SANY Automobile Hoisting Machinery is one of the core business units of Sany Heavy Industry, mainly engaged in the research and development of high-end, mid-to-large-tonnage crane series, including mobile cranes, crawler cranes, tower cranes, and loader cranes. It has two industrial parks in Ningxiang and Huzhou. Since entering the market, the products of Sany Automobile Hoisting Machinery have received worldwide recognition with advanced technology, lean manufacturing, high reliability, and excellent service.
Excellent and stable chassis performance / chassis system
Double-axle drive is used, providing good trafficability and comfortableness under complex road condition with reliable traveling performance.
Engine has the multimode power output function, which reduces power consumption.
The use of tipping over early-warning technology provides high stability and safety of the overall operation.

Super-strong, super-long and sensitive lifting capacity
Five-section boom of high strength steel structure and optimized U-shaped section reduces weight significantly with higher safety rates. Jib mounting angles are 0°, 15° and 30°, which ensures fast and convenient change-over between different operating conditions so as to improving working efficiency of the machine.

Highly efficient, stable, energy-saving and adjustable hydraulic system
Hydraulic system load feedback and constant power control is applied to provide strong lifting capacity and good micro-mobility. Unique steering buffer design is adopted to ensure stable braking operation.

Safe, stable, advanced and intelligent electric control system
Self-developed controller SYMC specially for engineering machinery is configured. The adoption of CAN-bus full-digital network control technology ensures stable control signal, simple harness and high reliability. Timely feedback of data information can achieve the monitoring of the overall working status in real-time. The load moment limiter equipped with the comprehensive intelligent protection system is used with accuracy within 5% to provide a comprehensive logic and interlock control, thus ensuring more safe and reliable operation.
Superstructure

Cab
- It is made of safety glass and anti-corrosion steel plate with ergonomic design such as full-coverage soft interior, panoramic sunroof and adjustable seats etc., and humanized design providing more comfortable and relaxing operation experience. The display of load moment limiter integrates main console and operation display system, which clearly show the data of all operating superstructure conditions for lifting operation.

Hydraulic system
- High-quality key hydraulic components such as main oil pump, rotary pump, main valve, winch motor and balancing parts etc. are adopted to achieve stable and reliable operation of the hydraulic system. Superior operation performance is guaranteed by accurate parameter matching.
- Through the adoption of load sensitive variable displacement piston pump, pump displacement can be adjusted in real-time, achieving high-precision flow control with no energy loss during operation.
- Main valve has flow compensation and load feedback control function, enabling stable and convenient control of single action and combined action under different operation conditions.
- Winch adopts the electronically controlled variable motor to ensure high operation efficiency. Max. single line speeds of main and auxiliary winches is up to 130m/min.
- Slowing system is equipped with the integrated slowing buffer valve, with free slipping function to ensure more stable starting and control of the slowing operation and excellent micro-mobility.
- Hydraulic oil tank capacity: 980L.

Control system
- CAN-bus instrument. CAN-bus instrument with a combined intelligent control electrical system is used for easy reading of the traveling parameters at any time. The engine fault warning function is applied to ensure convenient and fast troubleshooting.
- Automatic outergrip system: Electrically controlled outergrip with automatic leveling and fault diagnosis warning function is adopted, which is flexible and flexible to operate.
- With fully security protection system, main and auxiliary winches are equipped with over-roll out limiter and height limiters to prevent over-rolling out and over-hoisting of steel rope, including tip-over and limit angle protection.
- Load moment limiter: The adoption of high intelligent load moment limiter system can comprehensively protect lifting operation, ensuring accurate, stable and comfort operation.
- The IO monitoring system can monitoring the input and output situation of the hydraulic system. Unique rotary buffer design ensures more stable starting and control of the slewing operation and excellent micro-mobility.
- Dead-weight luffing provides more stable luffing operation at low energy loss.
- Luffing angle: -2°~80°.

Telescopic system
- Five-section boom is applied with basic boom length of 11.8m, full-extended boom length of 45m, jib length of 16m and fully extended boom lifting height of 46.4m respectively. Max. lifting height is 62.2m including jib. It is made of fine grain high-strength steel with U-shaped cross section and with telescopic operation controlled independently by dual-cylinder rope.

Slowing system
- 360° rotation can be achieved with Max. slowing speed of 1.8m/min. Hydraulic controlled proportional speed adjustment is applied to provide stable and reliable operation of the system. Unique rotary buffer design ensures more stable braking.

Hoisting system
- The adoption of pump and motor double variable speed control ensures high efficiency and excellent energy saving functionality. With perfect combination of winch balance valve and unique anti-slip technology, heavy load can be lifted and lowered smoothly. Closed winch brake and winch balance valve effectively prevent imbalance of the hook.

Safety system
- Load moment limiter: Load moment limiter calculation system based on lifting load mechanical model is established using an analytical mechanics method with rated lifting accuracy up to ±5% through on-line non-load calibration, providing full protection to lifting operation. In case of overload operation, system will automatically issue an alarm to provide safety protection for manipulation.
- Hydraulic system is configured with the balance valve, overflow valve and two-way hydraulic lock etc. components, thus achieving stable and reliable operation of the hydraulic system.
- Main and auxiliary winches are equipped with over roll-out limiter to prevent over rolling-out of wire rope.
- Boom and jib ends are equipped with height limiters respectively to prevent over-hoisting of wire rope.
- Boom head is equipped with anemometer to detect whether the high altitude wind speed is within the allowable working range.
- Equipped with length sensor, angle sensor and press sensor to indicate the working condition of whole crane in real-time, giving an alarm and cutting off the dangerous action automatically.

Counterweight
- Counterweight is 4000kg, no flexible counterweight.

Chassis

Cab
- Cab is made of new steel structure self-developed by SANY, featuring excellent shock absorption and tightness, which is configured with swing-out doors at both sides, pneumatically suspended driver’s seat and passenger’s seat, adjustable steering wheel, large rearview mirror, comfortable driver’s chair with a headrest, anti-fog fan, air conditioner, stereo radio and complete control instruments and meters, providing more comfortable, safe and humanized operation experience.

Carrier frame
- Designed and manufactured by SANY, anti-torsion box structure is welded by fine-grain high-strength steel plate to provide strong load bearing capacity.

Axles
- Axles 3 and 4 are drive axles and axles 1 and 2 are steering axles, axle and wheel differentials are installed in axle 3 and wheel differential is installed in axle 4. The use of welding process for axle housing provides stronger load bearing capacity.

Engine
- Type: Inline six-cylinder, water cooled, supercharged and inter-cooling diesel engine
- Rated power: 275kw/2100r/min.
- Environment-protection: Emission complies with EuroⅢ standard
- Capacity of fuel tank: 350L.
**Transmission system**
- Gearbox: Manual gearbox with 9-gear is adopted, 9 forward gears and 1 reverse gear which is easy to operate, with large speed ratio range applied, which meets the requirements of low gradeability speed and high traveling speed.
- Transmission shaft: With optimized arrangement of the transmission shaft, the transmission is stable and reliable. For most optimized transmission, face-tooth coupling transmission shaft is used with large transmission torque.

**Brakes system**
- Air servo brakes are used for all wheels with dual-circuit brake system applied, engine is equipped with an exhaust brake.
- Brakes system includes traveling brake, parking brake, emergency brake and auxiliary brake.
- Traveling brake: All wheels use the air servo brakes and dual-circuit brake system.
- Parking brake: Force driven by accumulator is applied on the third to fourth axle.
- For emergency brake, accumulator is used not only for cutting-off brake but also for emergency brake.
- Auxiliary brake is exhaust brake with brake safety ensured while travelling downhill.

**Suspension system**
- All axles adopt the plate spring suspension systems with plate spring passed 100,000 fatigue tests and with optimization of performance parameters of the front and rear plate springs applied to ensure strength and also to provide comfort ridding.

**Steering system**
- Hydraulic power mechanical steering system is applied for axle 1 with unloading valve installed in the steering gear.

**Drive/Steer**
- 8 x 4

**Outriggers**
- Four-point supporting of the H-shaped outriggers ensures easy operation and strong stability with Max. span up to 6.1m×7.6m. They are made of fine-grain high-strength steel sheet with full hydraulic transverse telescopic outriggers adopted for first and second outriggers and with automatic horizontal adjustment applied for outriggers through a vertical cylinder.

**Tyres**
- 12x12.00R24 20PR

**Electrical system**
- With 2*12V maintenance-free batteries, the crane power can be cut off manually via a mechanical master power switch. The use of CAN-bus control system can achieve information interaction between superstructure and undercarriage.
### Technical Parameter

#### Capacity
- Max. lifting capacity: 80 t

#### Dimensions
- Overall length: 141000 mm
- Overall width: 2750 mm
- Overall height: 3850 mm
- Axle distance:
  - Axle-1, 2: 1520 mm
  - Axle-2, 3: 4400 mm
  - Axle-3, 4: 1355 mm

#### Weight
- Overall weight: 45800 kg
- Axle load:
  - Axle load-1, 2: 17500 kg
  - Axle load-3, 4: 28300 kg
- Rated power: 275 kW/ 2100 rpm
- Rated torque: 1500 N·m/1300-1500 rpm

#### Traveling
- Max. traveling speed: 80 km/h
- Min. turning radius: 12 m
- Min. turning radius of boom head: 14.5 m
- Wheel formula: 8 × 4
- Min. ground clearance: 290 mm
- Approach angle: 19 °
- Departure angle: 12 °
- Max. gradeability: 35%
- Fuel consumption per 100km: ≤ 56 L

#### Main Performance Data
- Temperature range: –20 ℃ ~ +40 ℃
- Min. rated range: 3 m
- Tail slewing radius of swingtable: 4.1 m
- Boom section: 5
- Boom shape: U-shaped
- Max. lifting moment:
  - Base boom: 2550 kN·m
  - Full-extend boom: 1232 kN·m
  - Full-extend boom+jib: 363 kN·m
- Boom length:
  - Base boom: 11.8 m
  - Full-extend boom: 45 m
  - Full-extend boom+jib: 61 m
- Outrigger span (Longitudinal×Transversal): 6.1 × 7.6 m
- Jib offset: 0 °, 15 °, 30 °
- Working speed:
  - Max. single rope lifting speed of main winch (no load): 130 m/min
  - Max. single rope lifting speed of auxiliary winch (no load): 330 m/min
  - Full extension/retraction time of boom: 120/100 s
  - Full lifting/descending time of boom: 60 / 80 s
- Slewing speed: 1.8 r/min
- Aircondition:
  - Aircondition in up cab: Cooling
  - Aircondition in low cab: Cooling/Heating

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**STC800 Working Ranges**

![STC800 Working Ranges](image_url)
Prerequisites:
① Boom operating conditions (fully extended boom length), min. length is 11.8m and max. length is 45m
② The span of outriggers is 6.1m x 7.6m
③ 360° rotation is applied
④ Counterweight is 4T

<table>
<thead>
<tr>
<th>Working range(m)</th>
<th>Main boom Working range(m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>8000 51000 15.95 20.1 28.4 36.7 45 3</td>
</tr>
<tr>
<td>3.5</td>
<td>71000 51000 43000 3.5</td>
</tr>
<tr>
<td>4</td>
<td>63000 51000 43000 4</td>
</tr>
<tr>
<td>4.5</td>
<td>56000 46000 38000 30000 4.5</td>
</tr>
<tr>
<td>5</td>
<td>51000 46000 38000 30000 5</td>
</tr>
<tr>
<td>5.5</td>
<td>46000 42000 34000 28500 5.5</td>
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<tr>
<td>6</td>
<td>41000 38000 31300 27300 6</td>
</tr>
<tr>
<td>6.5</td>
<td>36000 34000 31000 26000 18000 6.5</td>
</tr>
<tr>
<td>7</td>
<td>32000 30500 28500 24000 16000 7</td>
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<tr>
<td>8</td>
<td>25000 24500 23800 22000 15000 8</td>
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<td>9</td>
<td>19000 18000 16500 15200 9</td>
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<td>13</td>
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<td>15</td>
<td>4000 3700 3700 3200 20</td>
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<td>16</td>
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<td>18</td>
<td>1500 1300 1300 900 26</td>
</tr>
<tr>
<td>19</td>
<td>1050 900 900 550 28</td>
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<tr>
<td>20</td>
<td>750 600 600 350 30</td>
</tr>
<tr>
<td>21</td>
<td>500 300 300 200 32</td>
</tr>
<tr>
<td>22</td>
<td>250 150 150 100 34</td>
</tr>
<tr>
<td>23</td>
<td>100 100 100 60 36</td>
</tr>
</tbody>
</table>

Number of lines: 12 9 9 9 Number of lines: 6

Elevation angle of main boom
27°30’~49°0’ 32°61’~75°28’ 35°91’~78°41’ 26°0’~79°73’ 31°0’~79°74’ 42°24’~79°72’

<table>
<thead>
<tr>
<th>Telescoping condition(%)</th>
<th>Elevation angle of main boom</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd boom</td>
<td>0% 100% 100% 100% 100%</td>
</tr>
<tr>
<td>3rd boom</td>
<td>0% 0% 33% 66% 100%</td>
</tr>
<tr>
<td>4th boom</td>
<td>0% 0% 0% 33% 66%</td>
</tr>
<tr>
<td>Top boom</td>
<td>0% 0% 0% 0% 33%</td>
</tr>
</tbody>
</table>

1. Values listed in the table refer to rated lifting capacity measured at flat and solid ground under the lever state of the crane.
2. Value above heavy line shall be determined by strength of the crane and under this line shall be determined by stability of the crane.
3. Rated load values determined by stability shall comply with ISO 4305.
4. Rated lifting capacity listed in the table included weights of lifting hooks (718kg of main hook and 354kg of auxiliary hook and hangers).
5. Rated lifting capacity with pulley at boom tip shall not exceed 4000kg and then substracts (2300kg) to gain rated lifting capacity if the boom is used to lift after the installation of jib.
6. If actual boom length and range are between two values specified in the table, larger value will determine the lifting capacity.
## STC800 Truck Crane

### Wheel Crane Family Map

<table>
<thead>
<tr>
<th>Model</th>
<th>Load Capacity</th>
<th>Maximum Telescopic Boom</th>
<th>Maximum Sectional Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>STC860</td>
<td>86 Tons</td>
<td>40.0 m</td>
<td>12.5 m</td>
</tr>
<tr>
<td>STC880</td>
<td>88 Tons</td>
<td>40.0 m</td>
<td>12.5 m</td>
</tr>
<tr>
<td>STC930</td>
<td>93 Tons</td>
<td>40.0 m</td>
<td>12.5 m</td>
</tr>
<tr>
<td>STC960</td>
<td>96 Tons</td>
<td>40.0 m</td>
<td>12.5 m</td>
</tr>
<tr>
<td>STC1000</td>
<td>100 Tons</td>
<td>40.0 m</td>
<td>12.5 m</td>
</tr>
</tbody>
</table>

 Courtesy of Crane.Market