



# SANY LITHIUM BATTERY COUNTERBALANCE FORKLIFT TRUCK

## PRODUCT MANUAL



# SANY

QUALITY CHANGES THE WORLD

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Due to ongoing technological advancements, technical parameters and configurations may change without prior notice. The machines shown may include additional equipment. This brochure is for reference purposes only, and the actual product specifications shall take precedence.

SANY FORKLIFT



[www.sanyroboticsglobal.com](http://www.sanyroboticsglobal.com)

# SANY LITHIUM BATTERY COUNTERBALANCE FORKLIFT TRUCK

From developing the high-voltage forklift architecture in 2020 to redefining industry standards with its launch in 2021  
From standard liquid cooling for the EV system to top-tier protection standards  
The first to implement NEV-grade technology, the first cloud platform in the forklift industry, and the first to provide a five-year warranty on the EV system  
SANY Electric Forklift has established a technological edge through its high-voltage innovation  
Continuously leading the industry's development in EV systems and smart technolog  
Continuously setting new benchmarks in material handling standards for extreme working conditions



Fast charging



Powerful performance



High efficiency



All-weather operation



High intelligence



Easy maintenance



# SANY Electric Forklift extreme challenge

+40°C  
extreme heat

-40°C  
extreme cold

4000m  
high altitude

98%  
extreme heat and high humidity

Complex desert environment

 +40°C extreme heat

 -40°C extreme cold

 4000m high altitude

 98% extreme heat and high humidity

 Complex desert environment



# CREATING AN INTELLIGENT PLATFORM THAT SEAMLESSLY INTEGRATES PEOPLE, VEHICLES, AND A NETWORK WITH INTELLIGENT INSPECTION, MANAGEMENT, OPERATION, DRIVING, AND CONTROL

## Intelligent inspection

Automatic diagnosis of the EV system and circuits; in-depth mining of operational data, AI-powered intelligent analysis and fault prediction to ensure optimal driving performance.

## Intelligent control

Remote OTA updates, remote tracking and speed control, remote encryption and locking.

## Intelligent control

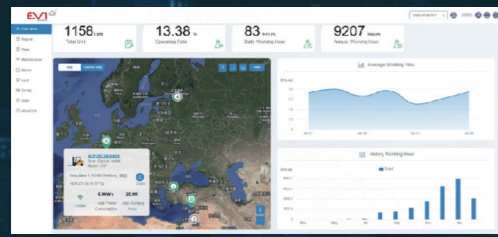
### ADAS (Advanced Driver Assistance System)

- 360° panorama
- Driving environment recognition
- Active protection
- Driving recorder

### DMS (Driver Monitoring System)

- Facial recognition
- Seat belt detection
- Fatigue driving recognition
- Hazardous driving behavior recognition

## Intelligent management (T\_BOX)



The first independently developed cloud platform in the forklift industry



Overseas EVI management platform

- After-sales intelligence
- Intelligent monitoring
- Visual management of equipment
- Fleet dispatching management

## 7-inch touch display



## Intelligent operation

- Mast lowering buffer, load landing buffer, cylinder end buffer
- Automatic turning speed reduction
- Hydraulic system, explosion-proof buffer
- Ramp hold system (optional)
- Charging protection, power-off protection, low-battery protection
- Overload protection
- OPS seat sensing (speed limit when unoccupied)



# S SERIES (3-WHEEL) NARROW-AISLE SPECIALIST, COLD STORAGE HANDLING EXPERT

30%

**Enhanced driving space**  
Compared to mainstream models  
on the market

**Ultimate  
turning capability**

**Dual-motor drive**  
Extreme zero-turn

96<sub>v</sub>

**Fast charging speed**  
Low energy consumption, highest  
in its class

**Suitable for  
cold storage**

**Long-term operation at  
-30°C (optional)**  
Standard battery heating

7寸

**Large-sized smart screen**  
Remote lock | OTA

**Efficient  
and safe**

**22% gradeability | IP67 protection**  
The only 20kW integrated permanent  
magnet synchronous motor in its class



## Key features

### High efficiency, long endurance

- The 16/20S series is equipped with China's first integrated electric drive system, offering low energy consumption and high operational efficiency as standard
- Smaller turning radius, shorter body length, and quicker lifting speed
- Standard 22-degree high-capacity lithium-ion battery, featuring a 1-hour fast charge (20%-95%) and an 8-hour work cycle

### Reliable quality, durable

- Supporting long-term operation at -20°C with standard battery heating, specifically designed for cold storage and warehousing
- Rigorous testing and verification of the EV systems: IP67 or higher protection rating, exceptional durability, and an extended warranty of 10,000 hours over five years

### Convenient maintenance, strong applicability

- Covering parts can be removed without tools, allowing access to major maintenance components in under 1 minute
- China's first integrated electric drive system with a dual oil tank setup, designed with a straightforward and user-friendly layout

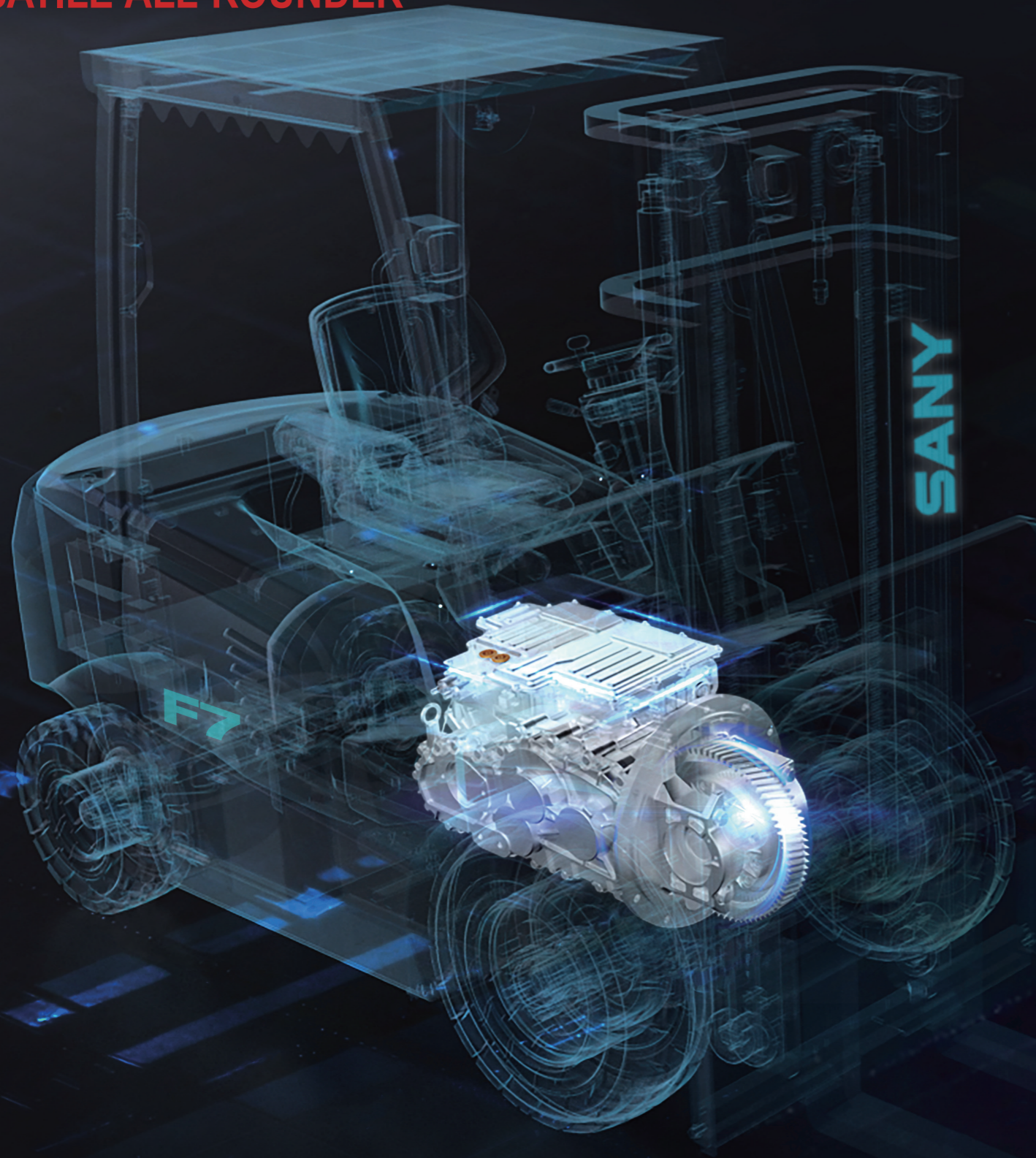
### Ergonomic, comfortable driving

- Extra-large multifunctional LCD display (integrated with T-BOX) provides comprehensive vehicle information and enables direct adjustment of key vehicle parameters
- Extra-large legroom in the driver's area, 30% larger than similar products on the market
- Optional electro-proportional valve seat armrest and dual-pedal functionality for enhanced driving comfort

### Intelligence

- Standard T-BOX cloud platform management enables features such as remote upgrades and remote locking
- Optional 360° panoramic imaging

**F SERIES**  
**VERSATILE ALL-ROUNDER**



**INDUSTRY'S FIRST**  
**96V WATER-COOLED 8-IN-1 POWERTRAIN**

Compared to mainstream electric forklifts on the market  
15% reduction in structural energy consumption

**15%↓**  
Energy Consumption

10% increase in power performance  
Over 18% no-load gradeability

**10%↑**  
Performance

Simpler vehicle layout  
Reduced maintenance time

**20%↓**  
Maintenance time

Full life-cycle maintenance  
30% lower costs

**30%↓**  
Maintenance cost

90% fewer main electrical interfaces  
More waterproof and reliable

**90%↓**  
Interface

**Key features**

**Exceptional performance**

- The industry's first 96V 8-in-1 powertrain with liquid cooling for continuous and efficient operation
- IP67 protection for the powertrain, battery, and core electrical components, with IPX4 for the entire vehicle
- Travel speed >16 km/h, gradeability >17%, leading comparable models in the industry

**Improved efficiency**

- In-house developed dual-core VCU with superior computing power, delivering millisecond-level response and strong driving control
- High-performance battery with fast charging, reaching 20%-100% in 1 hour (with a 200A charger)
- Permanent magnet synchronous electric drive for high power and efficiency

**Safe and reliable**

- Active safety system: Detecting human movement and providing early warnings of potential hazards (optional)
- High-precision facial recognition system to prevent driver fatigue (optional)

**Energy saving and cost reduction**

- Powertrain structure provides strong power with lower overall energy consumption than mainstream models on the market
- Meeting over 80% of customer requirements for light and medium-duty applications
- Excellent cost-effectiveness, reducing customer operation and maintenance costs by 1/3

**Extended warranty**

- Extended warranty of five years or 10,000 hours for the battery and powertrain
- (One-year warranty for the reduction gearbox), ensuring worry-free operation

# C SERIES (2-5 TONS) HIGH VOLTAGE, HIGH ENERGY, THE ULTIMATE PERFORMER

7%

Increased operating speed  
Compared to traditional  
internal combustion forklifts

## HIGH-VOLTAGE LITHIUM-ION BATTERY

Industry's first application of  
NEV-grade  
High-voltage platform in  
electric forklifts

30%

Lower operating costs  
Compared to traditional  
electric forklifts

## FAST CHARGING

Charge to 90% in 1 hour  
The entire series complies  
with national charging  
standards

15%

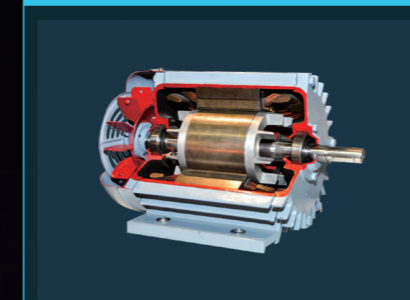
Improved overall efficiency  
Compared to traditional  
electric forklifts

## KING OF GRADEABILITY

The 3-ton C7 has a full-load  
gradeability  
of up to 25%

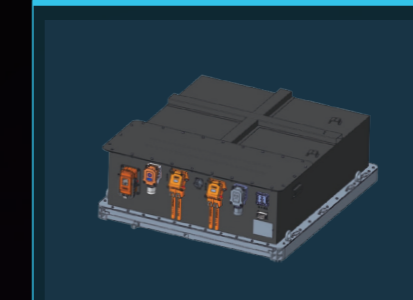


### Automotive-grade motor



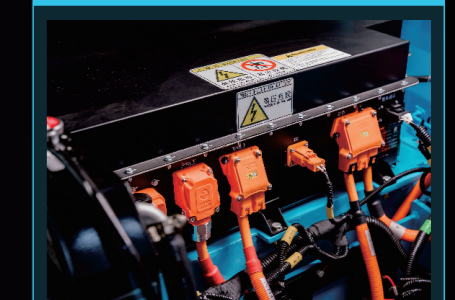
Permanent magnet synchronous electric drive for greater power and stronger performance

### Automotive-grade lithium-ion battery



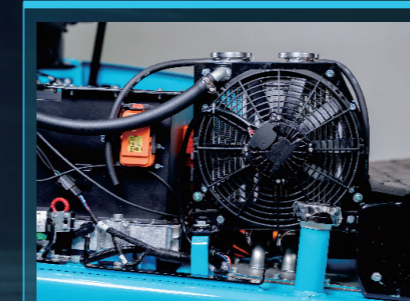
Industry's first  
Highly integrated lithium-ion battery, BMS

### Automotive-grade wiring harness



Neat wiring harness  
More reliable and easier to maintain

### Automotive-grade liquid cooling



The EV system is equipped with an automotive-grade liquid cooling system, making it heat-resistant and more durable

### Automotive-grade protection



IP67 protection rating for core electrical components and IPX4 for the entire truck

### Automotive-grade VCU



Self-developed dual-core VCU with ultra-strong computing power  
Forklift "brain" with millisecond-level response and powerful performance

China: The entire series complies with national charging standards  
Overseas: National (GB), European (CE), and American (UL) charging standards are available as options

## C SERIES (8-TON) HEAVY-DUTY FORKLIFT

> 20%

Gradeability

> 20 km/h

Travel speed

10 inch

Standard intelligent display

386 v

Voltage platform

77 kWh

Standard battery capacity

> 350 mm/s

Lifting speed (laden)

Five years or  
10,000 hours

EV system warranty

CATL battery

Standard compressor  
water cooling



### Key features

#### High-end configuration

- Standard features include a fully enclosed cab with panoramic glass, air conditioning, a suspension seat, electric proportional joystick controls, a 10-inch intelligent touchscreen, and a reverse camera, all of which significantly enhance driving comfort

#### Powerful performance

- The high-power permanent magnet synchronous motor delivers exceptional performance, offering strong gradeability and travel speed at a dual 20 level under full load. With an S9 duty cycle and extended durability, it is designed to meet customer demands across a wide range of operating conditions

#### All-weather operation

- The EV system is IP67-rated for waterproofing, making it resilient against heavy rain and dusty environments, and adaptable to a range of extreme conditions

#### Convenient maintenance

- The tiltable cab design significantly improves maintenance convenience

#### High-voltage fast charging

- CATL's standard battery pack comes equipped with compressor water cooling and offers an extended warranty of 5 years or 10,000 hours
- 1-hour high-voltage fast charging for rapid power replenishment, ensuring all-day operational needs are met

#### Intelligent truck

- A higher level of intelligence, featuring a forklift cloud platform, reverse camera, and cornering speed reduction, with optional features such as ramp assist, driver posture detection, and facial recognition

#### Container entry operation

- The overall height of the truck is <2540mm, allowing for container entry operations and greatly expanding the forklift's operating conditions

#### Ultra-long endurance

- Equipped with a 100 kWh water-cooled battery, the maximum endurance can reach up to 6 h

## DRIVING COMFORT

- 01 Industry-leading super-large-vision mast for improved smoothness and hydraulic system, as well as high strength.
- 02 Shock-absorbing seat ensures a smooth ride regardless of terrain and reduces operator fatigue; the seat comes standard with an OPS switch for occupant presence sensing.
- 03 Standard 7-inch intelligent instrument touch display, with such functions as fault diagnosis, remote control, parameter customization, etc. Optional IC card. (The 7-inch smart instrument screen is only equipped on models such as F1/F7/C7)
- 04 Quick acceleration, smooth parking, and slope-assisted operation, to be simple, accurate and efficient.



## EASE OF MAINTENANCE

Any position can be reached in one minute for maintenance with reasonable parts arrangement; all parts are within reach after removal of the cover for easy maintenance.



## WORRY-FREE AFTER-SALES SERVICE

Exceeding Customer Expectations: By providing customers with exceptional service, SANY will maximize the value of each customer's equipment. With relentless attitude, employ every conceivable means, and deliver unparalleled service.

Exceeding Industry Standards: By implementing the highest service standards in the industry, SANY will achieve the highest level of customer satisfaction.



- **Proactive Service (Green Action)**  
Search and locate machines, inspect machines, resolve issues, and respond to other needs to enhance customer satisfaction.
- **Customer Complaints**  
Direct communication with the Chairman's office Ensure customer satisfaction.
- **Lifetime Commitment**  
Provide full life-cycle service and accessory supply for equipment.
- **24/7 Service**  
Rapid response mechanism for quickly resolving customer issues regardless of cost.

# SANY ELECTRIC FORKLIFT IS TRUSTWORTHY



Boards



Ceramics



Paper industry



Chemicals



Waste paper baling



Mold



Glass



Automobile



Express delivery



Port



Graphite



Fireworks



Home appliance



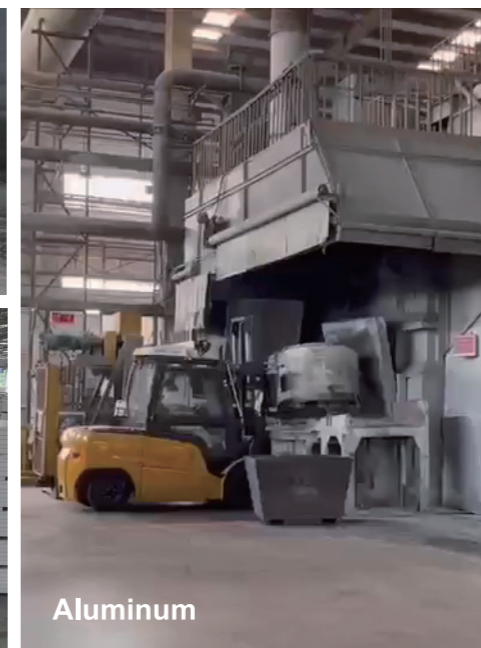
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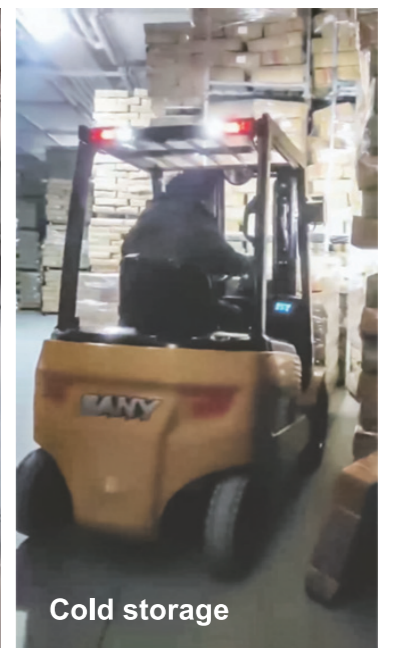
Forging



Recycling



Aluminum



Cold storage



Liquor and beverage



Logistics



Building materials