

Pallsol-RF(Fork Rail)



Applicable Vehicle Type
Box trucks



Compatible Containers
4-way pallets, 9-leg pallets



Rated Load Capacity
Up to 30T



Operation Mode
Loading & unloading
Throughput 15min/truck



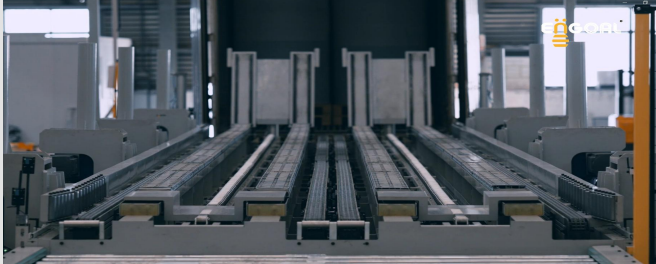
Case Studies



CATL Ningde Factory
The first intelligent loading upgrade project in China's new energy industry.



Hithium Energy US Factory
The first overseas project with automatic unloading equipment.



Specifications

ENGOAL

Performance Indicators		Pallsol-RF
Basic Parameters	Overall Dimensions (1.1 m Pallet)	L1(Container Length + 2500) × B1 4200mm × H1 700mm (Conveyor Surface Height) ≈ L1(Container Length + 8.2') × B1 13.8' × H1 2.3'
	Overall Dimensions (1 m Pallet)	L1(Container Length + 2500) × B1 4100mm × H1 700mm (Conveyor Surface Height) ≈ L1(Container Length + 8.2') × B1 13.5' × H1 2.3'
	Equipment Weight	15T / 33,069 lbs
	Rated Load	Max 30T / 66,139 lbs
	Fork-Rail Thickness	≥90mm / ≥3.5"
	Platform Foot Adjustment Height	±50mm / ±2"
	Lifting Platform Max Stroke	0-600mm / 0-23.6"
	Lifting Platform Max Horizontal Displacement	±300mm / ±11.8"
	Fork Max Lifting Stroke	0-40mm / 0-1.6"
	Platform Max Rotation Angle	±1°
	Buffer Conveyor Chain Speed	9m/min / 29.5 ft/min
	Fork Rail Rated Speed	9m/min / 29.5 ft/min
Environmental Parameters	Vehicle Scanning LiDAR	2 units (1 indoor + 1 outdoor)
	Working Temperature & Humidity	Normal room temperature, -5~45°C / 23~113°F; max humidity ≤95% (non-condensing)
	Working Space Height	Min. available height ≥4m / 13.1' (for sites with varying ceiling heights)
	Noise Level	<75dB
	Power Supply	380V, 50Hz; Power Consumption 56kW
	Air Pressure & Flow	0.4-0.6MPa; Pipe diameter φ12; Flow rate 0.6m³/h / 21.2 ft³/h
	Altitude	≤1000m / 3,281 ft above sea level
	Floor Load Capacity	3T/m² / 32291lbs/ft²
Safety Protection	Floor Flatness	5cm / 2" per 10m² / 107.6 ft²
	Safety Fence	Included
	Safety Light Curtain	Included
	Emergency Stop Button	Included
	Fork Tip Collision Detection	Included

Compatibility

Requirements	Container/Pallet Specifications	Diagram
Fork-Rail Hole Height	110-130mm / 4.3"-5.1"	3-run pallets 9-leg pallets Hole Height 110-130mm
Pallet Type	3-run pallets, 9-leg pallets	
Max Cargo Weight	Max 1.5T / 3,307 lbs per pallet	
Cargo Placement Rules	1. Goods must not overhang the base pallet. 2. Goods must be neatly stacked. Two pallets must be centered relative to the container centerline with a pitch of ≤1150±50mm / 45.3±2".	



Pallsol-X



LiDAR + Vision
SLAM Navigation



Auto Obstacle Avoidance
Vision Inspection



Omnidirectional Mobility
360° Omnidirectional Chassis



Load Capacity
3000kg



Case Studies & Structure

Leading Express Company
POC Validation Phase



Autonomous Mobility
LiDAR-Vision SLAM Navigation, 360° Omnidirectional Mobility

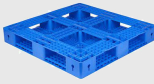


Specifications

ENGOAL

Performance Indicators		Passol-X
Basic Parameters	Vehicle Dimensions	L 4000mm × W 2250mm × H 1200mm
	Max. Lifting Stroke	1300mm
	Compatible Vehicles	20-ft / 40-ft Containers, Trucks
	Vehicle Weight	4.2T
	Rated Payload	3000kg
	Cargo Type	3-run pallets, 4-way pallets, Roll Cage, Metal containers
	Loading & Unloading Type	Shifting Fork
	Vision Hardware	RGB-D Camera + LiDAR
	Vision & Grasping Algorithms	Self-developed
	Loading/Unloading Efficiency	20-30min/vehicle
	Mobility Performance	Omni-directional Travel
	Maximum Travel Speed	0.5m/s
	Obstacle-Crossing Capability	0 mm Step / 30 mm Gap
	Voltage	380V
Environmental Parameters	In-Container Navigation	SLAM Navigation
	Temperature & Humidity	-5°C to 45°C; Relative Humidity ≤ 95%
Safety Protection	Noise Level	<75 dB
	Safety Fence	Equipped
	Safety Light Curtain / Safety Radar	Equipped
Emergency Stop Button		Equipped

Compatibility

Requirements	Container/Pallet Specifications	Diagram
Cargo Type	3-run pallets/4-way pallets/Roll Cage/Metal containers	  3-run pallets4-way pallets
Cargo Dimensions	Max. Size: 1100 mm × 1100 mm	  Roll CageMetal containers
Cargo Configuration	Stacked Loads or Single Pallets	



Pallsol-SC(Slide-Chain)



Applicable Vehicle Type
Box trucks



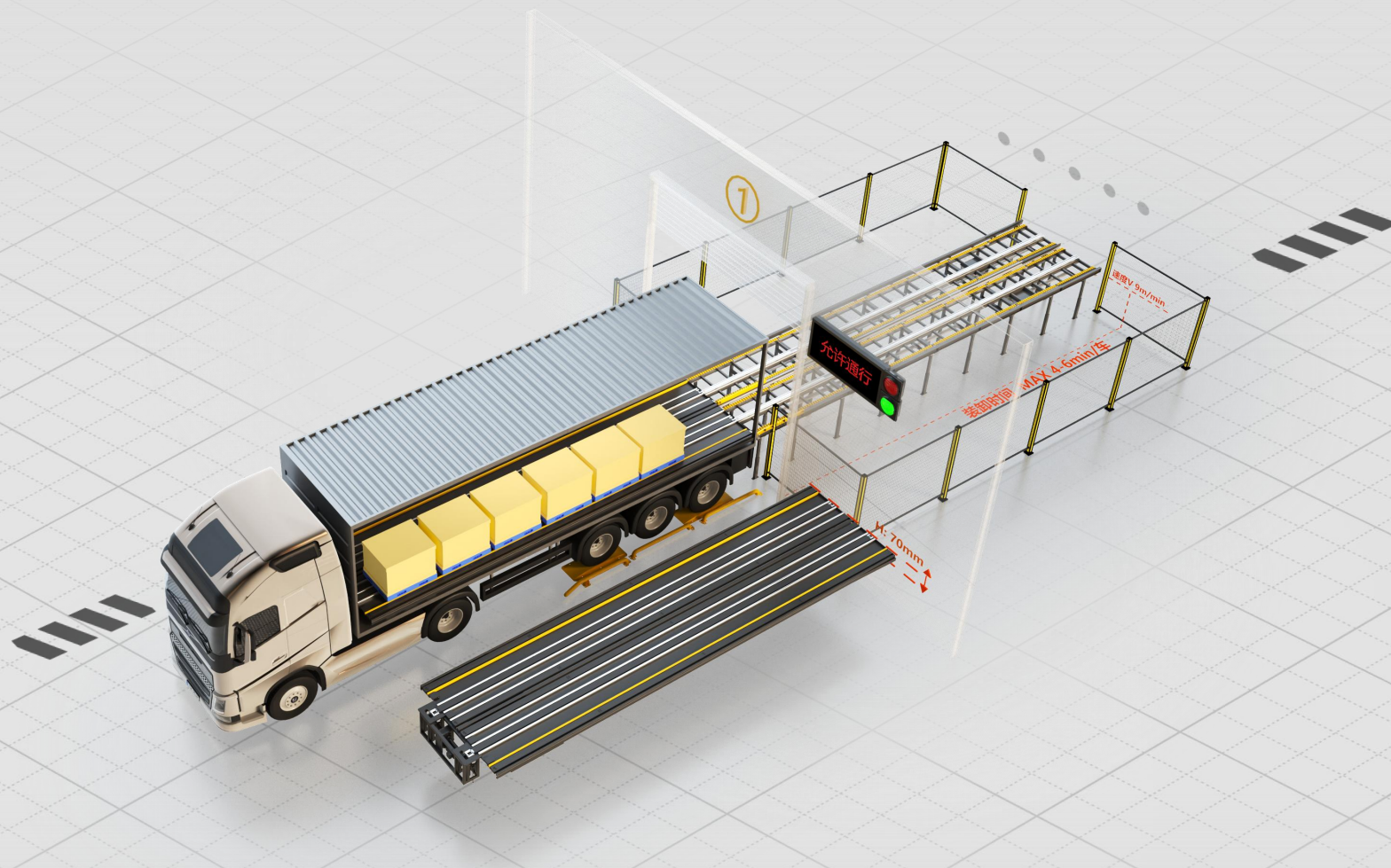
Compatible Containers
3-run pallets, 4-way pallets, plastic pallets, metal containers



Rated Load Capacity
Up to 30T / 66,139 lbs



Operation Mode
Loading & unloading
Throughput 4-6min/truck



Case Studies



Mengniu Factory

Realized the automatic unloading scenario for packaging materials incoming.



SAIC Yantai Factory

The first fully unmanned logistics project in the manufacturing industry.



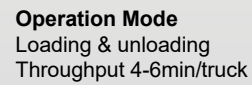
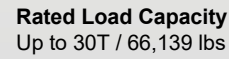
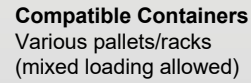
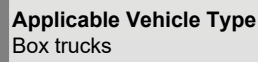
Specifications

Performance Indicators		Pallsol-SC
Basic Parameters	Platform Dimensions (Dock)	L1 (custom per dock) × B1 (custom per truck width) × H1 (determined by truck docking height)
	In-Truck Platform Dimensions	L2 (custom per truck) × B2 (custom per goods) × H2 70mm (platform thickness) / 2.8"
	In-Truck Drive Occupied Space	300mm / 11.8"
	Equipment Dead Weight	1-3T (single platform) / 1.1-3.3st
	Rated Load	Max 30T / 66,139 lbs
	Conveyor Speed	12m/min / 39 ft/min
	Motor Quantity	Determined by the number of slide chain lanes in the truck
	Control Mode	Single or unified control
Environmental Parameters	Working Temperature & Humidity	Normal room temperature, -5~45°C / 23~113°F; max humidity ≤95% (non-condensing)
	Minimum Working Clearance Height	≥4m / 13.1' (varies by site)
	Noise Level	<75 dB(A)
	Power Supply	380V, 50Hz; 4.4kW per single platform
	Air Pressure & Flow	0.4~0.6MPa; Pipe diameter φ12; Flow rate 0.6m³/h / 21.2 ft³/h
	Floor Load Capacity	2000kg/m² / 47460lbs/ft²
	Floor Flatness	5cm / 2" per 10m² / 107.6 ft²
Safety Protection	Safety Fence	Included
	Safety Light Curtain	Included
	Emergency Stop Button	Included
Optional Features	Automatic Truck Door Curtain	Available
	Independent Power Supply	Available

Compatibility

Requirements	Container/Pallet Specifications	Diagram
Cargo Container Size	Container width ≤ Truck width - Cargo-to-cargo gap (150mm / 5.9") - Cargo-to-truck gap (100mm / 3.9")	 3-run pallets 4-way pallets plastic pallets
Compatible Container Types	Wood pallets, plastic pallets, 9-leg pallets, custom metal containers	
Max Total Load (with container)	Max 1T / 2,205 lbs per pallet	
Cargo Dimension Requirement	Goods must not overhang the base container/pallet	





Compatibility

ENGOALTECH | marketing@engoal-tech.com | www.engoal.tech



Pallsol-PP(Push Plate)



Applicable Vehicle Type
Box trucks



Compatible Containers
Various pallets/racks
(mixed loading allowed)



Rated Load Capacity
Up to 30T / 66,139 lbs



Operation Mode
Loading only
Throughput 8–12 min/truck



Core Structure

Push Plate

Suitable for loading all types of goods, ensuring stable, safe, and efficient operations.



Large Central Petrochemical Enterprise

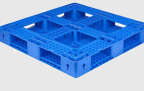
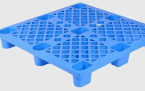
Unmanned rapid load, meets high-risk petrochemical safety specs.



Specifications

Performance Indicators		Pallsol-PP
Basic Parameters	A. Dimensions (1.1m Fork)	L1 (Vehicle Length + 2500) × B1 4200mm × H1 700mm (Conveyor height above ground) ≈ L1 (Vehicle Length + 8.2') × B1 13.8' × H1 2.3'
	B. Dimensions (1m Fork)	L1 (Vehicle Length + 2500) × B1 4100mm × H1 700mm (Conveyor height above ground) ≈ L1 (Vehicle Length + 8.2') × B1 13.5' × H1 2.3'
	Equipment Dead Weight	12T / 26,455 lbs
	Rated Load	Max 30T / 66,139 lbs
	Push Plate Thickness	30-80mm / 1.2"-3.1"
	Platform Foot Adjustment Height	±50mm / ±2"
	Lifting Platform Max Stroke	0-600mm / 0-23.6"
	Lifting Platform Max Horizontal Displacement	±300mm / ±11.8"
	Platform Max Rotation Angle	±1°
	Collector Conveyor Chain Speed	9m/min / 29.5 ft/min
	Push Plate Rated Speed	9m/min / 29.5 ft/min
	Vehicle Scanning LiDAR	2 units (1 indoor + 1 outdoor)
Environmental Parameters	Working Temperature & Humidity	Normal room temperature, -5~45°C / 23~113°F; max humidity ≤95% (non-condensing)
	Minimum Working Clearance Height	≥4m / 13.1' (for sites with varying ceiling heights)
	Noise Level	<75dB
	Power Supply	380V, 50Hz; 50kW
	Air Pressure & Flow	0.4–0.6MPa; Pipe diameter φ12; Flow rate 0.6m³/h / 21.2 ft³/h
	Altitude	≤1000m / 3,281 ft above sea level
	Floor Load Capacity	3T/m² / 32291lbs/ft²
	Floor Flatness	5cm / 2" per 10m² / 107.6 ft²
Safety Protection	Safety Fence	Included
	Safety Light Curtain	Included
	Emergency Stop Button	Included
	Push Plate Collision Detection	Included

Compatibility

Requirements	Container/Pallet Specifications	Diagram
Compatible Container Types	Wood pallets, plastic pallets, 9-leg pallets, custom metal containers	 3-run pallets  4-way pallets  9-leg pallets
Max Total Load (with container)	Max 1.5T / 3,307 lbs per pallet	
Cargo Dimension Requirement	1. Goods must not overhang the base pallet. 2. Goods must be neatly stacked. Two pallets must be centered relative to the truck centerline with a pitch of ≤1150±50mm / 45.3±2".	 Wood pallets  Plastic pallets  Metal containers



Pallsol-TT(Tow-Type)



Applicable Vehicle Type
Box trucks/40ft standard containers



Compatible Containers
Custom metal body fixtures



Rated Load Capacity
Up to 4.5T / 9,921 lbs



Throughput
8-10 min/vehicle
Operation Mode
Unloading only



Case Studies & Structure

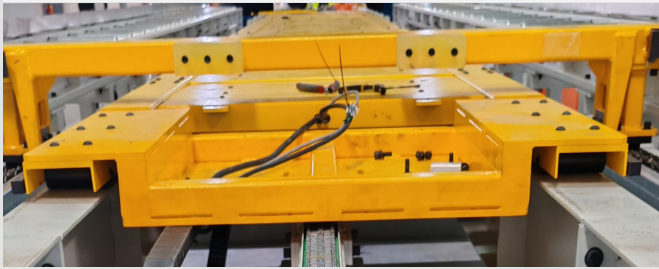


Haosen Brazil Semi-Automatic Unloading Project
China's first semi-automatic car body unloading equipment exported overseas



Push-Pull Structure Integration

Adapted for unloading with custom car body fixtures



Specifications

Performance Indicators		Pallsol-TT
Basic Parameters	Overall Dimensions	L1 11400mm × B1 2600mm × H1 1450mm (conveyor height above ground) ≈ L1 37.4' × B1 8.5' × H1 4.8'
	Applicable Vehicles	40ft standard containers (contact sales for special cases)
	Equipment Dead Weight	15T / 33,069 lbs
	Rated Load	Max 4.5T / 9,921 lbs
	Fork Board Thickness	Standard 80mm / 3.1" (customizable)
	Platform Foot Adjustment Height	±30mm / ±1.2"
	Lifting Platform Max Stroke	0-500mm / 0-19.7" (descending range: 0-100mm / 0-3.9"; ascending range: 0-400mm / 0-15.7")
	Lifting Platform Max Horizontal Displacement	±300mm / ±11.8"
	Platform Max Rotation Angle	Manual version: No rotation; Automatic version: ±1° rotation
	Unloading Conveyor & Pushing Speed	9m/min / 29.5 ft/min
Environmental Parameters	Fork Board Speed In/Out of Vehicle	9m/min / 29.5 ft/min
	Vehicle Scanning LiDAR	Manual version: None; Automatic version: 2 units (1 indoor + 1 outdoor)
	Working Temperature & Humidity	Normal room temperature, -5~45°C / 23~113°F; max humidity ≤95% (non-condensing)
	Minimum Working Clearance Height	≥4m / 13.1' (for sites with varying ceiling heights)
	Noise Level	<75dB
	Power Supply	380V, 50Hz; 32kW
	Altitude	≤1000m / 3,281 ft above sea level
Safety Protection	Floor Load Capacity	2.5T/m² / 59325lbs/ft²
	Floor Flatness	5cm / 2" per 10m² / 107.6 ft²
	Safety Fence	Included (automatic version only)
	Safety Light Curtain	Included (automatic version only)
	Emergency Stop Button	Included in all versions
	Fork Board Collision Detection	Included in all versions

Compatibility

Requirements	Container/Pallet Specifications	Diagram
Container Type	Custom metal car body fixtures	 Custom Car Body Fixtures
Max Total Load (with container)	Max 2.8T / 6,173 lbs per fixture	
Overall Fixture Dimensions	5900mm × 2270mm × 1520mm / 19.4' × 7.4' × 5.0'	

