ELECTRIC TERMINAL TRACTOR

QUALITY CHANGES THE WORLD

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ELECTRIC TERMINAL TRACTOR

About SANY Marine

Established in 2005, SANY Marine specializes in port and logistics equipment, including mobile port machinery (reach stackers, empty container handlers), port cranes (STS, RTG, RMG, jib cranes, MHC, ship unloaders, ship loaders), logistics equipment (material handlers, heavy-duty forklift trucks, electric terminal tractors), and telehandlers.

The Zhuhai Industrial Park of SANY Marine spans 2 million square meters, with 300,000 square meters for manufacturing facilities and another 300,000 square meters for large port machinery assembly. The park has an annual production capacity valued at $2.1 billion.

COMPANY VISION

Become a leader in logistics equipment driven by globalization, digitization and efficient operation.

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Production R&D System

Manufacture Technology

SANY Marine, a leader in the field, has established an intelligent "Lighthouse Factory," integrating real-time data, centralized control, and flexible production islands. With six production lines, 18 islands, and 100 robots, the fully digitalized process spans material handling to assembly. This has led to a 30% increase in efficiency and a 30% reduction in lead times, enabling the production of one reach stack06er every six hours. Annual output now totals 15 billion RMB, with large port machinery contributing 5 billion RMB and small port equipment 10 billion RMB.

Testing System

Leveraging global resources, SANY Marine has built a top R&D team of 500, with 50% holding master's degrees or higher. The company invests 6% of annual revenue in R&D, resulting in 736 patents, including 438 inventions, 29 international patents, and contributions to 23 industry standards.

Environmental Protection

Equipped with an eco-friendly engine that complies with the latest National IV standards and uses environmentally friendly paint to effectively reduce pollution. A full range of new energy products have achieved large-scale mass production and delivery.

Reliable Service

Reliable Service

Serivce Concept

reply in 15 minutes
arrive in 2 hours
general fault solved in 1 day
customer complaints resolved in 2 days
general remaining problem solved in 7 days

Service Team

400 service engineers
60% obtained advanced skill level or above
300+ service vehicles
365 days*24h service

Service Outlets

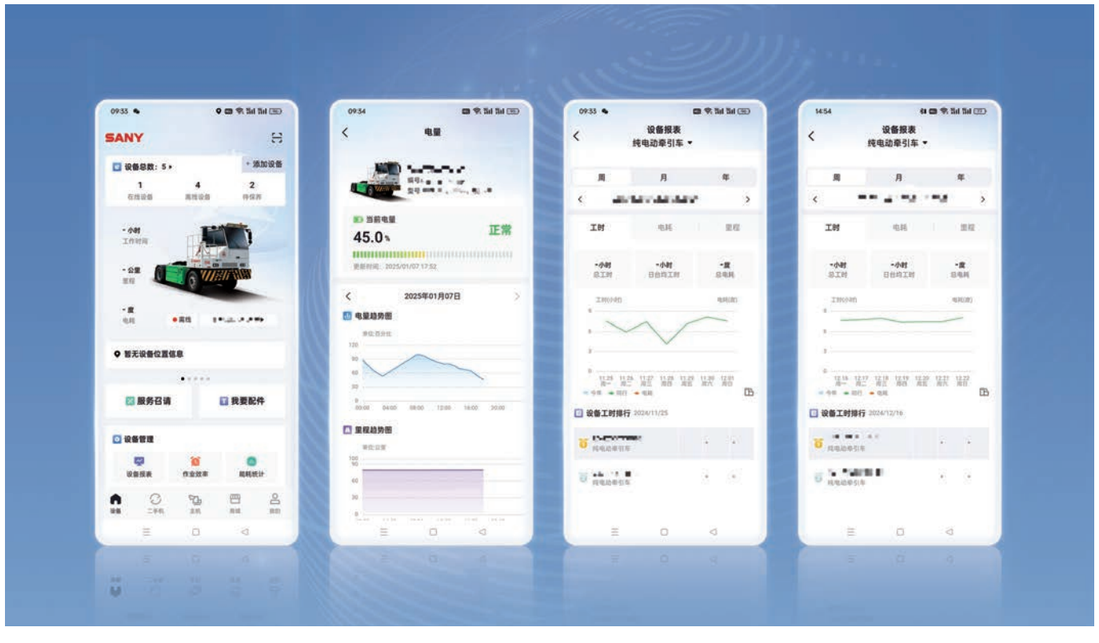
overseas office abound globally
35 domestic service outlets
service engineer standby in major cities

Accessory Storage

The four-in-one parts supply guarantee system of headquarters warehouse, regional central warehouse, provincial warehouse and municipal warehouse stores more than 100,000 kinds of spare parts

Customer APP

"MYSANY" allows global real-time monitoring of equipment status and reports, along with services like online support, community interaction, parts marketplace, repair requests, maintenance scheduling, and product knowledge.



The first Comprehensive Solution for In-Port Electric Terminal Tractors 2 Major

2 Major Platforms, 7 Models of Electric Terminal Tractors

- Electric Terminal Tractors : 4×2 Charging Version, 4×2 Battery Swap Version, 4×2 Saddle-Lifting Version, 6×4 Charging Version
- Autonomous Terminal Tractors : IGV Autonomous Flatbed, 4×2 Autonomous Tractor, 6×4 Autonomous Tractor (Charging Version)

Comprehensive Coverage for Battery Swapping

- Charging Stations : High Voltage Charging, 90% charge in 1 hour
- Battery Swap Stations : Battery change completed in 3 minutes
- Smart Charging Scheduling System : Charging station utilization increased by 30%

Port Fleet Leading the Industry

- Bulk introductions at Ningbo-Zhoushan Port, Guangzhou Port, Tianjin Port, Xiamen Port, etc.
- Bulk purchases by container terminal operators such as PSA, APMT, HPH, DPW.

Plug-in Electric Terminal Tractor
SM2500

Battery Swap Electric Terminal Tractor
SM4257

Lifting Electric Terminal Tractor
SM4600

IGV Autonomous Terminal Tractor
SIGV8850E

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SM2500

SANY Electric Terminal Tractor

Product Parameters

Technical Parameter		
ITEM	UNIT	SM2500
Model/driving type	-	4×2
Overall dimensions	mm	6310×2550×3380
Wheelbase	mm	3720
Endurance	km	≥120
Self weight	t	9
Max. Traction capacity	t	70
Max. Gradeability	%	≥6
Max. Speed	km/h	40
Min. Turning radius	m	7
0~30km/h accelerate time	s	≤20

Configuration Parameter			
CONFIGURATION		UNIT	SM2500
Traction battery	Type	-	Charging
	Capacity	kWh	282
E-motor	Power	kW	130/280
	Torque	N·m	1400/2800
Charging time		-	Fast charge 60 min
Front axle/rear axle		t	9/16
The fifth wheel		-	Fixed
Tire		-	12R22.5-18PR

1 Efficient Battery Swap
Swap in 2 minutes with optional high-capacity batteries

2 Offset Cabin
Air-suspension for comfort, better visibility, and tailored for port use

3 Single Motor Direct Drive
High efficiency with no gearbox, simple and maintenance-free

4 Energy Efficiency
15% less energy consumption with advanced thermal management and energy recovery

5 Data Connectivity
Remote monitoring, fault diagnostics, and optimized charging for improved efficiency

Workflow Diagram

brand	cost per TEU	unit price of energy (CNY)	cost per TEU (CNY/TEU)	annual work volume (10k TEU)	annual energy cost (10k CNY)	annual consumption	equals (per ton standard coal)
Sany ETT	1.9kWh	0.7	1.33	3.6	4.79	72,000kWh	8.85
fuel TT of other brand	0.85L	6.5	5.52	3.6	19.87	27.23t	39.48

Note: The energy consumption of each TEU is quoted from the real operation data of a port in South China. Due to the differences in port working conditions, the fluctuation of electricity price and oil price and other factors, the relevant data may vary. The above is for reference only.

SM4257

SANY Electric Terminal Tractor

1 **Efficient Battery Swap**
Swap in 2 minutes with optional high-capacity batteries

2 **Offset Cabin**
Air-suspension for comfort, better visibility, and tailored for port use

3 **Single Motor Direct Drive**
High efficiency with no gearbox, simple and maintenance-free

4 **Energy Efficiency**
15% less energy consumption with advanced thermal management and energy recovery

5 **Data Connectivity**
Remote monitoring, fault diagnostics, and optimized charging for improved efficiency

Product Parameters

Technical Parameter		
ITEM	UNIT	SM4257
Model/driving type	-	4×2
Overall dimensions	mm	6310×2550×3380
Wheelbase	mm	3720
Endurance	km	≥120(282kWh)
Self weight	t	9
Max. Traction capacity	t	70
Max. Gradeability	%	≥6
Max. Speed	km/h	40
Min. Turning radius	m	7
0~30km/h accelerate time	s	≤20

Configuration Parameter			
CONFIGURATION		UNIT	SM4257
Traction battery	Type	-	Charging
	Capacity	kWh	141/210/282/350
E-motor	Power	kW	130/280
	Torque	N·m	1400/2800
Charging time		min	5-minute battery swap
Front axle/rear axle		t	9/30
Suspension System		-	Fixed
Tire		-	12R22.5-18PR

Workflow Diagram

SM4600

SANY Electric Terminal Tractor

1 Offset Cabin
Enhanced visibility, safety, and comfort with air-suspension seat and multi-step side access

2 Heavy-Duty Chassis
4X2 welded chassis, 70t max towing, optional air-sprung rear axle

3 Single Motor Direct Drive
Efficient 10-30 km/h, high transmission efficiency, low maintenance

4 Energy Efficiency
15% energy savings with thermal management and upgraded recovery system

5 Data Connectivity
Remote monitoring, operation reports, fault diagnosis, and charging scheduling for efficient management

Product Parameters

Technical Parameter		
ITEM	**UNIT**	**SM4600**
Model/driving type	-	4×2
Overall dimensions	mm	5805×2550×3200
Wheelbase	mm	3400
Endurance	km	≥120
Self weight	t	10
Max. Traction capacity	t	75
Max. Gradeability	%	≥6
Max. Speed	km/h	40
Min. Turning radius	m	7.5
0~30km/h accelerate time	s	≤20

Configuration Parameter			
CONFIGURATION		**UNIT**	**SM4600**
Traction battery	Type	-	Charging
	Capacity	kWh	282
E-motor	Power	kW	120/240
	Torque	N·m	1200/2800
Charging time		-	Fast charge 60 min
Front axle/rear axle		t	13/34
The fifth wheel	Structure	-	Unfixed
	Heights	mm	1180-1530
Tire		-	12R22.5-18PR
Suspension System		-	Fixed Air suspension (SM4601)

Workflow Diagram

SM2503

SANY Electric Terminal Tractor

1 Heavy-Duty Chassis
6×4 chassis, 70t towing capacity, optimized for port operations

2 Single Motor Direct Drive
Efficient 10-30 km/h range, high efficiency, no gearbox, low maintenance

3 Data Connectivity
Remote monitoring, fault diagnosis, and efficient vehicle management

4 Energy Efficiency
15% energy savings with advanced thermal management, power matching, and recovery strategies

Product Parameters

Technical Parameter		
ITEM	UNIT	SM2503
Model/driving type	-	6×4
Overall dimensions	mm	7310×2550×3380
Wheelbase	mm	3720+1350
Endurance	km	≥120
Self weight	t	12
Max. Traction capacity	t	70
Max. Gradeability	%	≥6
Max. Speed	km/h	40
Min. Turning radius	m	9
0~30km/h accelerate time	s	≤20

Configuration Parameter			
CONFIGURATION		UNIT	SM2503
Traction battery	Type	-	Charging
	Capacity	kWh	282
E-motor	Power	kW	130/280
	Torque	N·m	1400/2800
Charging time		-	Fast charge 60 min
Front axle/rear axle		t	9/16+16
The fifth wheel		-	Fixed
Tire		-	12R22.5-18PR

Workflow Diagram

SIGV8850E

SANY Electric Terminal Tractor

1 3 kinds of power replenishment mode

Automatic charging, automatic unplugging and plugging electricity 1 time success rate >99%;

Automatic battery swapping time < 3min, standardized power box.

2 Automatic driving

Full-area localization, one-step localization parking accuracy ±5cm;

No blind spot perception, vehicle longitudinal 100m, horizontal 50m, 360° full coverage;

With the ability to mix with manned vehicle channel.

3 Safe and reliable

Box-beam frame, full working condition dynamic simulation + test, strong stability;

Level 2 active safety detection + front and rear passive collision detection devices + redundant control of main and vice controllers;

High safety power battery system, PACK passed 273 safety tests.

4 Flexibility and maneuverability

8×4, all-wheel steering, small turning radius;

Support 4 kinds of movement modes: full eight, half eight, diagonal traveling and two-way traveling;

Vehicle width 2.7m, turning radius 9.5m, strong passability;

Line-controlled chassis, steady state response time < 200ms.

5 Economical and efficient

Endurance: 120km;

Line-controlled composite braking system, braking energy return efficiency >10%

Level 2 active safety detection + front and rear passive collision detection devices + redundant control of main and vice controllers;

High safety power battery system, PACK passed 273 safety tests.

Product Parameters

Technical Parameter		
ITEM	UNIT	SIGV8850E
Model/driving type	-	8×4
Overall dimensions	mm	15000×2700×1800
Wheelbase	mm	1600/5700/1600
Endurance	km	≥110
Self weight	t	21
Max. Traction capacity	t	65
Max. Gradeability	%	≥7
Max. Speed	km/h	38/30
Min. Turning radius	m	8.2
0~30km/h accelerate time	s	≤20

Configuration Parameter			
CONFIGURATION		UNIT	SIGV8850E
Traction battery	Type	-	Charging / Battery Swapping / Self-charging
	Capacity	kWh	210/282
E-motor	Power	kW	2×120/185
	Torque	N·m	2×500/1300
Charging time		min	60(300kW)
Bridge-mounted		t	20
Tire		-	14R24-28PR

Workflow Diagram

SM5180

SANY Electric Terminal Tractor

SM5180 can go back and forth between the battery swapping station and the terminal port equipment. It can be used to transport the power battery. It realizes the equipment at the operation site to carry out battery swapping operations, remote control to the box, and semi-automatic power exchange.

Applicable scenarios: the operating site is far away from the charging/swapping place, and the operating intensity is high.

1 **Strong versatility**
the battery exchange box can be used for electric reach stacker, electric empty container handler and electric terminal tractor.

2 **High efficiency**
automatic battery swapping time < 7min.

3 **Strong function**
it can be charged or swapped, and can realize VTV emergency charging.

Product Parameters

Technical Parameter			
ITEM		**UNIT**	**SM5180T0BEV**
Model/driving type		-	4×2
Overall dimensions		mm	7860×2550×3587
Wheelbase		mm	4500
Power Battery		kWh	141
E-motor	Power	kW	100/1185
	Torque	N.m	750/1300
Drive axle speed ratio		-	6.61/3.52/1.89/1
Battery Swap Time (Equipment Swap)		-	7min
Endurance		km	≥65
Self weight		t	12.1
Max. Total mass		t	18
Max. Gradeability		%	30
Max. Speed		km/h	85
Min. Turning radius		m	9
0~30km/h accelerate time		s	≤25
Front/Rear Axle		t	7.5/11.5
Tire		-	10R20-18PR

Workflow Diagram

Construction Cases

Construction Cases

Hainan

Shenzhen

Anhui


Jiangsu

Guangxi


Guangxi

Singapore PSA


Xiamen

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