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 crane, crawler crane, tower crane and loader crane. 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.
SANY TRUCK CRANE

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05 Selling Points
06 Introduction
09 Dimension
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04 Icon
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 and the rear axle is equipped with rubber suspension and V-shaped thrust lever which provide less vibration and comfortable traveling feeling. 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.

Ultra long, super strong and highly sensitive load lifting capacity
Five-section boom of high strength steel structure and optimized U-shaped cross 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.

05 Selling Points
Highly efficient, stable, energy-saving, and adjustable electrical proportion hydraulic system
Load feedback of hydraulic system, constant power control, piston pump and electrical control valve are 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 3% to provide a comprehensive logic and interlock control, thus ensuring more safe and reliable operation.
## INTRODUCTION

### STC600S Truck Crane Control 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.
- Electrical control 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 125m/min.

### Hydraulic system
- Five-section boom is applied with basic boom length of 11.3m, full-extended boom length of 43.5m, jib length of 16m and lifting height of fully extended boom length of 43.7m (for major safety failure), engine and gearbox for fault to ensure reliable operation of the crane.
- 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.
- 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 and press sensor to indicate the working condition of whole crane in real-time, giving an alarm and cutting off the dangerous action automatically.

## Hoisting 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 ±3% 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.
- Main and auxiliary winches are equipped with over-roll-out limiter to prevent over-rolling-out of wire rope.
- Load moment limiter calculation system based on lifting load mechanical model is established using an analytical mechanics method with rated lifting accuracy up to ±3% 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.

### Safety 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 lift and lower smoothly. Closed winch brake and winch balance valve effectively prevent imbalance of the hook.
- 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 ±3% 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.
- 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 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
- Fixed counterweight is 4600kg, flexible counterweight is 3000kg.
STC600S TRUCK CRANE

INTRODUCTION

Chassis

Transmission system
- Gearbox: Manual gearbox is adopted with 9-gear and 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
- The axle 1&2 adopt the plate spring suspension systems and the axle 3&4 adopt rubber suspension and V-shaped thrust lever with over 100,000 fatigue tests to ensure strength and also to provide comfort riding.

Steering system
- Hydraulic power mechanical steering systems are applied for axles 1 and 2 with unloading valve installed in the steering gear.

Outriggers
- Four-point supporting of the H-shaped outriggers ensures easy operation and strong stability with max. span up to 6m×7.2m. They are made of fine-grain high-strength steel sheet with horizontal single-cylinder rope line telescoping for first and second outriggers. Vertical cylinder of outrigger adopts bi-directional hydraulic locks to improve safety.

Tyres
- 12.00R20-20PR×12

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.
**STC600S Truck Crane**

**TECHNICAL PARAMETER**

<table>
<thead>
<tr>
<th>Type</th>
<th>Item</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>Max. lifting capacity</td>
<td>60 t</td>
</tr>
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</table>

**Dimensions**

<table>
<thead>
<tr>
<th>Overall length</th>
<th>13700 mm</th>
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</thead>
<tbody>
<tr>
<td>Overall width</td>
<td>2750 mm</td>
</tr>
<tr>
<td>Overall height</td>
<td>3750 mm</td>
</tr>
<tr>
<td>Axle distance</td>
<td></td>
</tr>
<tr>
<td>Axle-1, 2</td>
<td>1450 mm</td>
</tr>
<tr>
<td>Axle-2, 3</td>
<td>4200 mm</td>
</tr>
<tr>
<td>Axle-3, 4</td>
<td>1350 mm</td>
</tr>
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</table>

**Weight**

<table>
<thead>
<tr>
<th>Overall weight</th>
<th>42000 kg</th>
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</thead>
<tbody>
<tr>
<td>Axle load-1,2</td>
<td>16000 kg</td>
</tr>
<tr>
<td>Axle load-3,4</td>
<td>26000 kg</td>
</tr>
<tr>
<td>Rated power</td>
<td>250 kW/ 2100 rpm</td>
</tr>
<tr>
<td>Rated torque</td>
<td>1425 N/m/ 1100-1400 rpm</td>
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</table>

**Maximum Traveling Speed**

<table>
<thead>
<tr>
<th>Max. traveling speed</th>
<th>85 km/h</th>
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**Turning radius**

<table>
<thead>
<tr>
<th>Min. turning radius</th>
<th>11.5 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. turning radius of boom head</td>
<td>14 m</td>
</tr>
<tr>
<td>Min. ground clearance</td>
<td>8 x 4</td>
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</tbody>
</table>

**Traveling**

<table>
<thead>
<tr>
<th>Approach angle</th>
<th>19 °</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departure angle</td>
<td>14 °</td>
</tr>
<tr>
<td>Max. gradeability</td>
<td>42%</td>
</tr>
<tr>
<td>Fuel consumption per 100km</td>
<td>≤ 43 L</td>
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**Temperature range**

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<th>– 20 ° ~ + 45 °</th>
<th></th>
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**Main Performance Data**

<table>
<thead>
<tr>
<th>Boom section</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom shape</td>
<td>U-shaped</td>
</tr>
</tbody>
</table>

**Max. lifting moment**

<table>
<thead>
<tr>
<th>Base boom</th>
<th>2000 kN·m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-extend boom</td>
<td>1050.8 kN·m (4.6t counterweight)</td>
</tr>
<tr>
<td>Full-extend boom+jib</td>
<td>1096.8 kN·m (4.6+3t counterweight)</td>
</tr>
<tr>
<td>Full-extend boom+jib</td>
<td>521.1 kN·m</td>
</tr>
</tbody>
</table>

**Boom length**

<table>
<thead>
<tr>
<th>Base boom</th>
<th>11.3 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-extend boom</td>
<td>43.5 m</td>
</tr>
<tr>
<td>Full-extend boom+jib</td>
<td>99.5 m</td>
</tr>
</tbody>
</table>

**Outrigger span (Longitudinal/Transversal)**

<table>
<thead>
<tr>
<th>8 x 7.2 m</th>
<th></th>
</tr>
</thead>
</table>

**Jib offset**

<table>
<thead>
<tr>
<th>0 °, 15 °, 30 °</th>
<th></th>
</tr>
</thead>
</table>

**Working speed**

<table>
<thead>
<tr>
<th>Max. single rope lifting speed of main winch (no load)</th>
<th>125 m/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. single rope lifting speed of auxiliary winch (no load)</td>
<td>125 m/min</td>
</tr>
<tr>
<td>Full extension/retraction time of boom</td>
<td>100 / 120 s</td>
</tr>
<tr>
<td>Full lifting/descending time of boom</td>
<td>80 / 80 s</td>
</tr>
<tr>
<td>Steering speed</td>
<td>0° / 2.0 m/min</td>
</tr>
</tbody>
</table>

**Aircondition**

<table>
<thead>
<tr>
<th>Aircondition in up cab</th>
<th>Heating/Cooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircondition in low cab</td>
<td>Heating</td>
</tr>
</tbody>
</table>
### STC600S Truck Crane

**Load Chart**

#### Quality Changes the World

**Prerequisites:**
1. Boom operating conditions (fully-extended boom length), min. length is 11.3m and max. length is 43.5m.
2. The span of outriggers is 6×7.2m.
3. Lifting at the rear side of the crane.
4. The fixed counterweight is 4.8t and the flexible counterweight is 3t.

<table>
<thead>
<tr>
<th>Radius (m)</th>
<th>3.0</th>
<th>3.5</th>
<th>4.0</th>
<th>4.5</th>
<th>5.0</th>
<th>5.5</th>
<th>6.0</th>
<th>6.5</th>
<th>7.0</th>
<th>7.5</th>
<th>8.0</th>
<th>9.0</th>
<th>9.5</th>
<th>10.0</th>
<th>10.5</th>
<th>11.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main boom</td>
<td>6000</td>
<td>4500</td>
<td>2460</td>
<td>3600</td>
<td>1750</td>
<td>2460</td>
<td>1750</td>
<td>2460</td>
<td>1750</td>
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<td>2460</td>
<td>1750</td>
<td>2460</td>
<td>1750</td>
<td>2460</td>
</tr>
<tr>
<td>Radii (m)</td>
<td>2100</td>
<td>2300</td>
<td>2500</td>
<td>2700</td>
<td>2900</td>
<td>3100</td>
<td>3300</td>
<td>3500</td>
<td>3700</td>
<td>3900</td>
<td>4100</td>
<td>4300</td>
<td>4500</td>
<td>4700</td>
<td>4900</td>
<td>5100</td>
</tr>
</tbody>
</table>

#### Notes:
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. Working radius listed in the load chart is the actual radius with load.
4. Rated load values determined by stability shall comply with ISO 4306.
5. Rated lifting capacity listed in the table included weights of lifting hooks (6.5t) of main hook and 90t of auxiliary hook (incl. hoists).
6. With the 5th outrigger extended, the value listed in the table shall be applicable for 50t operation.
7. Rated lifting capacity with pulley at boom tip shall not exceed 400kg. If it is applied, the rated lifting capacity of the boom shall be deducted by 2000kg.
8. If actual boom length and range are between two values specified in the table, the lower lifting capacity value shall be the determining value.

#### Number of lines

| Number of lines | 12 | 10 | 8 | 6 | 4 | 3 | 3 |

#### Telescoping condition(%)

<table>
<thead>
<tr>
<th>Modes</th>
<th>32.0</th>
<th>20.0</th>
<th>16.0</th>
<th>18.0</th>
<th>20.0</th>
<th>22.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd boom</td>
<td>1400</td>
<td>1200</td>
<td>900</td>
<td>1200</td>
<td>1400</td>
<td>1600</td>
</tr>
<tr>
<td>3rd boom</td>
<td>1600</td>
<td>1400</td>
<td>1200</td>
<td>1400</td>
<td>1600</td>
<td>1800</td>
</tr>
<tr>
<td>4th boom</td>
<td>1800</td>
<td>1600</td>
<td>1400</td>
<td>1600</td>
<td>1800</td>
<td>2000</td>
</tr>
<tr>
<td>5th boom</td>
<td>2000</td>
<td>1800</td>
<td>1600</td>
<td>1800</td>
<td>2000</td>
<td>2200</td>
</tr>
</tbody>
</table>

#### Telescoping condition(%)

<table>
<thead>
<tr>
<th>Modes</th>
<th>7.0</th>
<th>6.5</th>
<th>6.0</th>
<th>5.5</th>
<th>5.0</th>
<th>4.5</th>
<th>4.0</th>
<th>3.5</th>
<th>3.0</th>
<th>2.5</th>
<th>2.0</th>
<th>1.5</th>
<th>1.0</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd boom</td>
<td>1150</td>
<td>1100</td>
<td>1050</td>
<td>1000</td>
<td>950</td>
<td>900</td>
<td>850</td>
<td>800</td>
<td>750</td>
<td>700</td>
<td>650</td>
<td>600</td>
<td>550</td>
<td>500</td>
</tr>
<tr>
<td>3rd boom</td>
<td>1350</td>
<td>1250</td>
<td>1150</td>
<td>1050</td>
<td>950</td>
<td>850</td>
<td>750</td>
<td>650</td>
<td>550</td>
<td>450</td>
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<td>250</td>
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<td>50</td>
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<tr>
<td>4th boom</td>
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<td>1400</td>
<td>1300</td>
<td>1200</td>
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<td>1000</td>
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<td>600</td>
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<td>400</td>
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<td>200</td>
</tr>
<tr>
<td>5th boom</td>
<td>1700</td>
<td>1600</td>
<td>1500</td>
<td>1400</td>
<td>1300</td>
<td>1200</td>
<td>1100</td>
<td>1000</td>
<td>900</td>
<td>800</td>
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<td>400</td>
</tr>
<tr>
<td>6th boom</td>
<td>1900</td>
<td>1800</td>
<td>1700</td>
<td>1600</td>
<td>1500</td>
<td>1400</td>
<td>1300</td>
<td>1200</td>
<td>1100</td>
<td>1000</td>
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<td>600</td>
</tr>
<tr>
<td>7th boom</td>
<td>2100</td>
<td>2000</td>
<td>1900</td>
<td>1800</td>
<td>1700</td>
<td>1600</td>
<td>1500</td>
<td>1400</td>
<td>1300</td>
<td>1200</td>
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<td>8th boom</td>
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<td>1500</td>
<td>1400</td>
<td>1300</td>
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<td>9th boom</td>
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<td>2300</td>
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<tr>
<td>10th boom</td>
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<td>2600</td>
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<td>1800</td>
<td>1700</td>
<td>1600</td>
<td>1500</td>
<td>1400</td>
</tr>
</tbody>
</table>

#### Load Chart

<table>
<thead>
<tr>
<th>Radius (m)</th>
<th>11.3</th>
<th>13.9</th>
<th>16.5</th>
<th>19.1</th>
<th>21.7</th>
<th>24.3</th>
<th>26.9</th>
<th>29.5</th>
<th>32.1</th>
<th>34.7</th>
<th>37.3</th>
<th>40.0</th>
<th>42.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main boom</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>6.0</td>
<td>6.5</td>
<td>7.0</td>
<td>7.5</td>
<td>8.0</td>
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<td>9.5</td>
</tr>
<tr>
<td>Radius (m)</td>
<td>15.3</td>
<td>17.9</td>
<td>20.5</td>
<td>23.1</td>
<td>25.7</td>
<td>28.3</td>
<td>30.9</td>
<td>33.5</td>
<td>36.1</td>
<td>38.7</td>
<td>41.3</td>
<td>44.0</td>
<td>46.6</td>
</tr>
</tbody>
</table>

---

*SANY Quality Changes the World*
### Full-extend outriggers, over side and rear, with max. span up to 6m×7.2m, counterweight of 4.6t+3t, 360° rotation

<table>
<thead>
<tr>
<th>Main boom angle(°)</th>
<th>0°</th>
<th>15°</th>
<th>30°</th>
</tr>
</thead>
<tbody>
<tr>
<td>78°</td>
<td>2600</td>
<td>1500</td>
<td>1100</td>
</tr>
<tr>
<td>77°</td>
<td>2400</td>
<td>1400</td>
<td>1100</td>
</tr>
<tr>
<td>75°</td>
<td>2250</td>
<td>1350</td>
<td>1100</td>
</tr>
<tr>
<td>74°</td>
<td>2200</td>
<td>1300</td>
<td>1100</td>
</tr>
<tr>
<td>73°</td>
<td>1950</td>
<td>1250</td>
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</tr>
<tr>
<td>70°</td>
<td>1800</td>
<td>1150</td>
<td>1000</td>
</tr>
<tr>
<td>67°</td>
<td>1600</td>
<td>1050</td>
<td>950</td>
</tr>
<tr>
<td>64°</td>
<td>1450</td>
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<td>850</td>
</tr>
<tr>
<td>61°</td>
<td>1100</td>
<td>900</td>
<td>750</td>
</tr>
<tr>
<td>58°</td>
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<td>55°</td>
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<td>51°</td>
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<td>450</td>
<td>400</td>
</tr>
<tr>
<td>Min. elevation angle</td>
<td>51°</td>
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</table>

### Full-extend outriggers, over side and rear, with max. span up to 6m×7.2m, counterweight of 4.6t+3t, 360° rotation

<table>
<thead>
<tr>
<th>Main boom angle(°)</th>
<th>0°</th>
<th>15°</th>
<th>30°</th>
</tr>
</thead>
<tbody>
<tr>
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