)	Min: 130*80*90 mm (5.1*3.1*3.5 in) Max: 450*300*400 mm (17.7*11.8*15.7 in)
Case Erection Rate	20–25 cartons/min
Pneumatic Supply	6 kg/cm² (85 psi)
Air Consumption	200 L/min (7.1 cfm)
Operating Voltage	110/220V, 50/60Hz
Tape Width	48 mm (1.9 in)
Worktable Height	625 mm (24.6 in)
Machine Footprint (LWH)	Small: 1780*1550*1130 mm (70.1*61.0*44.5 in) Large: 2250*1650*1435 mm (88.6*65.0*56.5 in)
Power	400 W



Pixpro-2

Multi-Side OCR System

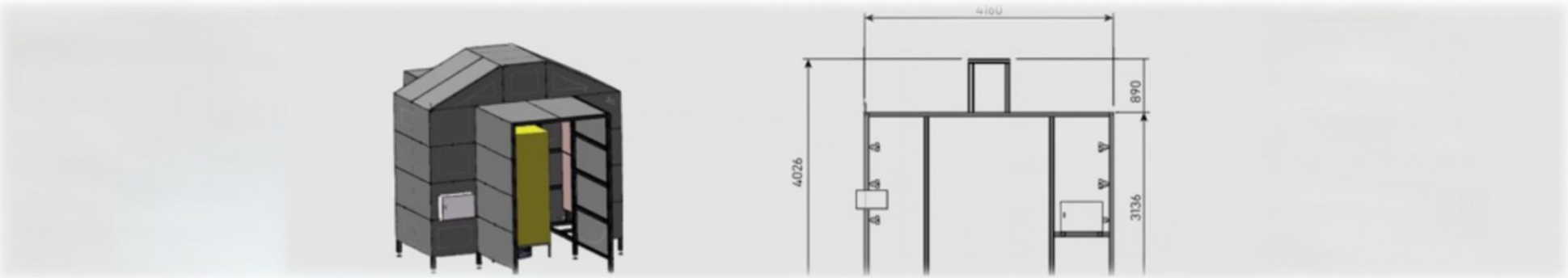


Pixpro-2 Technical Parameters			
Dimensions (LWH)	3,200 * 1,800 * 1,500 mm (125 * 70 * 60 in)	Image Acquisition Mode	Software triggered / hardware triggered / free running
Max Conveyor Speed	2,000 mm/s (80 in/s)	Camera Interface	GigE
Cargo Dimensions (LWH)	Min: 160 * 80 * 10 mm (6.3 * 3.2 * 0.4 in) Max: 1,000 * 700 * 700 mm (40 * 27 * 27 in)	Camera GPIO	6-core Hirose interface; 1 OC input, 1 OC output, 1 configurable I/O (without OC)
Reading Accuracy	99.5% (scan + OCR + fuzzy matching)	Camera Power Supply	GigE PoE / DC auxiliary power via Hirose interface, voltage range 6V–24V
Operating Temperature	Storage: -30°C to +80°C (-22°F to +176°F) Working: -30°C to +50°C (-22°F to +122°F)	Camera Certification	CE, FCC, RoHS
Certification	ETL Certificate	Character Size	12–50 px
Cameras	6 (5+1) units	Barcode Length	60–122 mm (2.4–4.8 in)
Power Consumption	3.2 kW	Min. Barcode Width	10 mil (0.254 mm)
Power Supply	AC 480V ±10%, 60Hz; AC 110V ±10%, 60Hz	Barcode Support	Supports multiple barcode types (e.g., Code128, QR code), various colors, pure digital waybills, low contrast, defects, curved surfaces, and diverse scanning scenarios



Pixpro-3

Multi-Side Pallet Weighing Dimensioning&OCR System

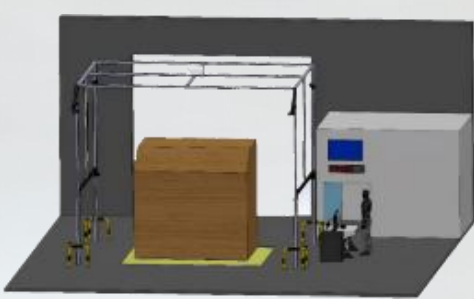


Pixpro-3 Technical parameters			
Dimensions (LWH)	4,160 * 1,900 * 4,020 mm (163.8 * 74.8 * 158.3 in)	Volume Detection Cameras	
Performance		Number of cameras	4 units
Min. barcode unit width	10 mil (0.254 mm)	Working distance	Max: 0.7–3.5 m (2.3–11.5 ft) Recommended: 0.8–3.0 m (2.6–9.8 ft)
Barcode length	60–122 mm (2.4–4.8 in)	Camera dimensions (LWH)	124 * 50 * 87 mm (4.9 * 2.0 * 3.4 in)
Effective shooting distance	500–1,300 mm (19.7–51.2 in)	Weight	615 g (1.36 lb)
Cargo dimensions (LWH)	Min: 400 * 1,100 * 1,300 mm (15.7 * 43.3 * 51.2 in) Max: 2,000 * 1,100 * 1,300 mm (78.7 * 43.3 * 51.2 in)	Accuracy (X, Y)	3.29 mm @ 800 mm (0.13 in @ 31.5 in) 8.23 mm @ 2,000 mm (0.32 in @ 78.7 in)
Reading accuracy	99.5%	Accuracy (Z)	1.17 mm @ 800 mm (0.05 in @ 31.5 in) 4.44 mm @ 2,000 mm (0.17 in @ 78.7 in)
Character requirement	12pt, 50 px	Power supply	DC 24V, PoE (IEEE802.3af/at)
Power supply	AC 380V ±10%, 50/60Hz; AC 110V ±10%, 50/60Hz	Power & trigger interface	M12 A-Code 6-pin aviation connector
Barcode Scan Cameras		Data interface	Gigabit Ethernet RJ45
Number of cameras	6 units	Power consumption	2.9–5.2 W
Image acquisition mode	Software/hardware triggered, free running	Temperature	Storage Temperature:-10°C to +55°C (14°F to 131°F) Operating Temperature:0°C to +45°C (32°F to 113°F)
Interface	GigE (Gigabit Ethernet)	Weighing Device	
GPIO interface	6-core Hirose connector; 10C input, 10C output, 1 configurable I/O	Digital interface	SCS-1.5
Power consumption	3.2 W	Max weighing capacity	1,500 kg (3,307 lb)
Temperature	Storage Temperature: -30°C to +80°C (-22°F to +176°F) Operating Temperature: -30°C to +50°C (-22°F to +122°F)	Verification scale value	10 kg (22 lb)
Certification	CE, FCC, RoHS	Scale division	0.5 kg (1.1 lb)



PMC

Intelligent Board Inspection System



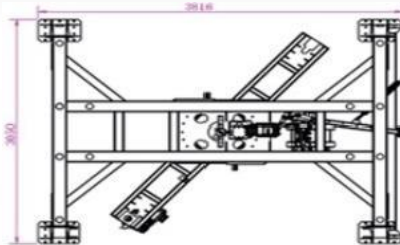
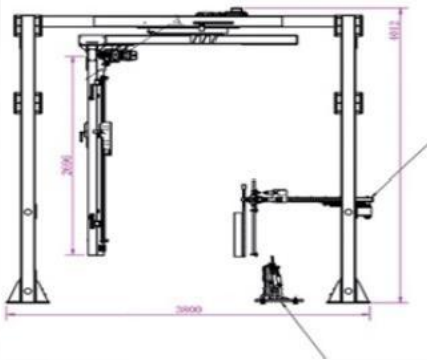
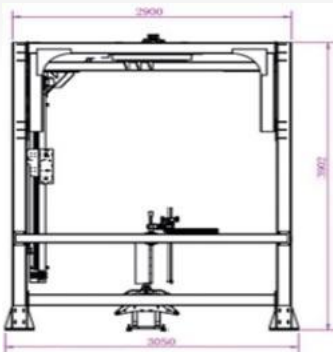
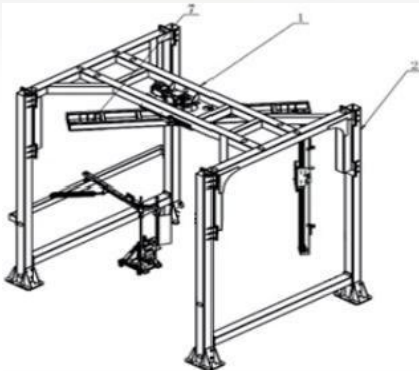
PMC Technical Parameters

Overall Dimensions (LWH)	5,000 * 6,000 * 5,000 mm (197 * 236 * 197 in)	Board Inspection Cameras	
Function		Number of cameras	8 units
Min. barcode width	10 mil (0.254 mm)	Ranging distance	800–3,000 mm (31.5–118.1 in) – adjustable via SGBM parameters
Barcode length	60–122 mm (2.4–4.8 in)	Camera dimensions (LWH)	145 * 35 * 90 mm (5.7 * 1.4 * 3.5 in)
Effective shooting distance	500–1,300 mm (19.7–51.2 in)	Weight	620 g (1.37 lb)
Cargo dimensions (LWH)	2,400 * 3,200 * 3,000 mm (94.5 * 126 * 118 in)	Near field of view (FOV)	850 * 710 mm @ 800 mm (33.5 * 28.0 in @ 31.5 in) – *H/V: approx. 56°/48°*
Accuracy	99.50%	Far field of view (FOV)	3,465 * 2,670 mm @ 3,000 mm (136.4 * 105.1 in @ 118.1 in) – *H/V: approx. 60°/48°*
Character requirement	12–50 px	Output image types	Depth map, infrared image, point cloud image
Power supply	AC 380V ±10%, 50/60Hz; AC 110V ±10%, 50/60Hz	Power supply	DC 24V ±10%; PoE
Vision & Image Acquisition Cameras		Power consumption	A/C mode: 5.0W; continuous: 11.3W
Number of cameras	4 units	Operating temperature	-10°C to +40°C (14°F to 104°F)
Dimensions (LWH)	482 * 177 * 489 mm (19.0 * 7.0 * 19.3 in)	Weighing Device	
Weight	300 g (0.66 lb)	Model	SCS-1.5
Data interface	10 Gigabit Ethernet ports + dual network ports	Max weighing capacity	5,000 kg (5 tons / 11,023 lb)
Power (system)	250W; 300W	Min weighing capacity	100 kg (220 lb)
Protection rating	IP65	Verification scale value (e)	1 kg (2.2 lb)



Smart WASP T1000

Intelligent High-Speed Stretch Wrapper



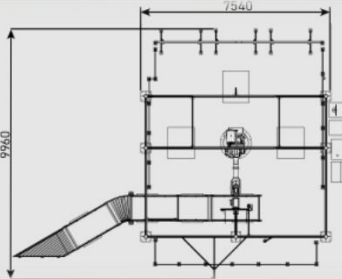
SMART WASP T1000 Technical Parameters

Maximum wrapping speed	35–45 loads/hour	Standard film width	500 mm (19.7 in)
Machine dimensions (LWH)	3,825 * 2,900 * 3,940 mm (150.6 * 114.2 * 155.1 in)	Relay brand	OMRON (Japan)
Max pallet size (L*W)	1,200 * 1,200 mm (47.2 * 47.2 in)	Constant film delivery force	Standard
Machine weight	2,000 kg (4,409 lb)	Touch screen brand	SIEMENS
Maximum wrapping height	2,000 mm (78.7 in)	Standard pre-stretch	250%
Voltage	220/380V, 60Hz	Switch brand	Schneider
Ring speed	0–30 RPM (adjustable)	Film capacity (diameter)	250 mm (9.8 in)
Inverter brand	SIEMENS (Germany)	Cylinder brand	AIRTAC
Ring size (diameter)	2,200 mm (86.6 in)	Top pressure function	Optional
Position sensor brand	SICK (Germany)	Up-down motor brand	JSK
Ring drive power	1.5 HP (1.1 kW)	Lifting up conveyor	Optional
PLC brand	SIEMENS	Frame material	Steel
Film & clamp cut	Automatic (heat type)	Top sheet dispenser	Optional
Travel switch brand	OMRON (Japan)	Painting / finishing	Metallic paint
Max load weight	2,000 kg (4,409 lb)	Paper corner fixer	Optional
Ring drive motor brand	JSK	Cutting method	Laser



EZ Form

Vision-Based Mix Palletizer

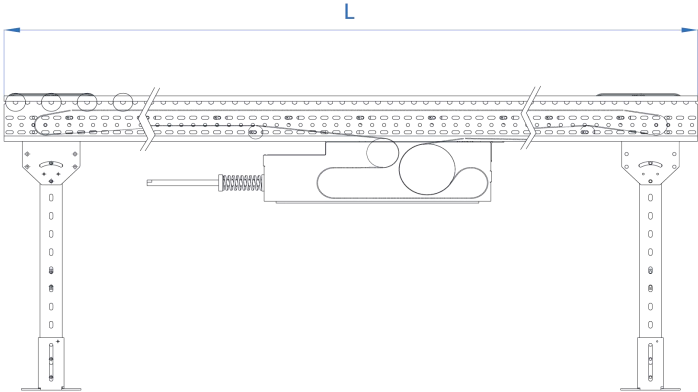
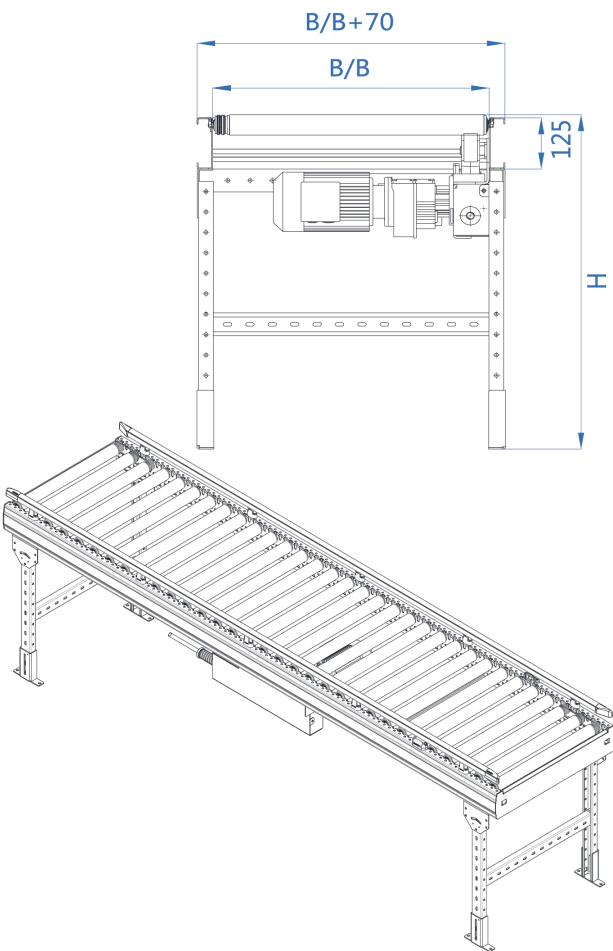


EZ-Form Technical Parameters			
Dimensions (LWH)	7,000 * 9,500 * 4,500 mm (275.6 * 374.0 * 177.2 in)	Certifications	ETL, ISO 13849-1
Performance		Power supply	AC 480V ±10%, 60Hz; AC 110V ±10%, 60Hz
Takt time	10 seconds	Manipulator (Robot)	
Applicable cargo weight	0.5 – 35 kg (1.1 – 77.2 lb)	Model	IRB 6700
Applicable cargo dimensions (LWH)	Max: 800 * 800 * 600 mm (31.5 * 31.5 * 23.6 in) Min: 300 * 300 * 300 mm (11.8 * 11.8 * 11.8 in)	Axes	6 axes
Operating temperature	0°C to 45°C (32°F to 113°F)	Max load	150 kg (330.7 lb)
Stacking height	Up to 5 layers – 2,100 mm (82.7 in)	Repeatability	±0.03 mm (±0.0012 in)
Robustness	Supports partially deformed or damaged cargo	Max working range	3,500 mm (137.8 in)
Accuracy	<1% (4 mm / 1,000 mm) (0.16 in / 39.4 in)	Max speed	2,500 mm/s (98.4 in/s)
Workstation		Safety (raster)	Height: 2,000 mm; Resolution: 20 mm; Safety level: PLe
End effector	Electric claw & vacuum suction cup	Camera (TOF)	
Visual guidance system	TOF camera	Field of view (FOV)	70° (H) * 50° (V)
Conveyor speed	0 – 1,600 mm/s (0 – 63 in/s), adjustable	TOF resolution	640 * 480, 5 FPS
Safety features	Security grating C4C-EA18030A10000; Light curtain GL6-P1112	Digital interface	1000M Ethernet, RS485
Control cabinet model	IRC 5	Detection range	150 – 5,000 mm (5.9 – 196.9 in)
Communication interface	Ethernet/IP, PROFINET, Modbus	Operating temperature	-20°C to 50°C (-4°F to 122°F)
Ingress protection (control cabinet)	IP54	Ingress protection (camera)	IP42



Linear Power Roller Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
B/B	Internal rack width	417, 517, 617, 717, 817, 917	16.4, 20.4, 24.3, 28.2, 32.2, 36.1
	Outer rack width	$B/B + 70$	$(B/B + 70) / 25.4$
	Guardrail width	Inner installation: $B/B - 5$	$(B/B - 5) / 25.4$
		Outer installation: $B/B + 7$	$(B/B + 7) / 25.4$
L	Module length	1,440, 2,160, 2,880	56.7, 85.0, 113.4
LZ	Drive unit length	720, 960, 1,080, 1,440	28.3, 37.8, 42.5, 56.7
RP	Roller spacing	60, 90, 120*	2.36, 3.54, 4.72*
H	Installation height	> 135	> 5.3
PGR	Guardrail height	65, 80	2.56, 3.15

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	30–120 m/min (98–394 ft/min) Stacking mode: ≤ 80 m/min (262 ft/min)
Operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	≤ 90%

Roller Specification

Series / Type	2250 series (with plug-in axle card)
Outer diameter	50.6 mm (2.0 in)
Tube thickness / Material	1.5 mm (0.06 in) – zinc-magnesium-aluminum alloy

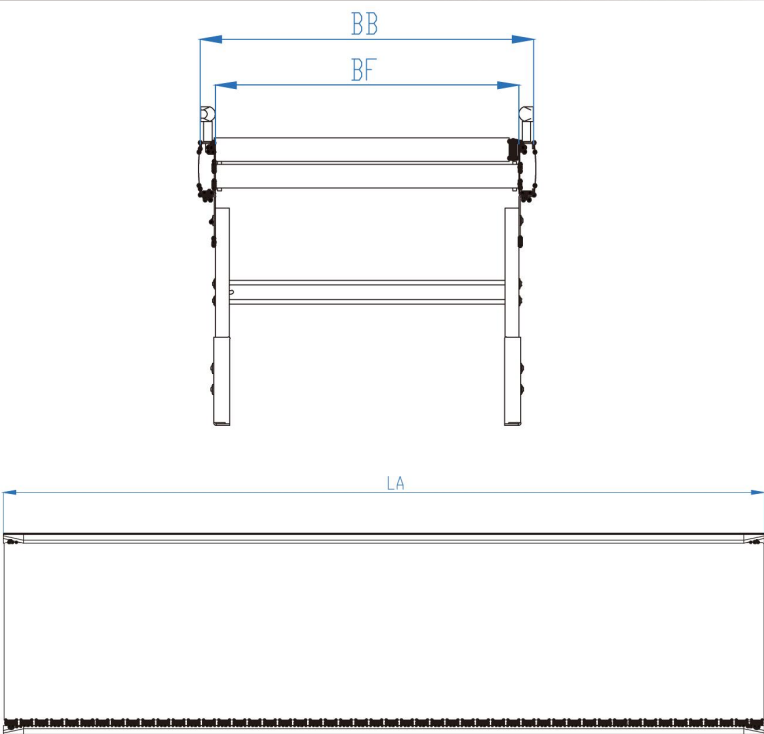
Installation Requirements

Floor mounting base	G5001 lightweight double leg
Suspension / Hanger	G5003 hanger (max standard roller height > 2,125 mm / 83.7 in)
Connector type	GS-FL-01
Floor flatness tolerance	< ±0.5°
Conveying direction	Reversible (forward & backward)



Linear Belt Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
BF	Roller track width	420, 520, 620, 720 (customizable)	16.5, 20.5, 24.4, 28.3
BB	Outer rack width	BF + 70	(B/B + 70) / 25.4
LA	Module length	360–2,970 (in multiples of P)	14.2–116.9
LB	Drive unit length	360–990	14.2–39.0
HA	Height	125	4.9
HB	Installation height	≥ 135	≥ 5.3
P	Roller spacing	60 / 90	2.36 / 3.54
HC	Guardrail width	30	1.18
HD	Guardrail height	100 (customizable)	3.9

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	0–120 m/min (0–394 ft/min), adjustable
Incline / Decline	≤ 15° (decline only)
Temperature	Indoor: -5°C to 40°C (23°F to 104°F) Freezer: -30°C to 0°C (-22°F to 32°F)
Humidity	≤ 90%

Roller Specification

Conveyor belt	2 mm (0.08 in) black PVC flat belt, raised 6 mm (0.24 in) above frame With $\varnothing 50 \times T1.5$ mm ($\varnothing 2.0 \times 0.06$ in) tube, $\varnothing 12$ mm (0.47 in) internal threads
Material	Galvanized carbon steel / steel plate load-bearing plate

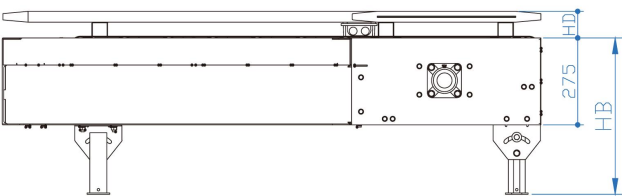
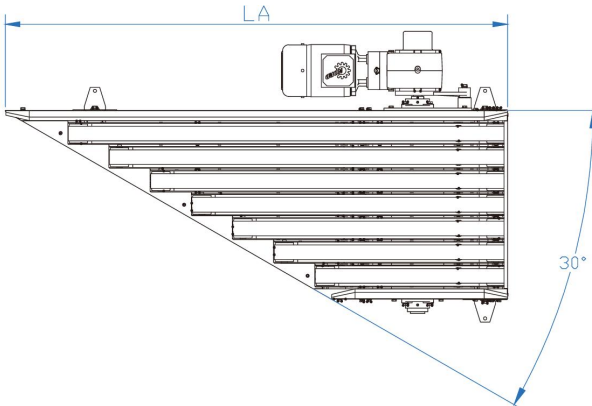
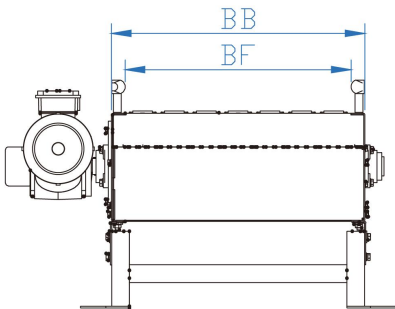
Installation Requirements

Ground installation	Optional
Lifting	Optional
Connector	Optional
Side frame cover	N/A
Installation angle tolerance	Horizontal: ground flatness error < $\pm 0.5^\circ$ Sloped: angle $\leq 0.3^\circ$
Direction	Forward and reverse (non-reversible)
Bottom sealing plate	Slope: standard configuration Horizontal: optional 1.5 mm (0.06 in) galvanized sealing plate



Split/Merge Type Belt Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
BF	Conveying surface width	420, 520, 620, 720, 820, 920 (customizable)	16.5, 20.5, 24.4, 28.3, 32.3, 36.2
BB	Outer rack width	BF + 70	(BF + 70) / 25.4
LA	Module length	1,172–2,554 (depending on BF configuration)	46.1–100.6
T	Confluence angle	30°, 45°	—
TA	Confluence direction	L / R (Left / Right)	—
HA	Height	275	10.8
HB	Installation height	≥ 280	≥ 11.0
HC	Guardrail width	30	1.2
HD	Guardrail height	100 (customizable)	3.9

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	0–120 m/min (0–394 ft/min), adjustable
Incline / Decline	N/A
Temperature	Indoor: -5°C to 40°C (23°F to 104°F) Freezer: -30°C to 0°C (-22°F to 32°F)
Humidity	≤ 90%

Slide Bed

Belt type	W55 * T2.2 mm (2.2 * 0.087 in) smooth black PVC narrow belt Or T2.4 mm (0.094 in) striped black PVC narrow belt
Belt height	6 mm above frame surface (0.24 in)
Frame material	3 mm carbon steel with spray coating (0.12 in)

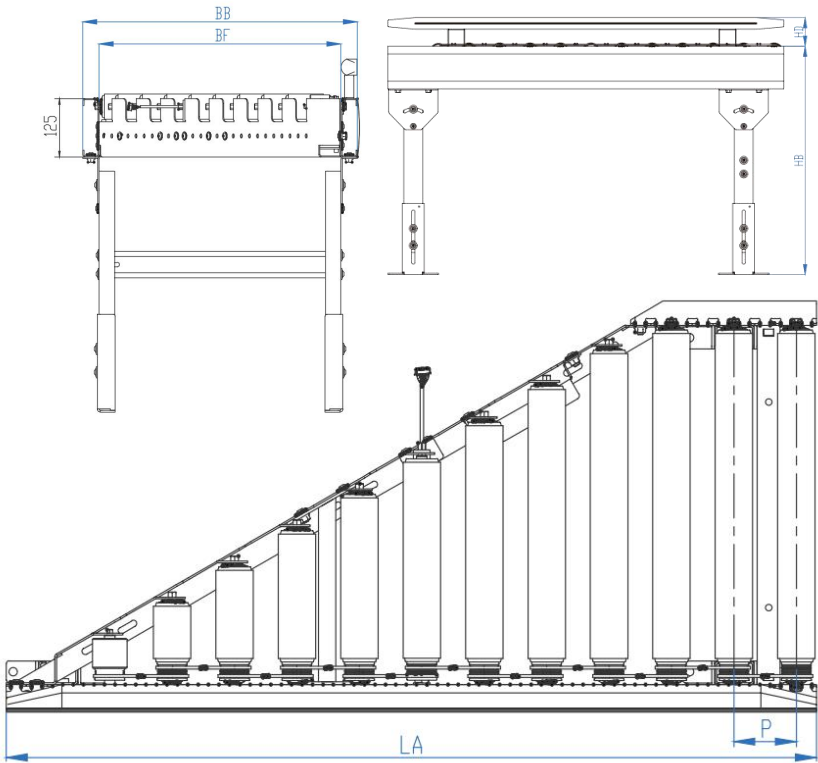
Installation Requirements

Ground installation	Optional
Lifting	Optional
Connector	Optional
Side frame cover	N/A
Installation angle tolerance	Horizontal: ground flatness error < ±0.5° Sloped: angle error ≤ 0.3°
Direction	Forward and reverse (unidirectional conveying)
Bottom sealing plate	Optional T1.5 mm galvanized sealing plate (0.06 in)



Split/Merge Type Roller Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
BF	Roller width	420, 520, 620, 720, 820, 920	16.5, 20.5, 24.4, 28.3, 32.3, 36.2
BB	Outer rack width	BF + 70	(BF + 70) / 25.4
LA	Module length	990–1,890	39.0–74.4
AT	Slant mouth direction	R / L (Right / Left)	—
HA	Side frame height	125	4.9
HB	Installation height	> 135	> 5.3
PT	Slant angle	30°	—
P	Roller spacing	60 / 90	2.36 / 3.54
HC	Guardrail width	30	1.2

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	0–120 m/min (0–394 ft/min), adjustable
Incline / Decline	N/A
Temperature	Indoor: -5°C to 40°C (23°F to 104°F) Freezer: -30°C to 0°C (-22°F to 32°F)
Humidity	≤ 90%

Roller Specifications

Type	Flat mouth self-clamping (with shaft clamp) / with $\varnothing 12$ internal thread
Diameter	50 * T1.5 mm (2.0 * 0.06 in)
Material	Galvanized carbon steel / Stainless steel

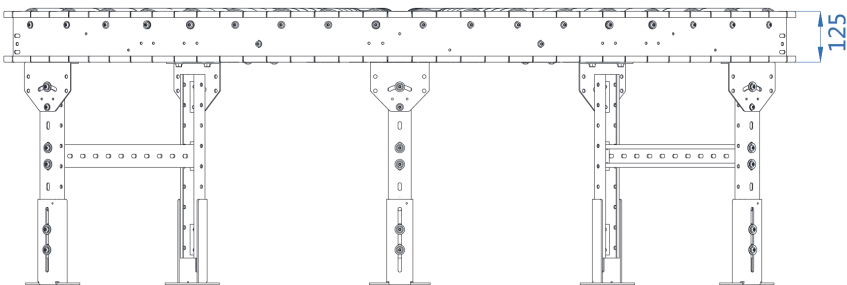
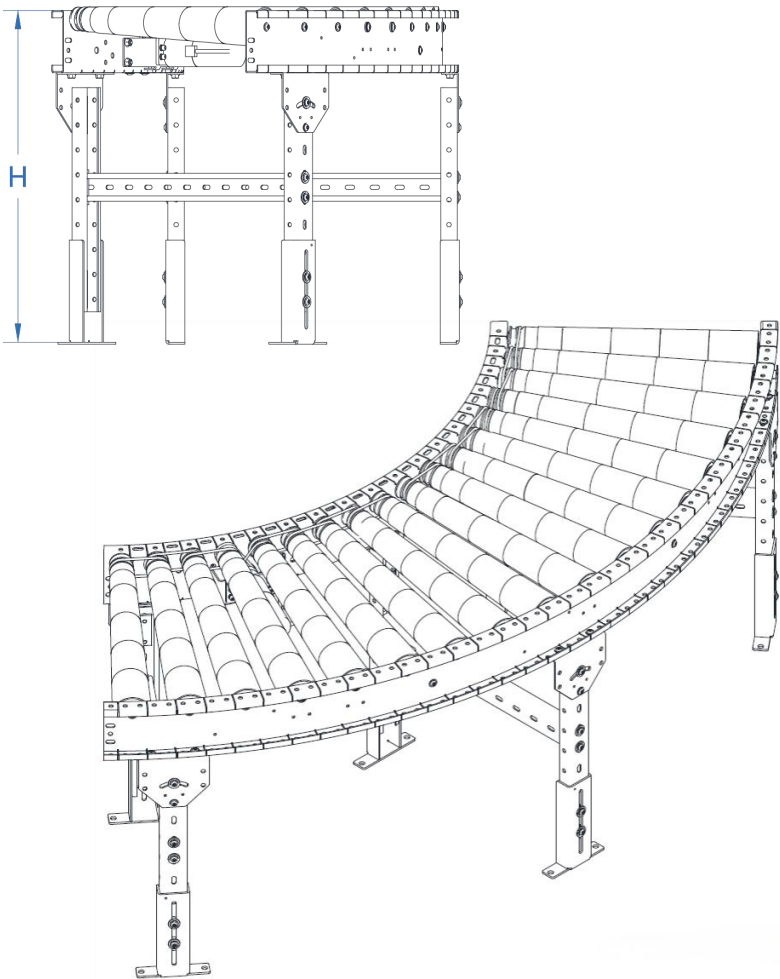
Installation Requirements

Ground installation	Optional
Hoisting / Lifting	Optional
Installation angle tolerance	Horizontal: ground flatness error < $\pm 0.5^\circ$ Slope: angle $\leq 15^\circ$
Conveying direction	Forward direction only (non-reversible)



Curved Type Roller Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
B/B	Internal rack width	417, 517, 617, 717, 817, 917	16.4, 20.4, 24.3, 28.2, 32.2, 36.1
	Outer rack width	Internal width + 70	(Internal + 70) / 25.4
	Guardrail width	Inner installation: B/B - 5 Outer installation: B/B + 7	(Internal - 5) / 25.4 (Internal + 7) / 25.4
L	Inside radius	825	32.5
LZ	Roller spacing (inside)	72	2.8
RP	Curve angle	30°, 45°, 60°, 90°	—
H	Installation height	> 135	> 5.3
PGR	Guardrail height	65, 80	2.6, 3.1
L	Inside radius	825	32.5

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	30, 40, 50, 60, 70, 80, 90, 100, 120 m/min (98–394 ft/min), adjustable
Temperature	0°C to 40°C (32°F to 104°F)
Humidity	≤ 90%

Roller Specifications

Type	Double O-groove (with plug-in axle card)
Diameter	50.6 mm (2.0 in)
Material	1.5 mm (0.06 in) zinc-magnesium-aluminum tube with outer plastic conical sleeve

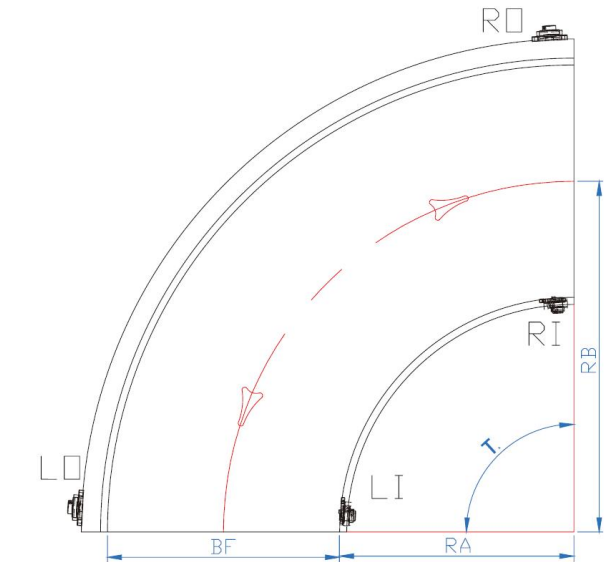
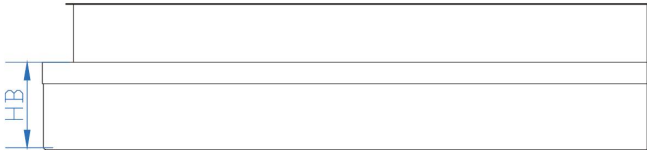
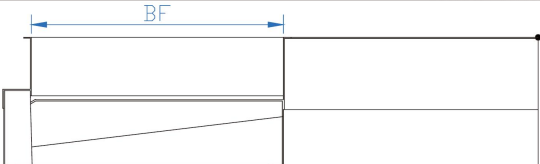
Installation Requirements

Ground installation	G5001 lightweight double leg, G5002 lightweight single leg
Lifting / Hanger	G5003 hanger (max standard roller height > 2,125 mm / 83.7 in)
Connector	G5-FL-02 (outside) G5-FL-03 (inside)
Ground flatness tolerance	< ±0.5°
Transport direction	Bidirectional (forward and reverse)



Curved Type Belt Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
BF	Roller track width	420, 520, 620, 720, 820, 920 (customizable)	16.5, 20.5, 24.4, 28.3, 32.3, 36.2
BP	Belt width	BF - 60	(BF - 60) / 25.4
BB	Outer rack width	BF + 70	(BF + 70) / 25.4
LA	Module length	3,000–16,000 (in multiples of P)	118.1–629.9
HA	Height	165	6.5
HB	Installation height	≥ 500	≥ 19.7
P	Roller spacing	120, 180, 240	4.7, 7.1, 9.4
HC	Guardrail width	30	1.2
HD	Guardrail height	100 (customizable)	3.9

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	0–120 m/min (0–394 ft/min), adjustable
Incline / Decline	N/A
Temperature	Indoor: -5°C to 40°C (23°F to 104°F) Freezer: -30°C to 0°C (-22°F to 32°F)
Humidity	≤ 90%

Slide Bed

Belt	2.2 mm (0.087 in) smooth black PVC narrow belt 50 * 11.5 mm (2.0 * 0.45 in)
Load bearing pallet	12 mm (0.47 in) internal thread
Material	Galvanized carbon steel / stainless steel

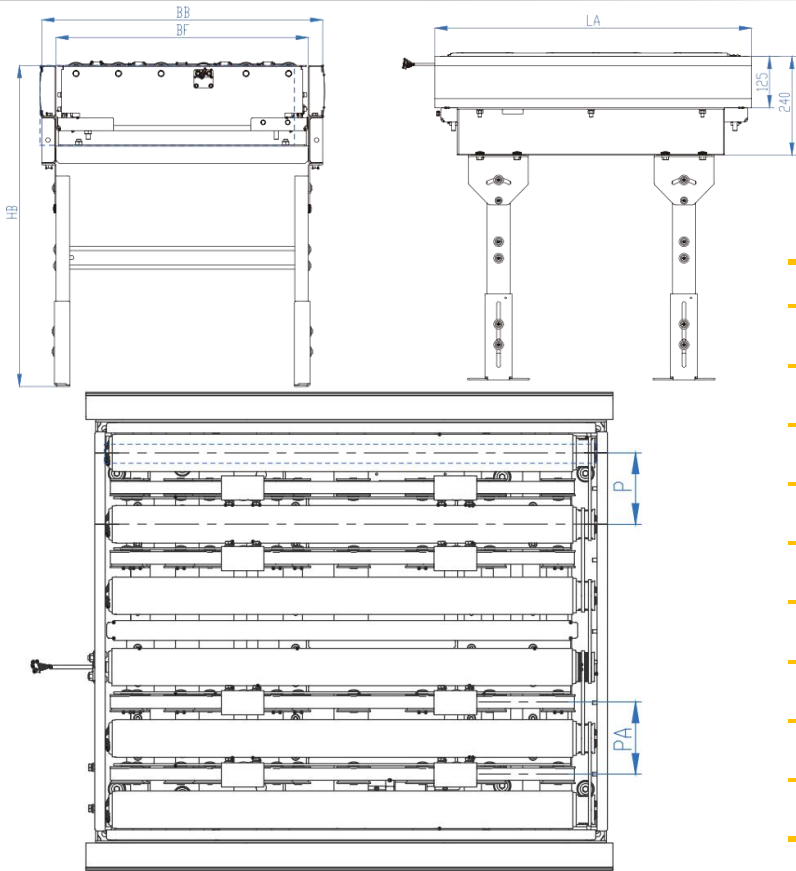
Installation Requirements

Ground installation	Optional
Lifting	Optional
Connector	Optional
Side frame cover	N/A
Installation angle tolerance	Horizontal: ground flatness error < ±0.5° Slope: angle error < 0.3°
Direction	Forward and reverse (unidirectional conveying)
Slope configuration	Standard
Horizontal configuration	Optional T1.5 mm galvanized sealing plate (0.06 in)



90° lifting Transfer Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
BF	Roller track width	420, 520, 620, 720 (customizable)	16.5, 20.5, 24.4, 28.3
BB	Outer rack width	BF + 60	(BF + 60) / 25.4
LA	Module length	800	31.5
HA	Height	125	4.9
HB	Installation height	250	9.8
HE	Height after lifting	≤ 250	≤ 9.8
P	Roller spacing	100	3.9
PA	Conveyor belt spacing	100	3.9
BF	Roller track width	420, 520, 620, 720 (customizable)	16.5, 20.5, 24.4, 28.3

Product Performance

Maximum load	30 kg/m (20.2 lb/ft)
Conveying speed	0–60 m/min (0–197 ft/min), adjustable
Incline / Decline	N/A
Temperature	Indoor: -5°C to 40°C (23°F to 104°F) Freezer: -30°C to 0°C (-22°F to 32°F)
Humidity	≤ 90%

Roller Specifications

Type	Flat mouth self-clamping (with shaft clamp) / with $\varnothing 12$ internal thread
Size	$\varnothing 50 * T1.5$ mm (2.0 * 0.06 in)
Material	Galvanized carbon steel / stainless steel

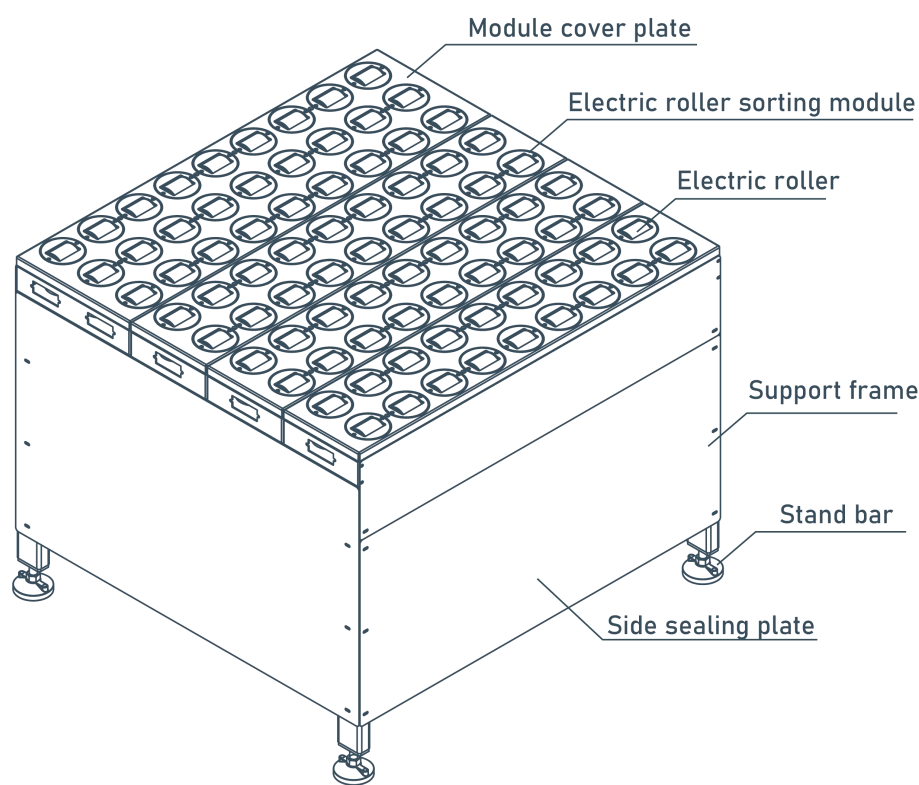
Installation Requirements

Ground installation	Optional
Lifting	Optional
Connector	Optional
Side frame cover	Optional
Installation angle tolerance	Horizontal: ground flatness error < $\pm 0.5^\circ$ Slope: angle $\leq 15^\circ$
Direction	Forward and reverse (bidirectional)



High speed type Balance Wheel Sorter

Box-Type Conveying & Sorting Products

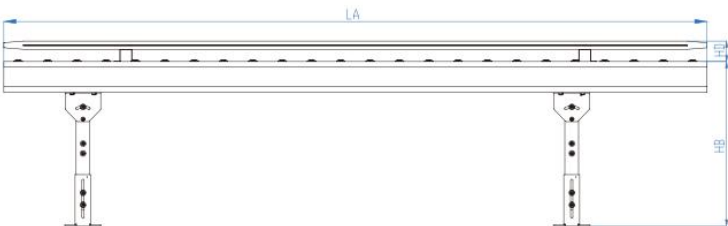
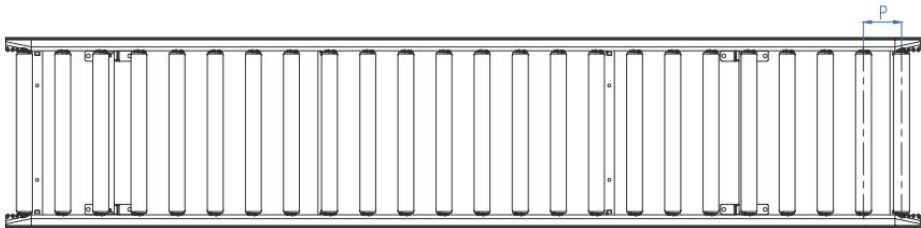
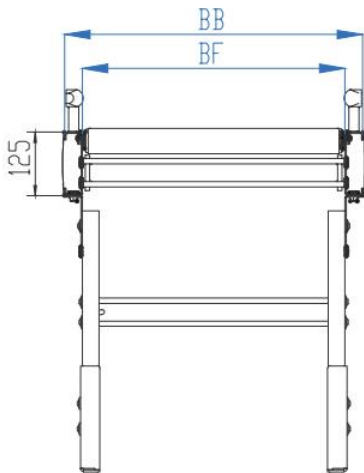


Product Performance	
Width	860, 1,060, 1,260 mm (33.9, 41.7, 49.6 in)
Length	860, 1,000, 1,260 mm (33.9, 39.4, 49.6 in)
Height	≥ 500 mm (≥ 19.7 in) – equivalent to conveying surface height
Sorting direction	Unidirectional / bidirectional
Sorting angle	30°, 45°, 60°
Sorting item size (Max)	1,000 * 800 * 700 mm (39.4 * 31.5 * 27.6 in)
Sorting item size (Min)	100 * 100 * 10 mm (3.9 * 3.9 * 0.4 in)
Sorting item weight	0.03 kg ≤ W ≤ 60 kg (0.07 lb ≤ W ≤ 132.3 lb)
Temperature	Indoor: -15°C to 40°C (5°F to 104°F)
Humidity	Indoor: 10% – 90%
Applications	Widely applicable to: - Express delivery / courier - E-commerce fulfillment - Pharmaceutical - Footwear & apparel - Supermarket & retail - Fresh food & cold chain - Stationery & books - Intelligent manufacturing



Linear Non Powered Roller Conveyor

Box-Type Conveying & Sorting Products



Code	Description	Value (mm)	Value (in)
BF	Roller width	420, 520, 620, 720, 820	16.5, 20.5, 24.4, 28.3, 32.3
BB	Outer rack width	BF - 70	(BF - 70) / 25.4
LA	Module length	600–3,000 (in multiples of roller spacing P)	23.6–118.1
HA	Side frame height	125	4.9
HB	Installation height	≥ 135	≥ 5.3
P	Roller spacing	60, 90, 120	2.36, 3.54, 4.72
HC	Guardrail width	30	1.2
HD	Guardrail height	100	3.9

Product Performance

Maximum load	50 kg/m (33.6 lb/ft)
Conveying speed	Horizontal: manually pushed Slope: cargo weight dependent (optional阻尼 roller available)
Temperature	Indoor: -5°C to 40°C (23°F to 104°F) Freezer: -30°C to 0°C (-22°F to 32°F)
Humidity	≤ 90%
Maximum load	50 kg/m (33.6 lb/ft)

Roller Specifications

Type	Spring press-in / internal thread type
Diameter	ø50 * T1.5 mm (2.0 * 0.06 in)
Material	Galvanized carbon steel (with shaft clamp) / stainless steel

Installation Requirements

Ground installation	Optional
Connector	Optional
Side frame cover	Optional
Installation angle tolerance	Horizontal: ground flatness error < ±0.5° Slope: angle < 8°
Direction	Bidirectional (forward and reverse)



Project Cases



Dallas warehouse CFS 2.0 project

■ Project Requirement

Achieve a daily processing capacity of 1.5 aircraft cargo on a 4000m² site.

■ Solutions

- AI intelligent recognition
- AI - Guide 3D Positioning
- AGV transport

Each workstation can complete palletizing with a maximum of 250 boxes/H. If the warehouse is equipped with 6 workstations at the same time, it can handle a maximum of 40 T/4 aircraft cargo per day



Li-Po Raw Materials Automatic unloading project

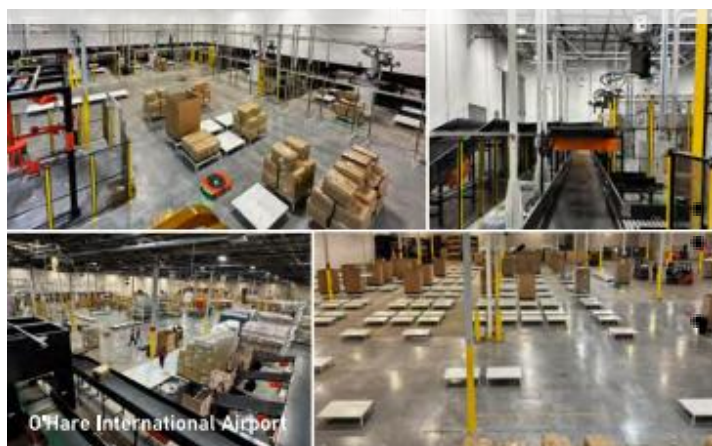
■ Project Requirement

Realize automatic unloading and classified transportation of multiple incoming materials within 2 days for various width trucks.

■ Solutions

- parking guidance devices
- Fork rail unloading platform
- Transfer platform

It takes a total of 1,591 seconds for a truck of goods to be automatically unloaded from parking, released and transported to the warehouse entrance



Chicago CCFS Warehouse Automation

■ Project Requirement

production capacity of 3.5 aircrafts cargo per day at the cargo terminal of 8000 m

■ Solutions

- End-to-End Automation
- AI Precision
- synced Robotics
- 6 AI robotic stations + AGVs + automated warehouse

Peak performance: 250 boxes/H, 400 tons/D, (4 aircraft loads)24/7 operation



Digital primary Freight station

■ Introduction

The first level cargo terminal is adjacent to the apron and has air side conditions, mainly for fast circulation. The single cargo handling capacity index is high, and corresponding temporary storage space needs to be configured according to peak demand

■ Solutions

- Bypass Automatic Loading system
- cargo lifting build-Up system
- Mixed palletizing and dismantling system
- AGV transport





“AI Vision + Adaptive Control”

Redefining Intelligent Handling Ecosystems

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