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

#### CONTENT
- Icon
- Selling Points
- Introduction
- Technical Parameter
- Operation Condition
- Load Chart
- Wheel Crane Family Map

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### Selling Points

#### 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.

#### Ultra long, super strong and highly sensitive load lifting capacity
- Four-section boom of high strength steel structure and optimized U-shaped cross section reduces weight significantly with higher safety rates. Jib mounting angles are 5°, 17° 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
- Triple gear pump, load feedback and constant power control are applied to provide strong lifting capacity and good micro-mobility. Unique steering buffer design is applied 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 safer and reliable operation.

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#### Diagrams

- [Diagram of SANY TRUCK CRANE]
- [Diagram of SANY TRUCK CRANE]
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STC300-IR1 TRUCK CRANE

INTRODUCTION

Superstructure

Cab
- It is made of 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.
- 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 129m/min;
  Luffing system is equipped with the integrated luffing buffer valve, with free slipping
  function to ensure more stable starting and control of the luffing operation and excellent
  micro-mobility.
- Hydraulic oil tank capacity: 384L.

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.
- 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 fault diagnosis system can detect superstructure electricity, hydraulic action, chassis
  (for major safety failure), engine and gearbox for fault to ensure reliable operation of the
  crane.

Luffing system
- Power lowering system provides uniformly and safety, smooth lowering speed.
- Luffing angle: -2°~ 80°.

Telescopic system
- Four-section boom is applied with basic boom length of 10.65m, full-extended boom
  length of 33.5m, jib length of 14.6m and lifting height of fully extended boom length of 34m
  respectively. Max. lifting height is 49m 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.

Slewing system
- 360° rotation can be achieved with Max. slewing speed of 2.5r/min, providing stable and
  reliable operation of the system. Variable plunger hydraulic motor, 3 level planetary reducer
  , spring disc braking lock and single-row ball slewing ring are adopted for strong bearing
  capacity, good stability, high safety and good micro-mobility .

Hoisting system
- Highly efficient and energy-saving variable speed adjustment can be achieved by plunger
  motor. 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.
- One main hook: 360kg, one auxiliary hook: 90kg. Wire rope of main winch: left-handed
  wire rope: 16-35W×7-1960USS 105m.

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 ±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.
- Hydraulic system is configured with the balance valve, overflow valve and two-way
  hydraulic lock etc. components, thus achieving the 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.

Counterweight
- Counterclockwise is 2800kg, no flexible counterweight.

Chassis

Driving 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, pnuematically
  suspended driver’s seat and passenger seat, adjustable steering wheel, large rearview mirror, comfort
driver chair having 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 line-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: 213kw/2100r/min
  - Environment protection: Emission comply with EuroII standard
  - Capacity of fuel tank: 300L
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STC300-IR1 TRUCK CRANE

INTRODUCTION

STC300-IR1 TRUCK CRANE

DIMENSION

Chassis

Transmission system

- Gearbox: Manual gearbox is adopted with 8-gear and large speed ratio range applied, which meets the requirements of low gradability 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

- 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 and are equipped with disk brakes.
- Parking brake: Force driven by accumulator is applied on the second to sixth axle. For emergency brake, accumulator is used not only for cutting-off brake but also for emergency brake.
- Auxiliary brake consists of engine brake and exhaust brake. Engine is equipped with dual brake, transmission is equipped with hydrodynamic retarder brake and forth axle is equipped with eddy current retarder brake to ensure safe and reliable traveling.

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 systems are applied for axles 1 and 2 with unloading valve installed in the steering gear.

Outriggers

- Four/five-point supporting of the H-shaped outriggers ensures easy operation and strong stability with Max. span up to 5.3m×6.2m. 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

- 11.00R20

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.

Quality Changes the World
### STC300-IR1 Truck Crane Technical Parameter

<table>
<thead>
<tr>
<th>Type</th>
<th>Item</th>
<th>Parameter</th>
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<tbody>
<tr>
<td>Capacity</td>
<td>Max. lifting capacity</td>
<td>30 t</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Overall length</td>
<td>12800 mm</td>
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<tr>
<td></td>
<td>Overall width</td>
<td>2500 mm</td>
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<tr>
<td></td>
<td>Overall height</td>
<td>4000 mm</td>
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<tr>
<td></td>
<td>Axle distance</td>
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<td>Weight</td>
<td>Overall weight</td>
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<td></td>
<td>Axle load</td>
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<tr>
<td></td>
<td>Axle 1,2</td>
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</tr>
<tr>
<td></td>
<td>Axle 3,4</td>
<td>18500 kg</td>
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<td>Engine</td>
<td>Rated power</td>
<td>213kW/(2100~1400)r/min</td>
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<td></td>
<td>Rated torque</td>
<td>1050N/(1100~1400)r/min</td>
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<td>Traveling</td>
<td>Max. traveling speed</td>
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<td>Departure angle</td>
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<td>Max. gradeability</td>
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<tr>
<td></td>
<td>Fuel consumption per</td>
<td>40L</td>
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<td>Min. rated range</td>
<td>3 m</td>
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<td></td>
<td>Tail slewing radius of swingtable</td>
<td>3.4 m</td>
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<td>Boom section</td>
<td>3</td>
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<td></td>
<td>Boom shape</td>
<td>U-shaped</td>
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<td>Max. lifting moment</td>
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<td>Base boom</td>
<td>980kN·m</td>
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<td>Full-extend boom</td>
<td>560kN·m</td>
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<tr>
<td></td>
<td>Full-extend boom+jib</td>
<td>314kN·m</td>
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<tr>
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<td>Boom length</td>
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<tr>
<td></td>
<td>Base boom</td>
<td>10.65 m</td>
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<td>Full-extend boom</td>
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<td></td>
<td>Full-extend boom+jib</td>
<td>48.1 m</td>
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<td></td>
<td>Outrigger span (Longitudinal×Transversal)</td>
<td>5.3m×6.2m</td>
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<tr>
<td>Working speed</td>
<td>Max. single rope lifting speed of main winch (no load)</td>
<td>125m/min</td>
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<tr>
<td></td>
<td>Max. single rope lifting speed of auxiliary winch (no load)</td>
<td>125m/min</td>
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<tr>
<td></td>
<td>Full extension/retraction time of boom</td>
<td>68s/56s</td>
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<tr>
<td></td>
<td>Full lifting/descending time of boom</td>
<td>72s/60s</td>
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<tr>
<td></td>
<td>Slewing speed</td>
<td>0.2–2.5 m/min</td>
</tr>
</tbody>
</table>

### STC300-IR1 Working Ranges

![STC300-IR1 Working Ranges](image_url)

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**STC300-IR1 Truck Crane**

**TECHNICAL PARAMETER**

**OPERATION CONDITION**

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**SANY**

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**STC300-IR1 TRUCK CRANE**

**LOAD CHART**

#### Prerequisites:
1. Fully-extended boom 10.65m-33.5m
2. Outrigger span: 5.3m×6.2m
3. 360°rotation is applied
4. Over side and rear
5. 360°rotation is applied

#### Working range
<table>
<thead>
<tr>
<th>Working range(m)</th>
<th>10.65</th>
<th>14.4</th>
<th>18.3</th>
<th>22.1</th>
<th>25.9</th>
<th>29.7</th>
<th>33.5</th>
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<td>Unit:Kg&lt;sup&gt;1&lt;/sup&gt;</td>
<td>30000</td>
<td>18000</td>
<td>16000</td>
<td>12000</td>
<td>11000</td>
<td>11000</td>
<td>10500</td>
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<td>Unit:Kg&lt;sup&gt;2&lt;/sup&gt;</td>
<td>25500</td>
<td>18000</td>
<td>16000</td>
<td>12000</td>
<td>11000</td>
<td>11000</td>
<td>10500</td>
</tr>
<tr>
<td>Unit:Kg&lt;sup&gt;3&lt;/sup&gt;</td>
<td>23000</td>
<td>18000</td>
<td>16000</td>
<td>12000</td>
<td>11000</td>
<td>11000</td>
<td>10500</td>
</tr>
<tr>
<td>Unit:Kg&lt;sup&gt;4&lt;/sup&gt;</td>
<td>21500</td>
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<td>12000</td>
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<td>11000</td>
<td>10500</td>
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#### Jib offset angle
<table>
<thead>
<tr>
<th>Jib offset angle (°)</th>
<th>5°</th>
<th>17°</th>
<th>30°</th>
<th>5°</th>
<th>17°</th>
<th>30°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom angle (°)</td>
<td>78°</td>
<td>3000</td>
<td>2200</td>
<td>1600</td>
<td>2000</td>
<td>1300</td>
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<td>76°</td>
<td>2700</td>
<td>2000</td>
<td>1500</td>
<td>1700</td>
<td>1150</td>
<td>880</td>
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<td>74°</td>
<td>2550</td>
<td>1900</td>
<td>1450</td>
<td>1550</td>
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<td>780</td>
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<td>72°</td>
<td>2350</td>
<td>1800</td>
<td>1400</td>
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<td>70°</td>
<td>2150</td>
<td>1700</td>
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<td>1250</td>
<td>900</td>
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<td>600</td>
<td>550</td>
<td>500</td>
<td>480</td>
<td>440</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 (320kg of main hook and 90kg of auxiliary hook) and hangers;
5. Rated lifting capacity with pulley at boom tip shall not exceed 3500kg;
6. If actual boom length and range are between two values specified in the table, larger value will determine the lifting capacity.

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