

SANY[®]

SPECIFICATION



12t



28.1m



28.5m

STC120T4

SANY TRUCK CRANE

QUALITY CHANGES THE WORLD

www.sanyglobal.com

V1.0

It is one of the core business units in SANY Group, specializing in the development and manufacturing of high-end wheel cranes, crawler cranes and tower cranes, including the complete range of wheel cranes from 8 to 2400t, crawler cranes from 25 to 4500t and tower cranes from 6 to 185t.

三一集团旗下核心事业部，从事高端轮式起重机、履带起重机、塔式起重机系列产品的研发制造。覆盖8-2400吨全吨位轮式起重机，25-4500吨全吨位履带起重机，6-185吨塔式起重机。



SANY CRANE



SANY TRUCK CRANE STC120T4 / 12T LIFTING CAPACITY

Strong lifting capacity

超强起重能力

Full-extension boom 28.1m, max. lifting height of boom 28.5m.
U-shape large cross section boom, max. lifting moment 397kN.m.

全伸臂长 28.1m, 主臂最大起吊高度 28.5m。
大截面 U 形主臂, 最大起重力矩 397kN.m。

Flexible and resourceful

灵活应变

Wheel base 4.4m, min. steering radius 8m, travel without worry.
3.23m high, can pass through culvert, workshop unimpeded.
25° approach angle, 41% max. gradeability.
Half-extension outrigger model can solve the problem of small space operation.

轴距 4.4m, 最小转弯半径 8m, 穿梭无忧。
车高 3.23m, 涵洞、厂房畅通无阻。
25° 接近角, 41% 爬坡度。
半伸支腿, 解决狭小空间作业难题。

MachineLink+

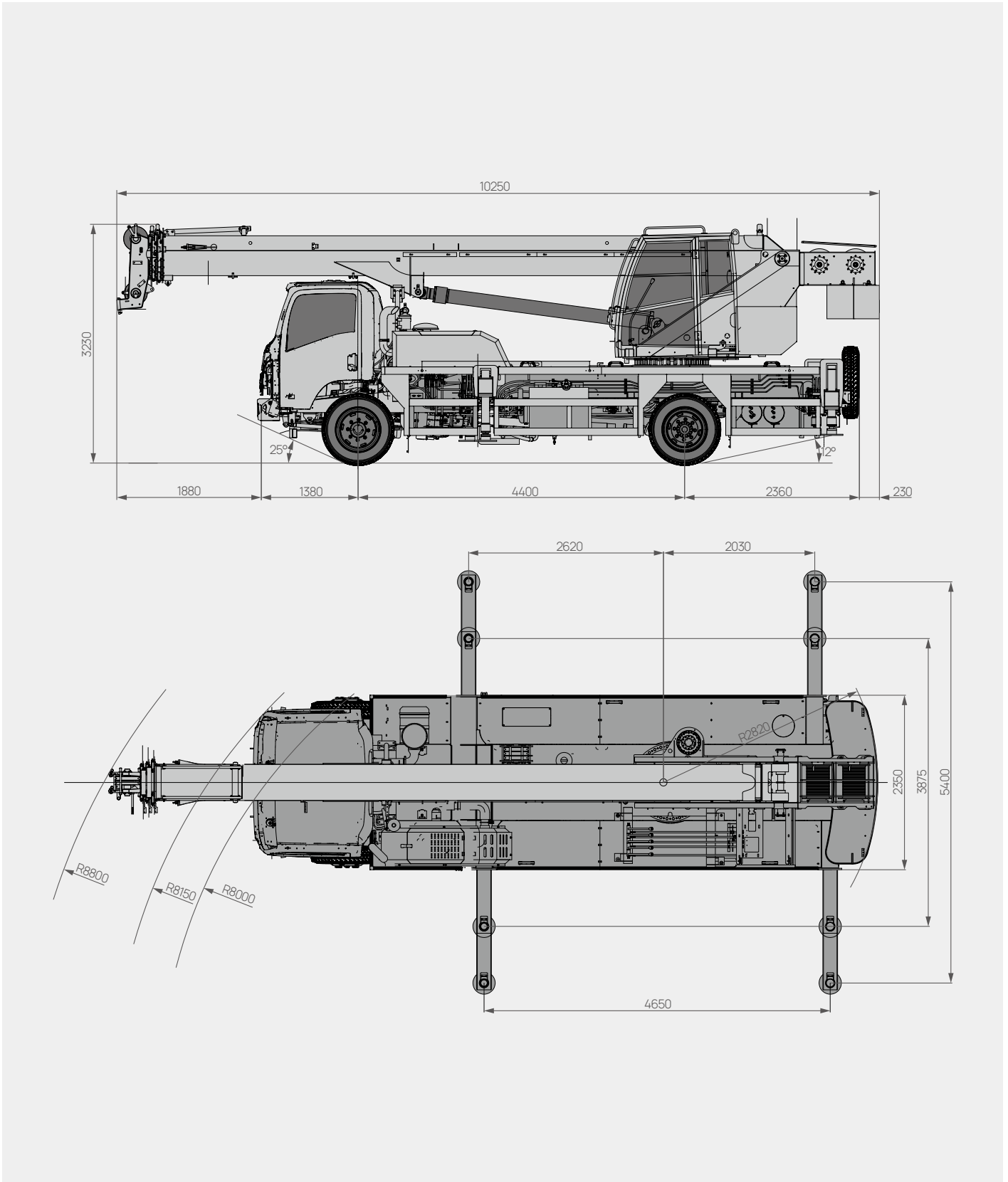
ROOTCLOUD T-AMS Pro device comes as standard to realize GPS trajectory, machine status, maintenance management, E-fence, alarm management, and operator management on computer or mobile MachineLink+ platform, by remote control of cranes. This telematics package greatly boosts efficiency of customer fleet management and helps provide better after-sales services.

标配树根物联终端 T-AMS Pro，通过对起重机设备的远程控制，在电脑或移动端 MachineLink+ 平台实现轨迹回放、设备状态、维保设备、电子围栏、报警管理、操作手管理等功能，极大提高客户设备管理效率，提升三一售后服务能力。



Overall Dimensions

整机尺寸



Technical Specification

整机参数

CATEGORY 类型	ITEM 项目	UNIT 单位	VALUE 参数	
CAPACITY 额定起重量	Max. lifting capacity 最大起重量	t	12	
WEIGHT 重量	Gross weight 整机总质量	kg	14000	
POWER (CHASSIS) 发动机参数 (下车)	Engine model 发动机型号 (排放标准)	-	YUCHAI YCS04200-30 (Euro III) 玉柴 YCS04200-30(欧三)	
	Max. engine power 发动机最大功率	kW/rpm	147/2300	
	Max. engine torque 发动机最大输出扭矩	N·m/rpm	720/(1300~1600)	
DIMENSIONS 尺寸参数	Overall length 整机全长	mm	10250	
	Overall width 整机全宽	mm	2350	
	Overall height 整机全高	mm	3230	
TRAVEL 行驶参数	Max. travel speed 最高行驶速度	km/h	90	
	Steering radius 转弯半径	Min. steering radius 最小转弯半径	m	8
		Min. steering radius of boom tip 臂头最小转弯半径	m	8.8
	Wheel formula 车轮模式	-	4 × 2	
	Min. ground clearance 最小离地间隙	mm	210	
	Approach angle 接近角	°	25	
	Departure angle 离去角	°	12	
	Max. gradeability 最大爬坡度	-	41%	
	Fuel consumption per 100km 每 100 公里油耗	L	20	
MAIN PERFORMANCE 主要性能参数	Working temperature range 使用温度区间	°C	-20~+40	
	Min. rated lifting radius 最小额定幅度	m	3	
	Tail slewing radius 转台尾部回转半径	m	2820	
	Boom sections (Qty.) 臂节数	-	4	
	Boom shape 臂形状	-	U shape U 型	
	Max. lifting moment 最大起重力矩	Basic boom 基本臂	kN·m	397
		Full-extension boom 全伸主臂	kN·m	306
	Boom length 臂长	Basic boom 基本臂	m	8.7
		Full-extension boom 全伸主臂	m	28.1
	Max. lifting height 最大起重高度	Basic boom 基本臂	m	9.2
		Full-extension boom 全伸主臂	m	28.5
Outrigger span (Longitudinal × Transverse) 支腿跨距 (纵 × 横)	m	4.65 × 5.4		
AIRCONDITIONER 空调	In operator's cab 上车空调	-	Cooling 制冷	
	In driver's cab 下车空调	-	Heating & Cooling 制冷、制热	

Technical Specification

整机参数



Axle Load 轴荷

Axle 轴	1	2	Gross weight 总重量
Axle load 轴荷 /kg	4800	9200	14000
Remark 备注	-		



Hook 吊钩

Rated load 额载 /t	Number of sheaves 滑轮数量	Rope rate 倍率	Hook weight/kg 吊钩重量
12	3	6	110
3	0	1	52



Operations 主要动作参数

Item 项目	Max.single rope lifting speed (empty load) 单绳速度 (空载)	Rope diameter/length 钢丝绳直径 / 长度	Max. single line pull 最大单绳拉力
Main winch 主卷扬	130m/min	φ 12mm/120m	2t
Auxiliary winch 副卷扬	125m/min	φ 12mm/65m	2t
Slewing speed 回转速度	3.5r/min		
Full luffing up/down time of boom 主臂起落幅时间	20s/ 25s		
Full extension/retraction time of boom 主臂伸缩时间	30s/ 16s		
Outrigger jack 垂直支腿	Extension 伸	17s	
	Retraction 缩	12s	
Outrigger beam 水平支腿	Extension 伸	22s	
	Retraction 缩	14s	

Crane Introduction

整机介绍

Carrier 下车

Driver's cab 驾驶室

- Equipped with pneumatic suspension seats with headrest, safe belt, adjustable steering wheel, large rear-view mirror, defroster, HVAC, stereo radio, and full set of instrument and controls, realizing safety and comfort.
- 配备气动悬置的驾驶座与副驾座、三点安全带、可调整式的转向盘、大视野后视镜、防雾扇、冷暖空调、立体收音机等,控制仪器和仪表齐全,更加舒适、安全、人性化。

Carrier frame 车架

- The anti-torsion box-type structure welded by high-strength steel with strong bearing capacity.
- 三一设计、制造,由细晶粒高强度钢板焊接而成的防扭转箱形结构,承载能力强。

Chassis engine 底盘发动机

- Model: YUCHAI Inline four-cylinder diesel engine with watercooler and inter cooler.
- Emission standard: EIIIB.
- Fuel reservoir capacity: 165L.
- 型式:玉柴,直列四缸、水冷却、增压中冷、柴油发动机。
- 排放标准:EIIIB。
- 燃料箱有效容积:165L。

Transmission 变速箱

- 8-speed manual transmission with synchronizer, large speed ratio range, adaptable to slope climbing and high-speed traveling.
- 手动带同步器变速箱,8挡,速比范围大,既可满足低速场地爬坡行驶,又可满足高速行驶。

Transmission shaft 传动轴

- Optimized layout, higher torque output via contrate gear connecting transmission shaft cardan.
- 优化的传动轴布置,传动轴传动平稳、可靠。最优化力传输,采用端面齿联结传动轴,传递扭矩大。

Axle 车桥

- Axle 1 is steered, axle 2 is drive axle with built-in differential lock. Press-welding axle housing technology, bearing capacity is stronger.
- 2轴为驱动轴,1轴为转向轴,轴2内置轴间减速;冲焊桥壳工艺,承载能力更强。

Suspension system 悬挂系统

- Suspension of all axles is realized by leaf spring.
- The suspension system is verified by 100,000 cycling fatigue tests, hence durability and comfort is out of question.
- 全部车轴悬挂装置为钢板弹簧的悬挂系统。
- 板簧经过超过10万次的疲劳试验,同时优化前后板簧的性能参数,保证强度的同时兼顾乘坐的舒适性。

Steering 转向系统

- Mechanical steering with hydraulic power system of linkage feedback.
- 机械式转向机构,采用杆系反馈的液助力转向系统。

Tires 轮胎

- Seven tires sized 8.25R20, strong bearing capacity and durability.
- 7(轮胎数)一轮胎规格:8.25R20,承载能力强,耐用。

Wheel formula 车轮模式

- 4 × 2.

Outrigger 支腿

- H-type layout, four point support with high strength steel plate, easy to operate, outrigger beam hydraulically telescoping.
- H型支腿4点支撑,易操作、稳定性强;采用细晶粒高强度钢板材料,活动支腿全液压横向伸缩。

Brake 制动系统

- Service brake: four circuit pneumatic brake.
- Parking brake: spring accumulator brake.
- Assisting brake: engine exhaust brake.
- 行车制动:四回路气压制动。
- 驻车制动:弹簧蓄能制动。
- 辅助制动:发动机排气制动。

Electrical system 电气系统

- 2*12V maintenance-free battery with a mechanical power switch, the overall power can be cut off manually.
- 2 × 12V 免维护蓄电池,配有机械式电源总开关,可手动切断整车电源。

Crane Introduction

整机介绍

Superstructure 上车

Operator's cab 操纵室

- New and unique modeling with concept of ergonomics. Safety glass, corrosion resistant steel plate, safety glass, large internal space, softened interior trim, panoramic skylight, electric wiper, making the operation more comfortable and easier. The LMI display screen links the main console and the operation display system, so that all data of lifting operation can be seen at a glance.
- 造型新颖独特, 人体工程学设计, 采用安全玻璃, 耐腐蚀钢板, 配置全覆盖软化内饰、超大内部空间、全景式天窗、可调式座椅等人性化设计, 配有电动刮雨器, 操作更舒适、轻松; 配置力矩限制器显示屏, 实现主控台与操作显示系统有机结合, 使吊装作业的全部工况数据一目了然。

Boom & telescoping system 伸缩系统

- The boom structure adopts high strength steel plate and four U-shape sections with high stability, boom telescoping single cylinder with rope arrange.
- 四节臂, 由高强度焊接结构钢制成, U型截面, 单缸绳排伸缩方式。

Hoist 起升机构

- High quality piston motor is used for smooth hoisting.
- 卷扬采用高品质定量柱塞马达, 重物起落平稳。

Luffing system 变幅系统

- Active luffing down in constant speed, reducing energy cost yet raising stability.
- Luffing angle: -2° ~ 80° .
- 采用动力落幅系统, 落幅速度均匀可控; 降低能耗, 提高落幅操作的平稳性。
- 变幅角度: -2° ~ 80° 。

Slewing 回转系统

- 360° slewing, stable and reliable. Start and brake smoothly.
- 360° 回转, 动作稳定, 系统可靠, 制动平稳。

Hydraulics 液压系统

- High quality oil pump, motor, valve and other key hydraulic components, to ensure the stability and reliability of the hydraulic system.
- The main valve functions flow compensation and load feedback control to easily realize stable control of single action and combined actions under various working conditions.
- Fixed displacement motor is adopted for max. winch single rope speed 130m/min, high working efficiency.
- New slewing system featuring smoother start and control, and better inching performance.
- 采用稳定、高品质的主油泵、主阀、卷扬马达、回转马达、平衡阀等关键液压件, 系统可靠性高。
- 通过精确的参数匹配, 操控性能优越。主阀具备流量合流功能, 能在各种工况下, 轻松实现单个动作和任意组合动作的稳定控制。
- 卷扬采用定量马达, 作业效率高; 卷扬单绳最大速度达130m/min, 起升效率高。
- 采用新型回转系统, 回转启动和控制更为平稳, 微动性更卓越。

Counterweight 配重

- Fixed counterweight 0.64t.
- 固定配重0.64t。

Control system 控制系统

- Bus instrument: integrated electrical bus instrument can control the driving parameters at any time. Engine fault prompting enables convenient and quick maintenance.
- 总线仪表: 采用集成一体智能控制电气系统的总线仪表, 可随时掌控行驾参数, 驾乘轻松; 同时, 拥有发动机故障提示功能, 维修排查方便、快捷。

Safety equipment 安全装置

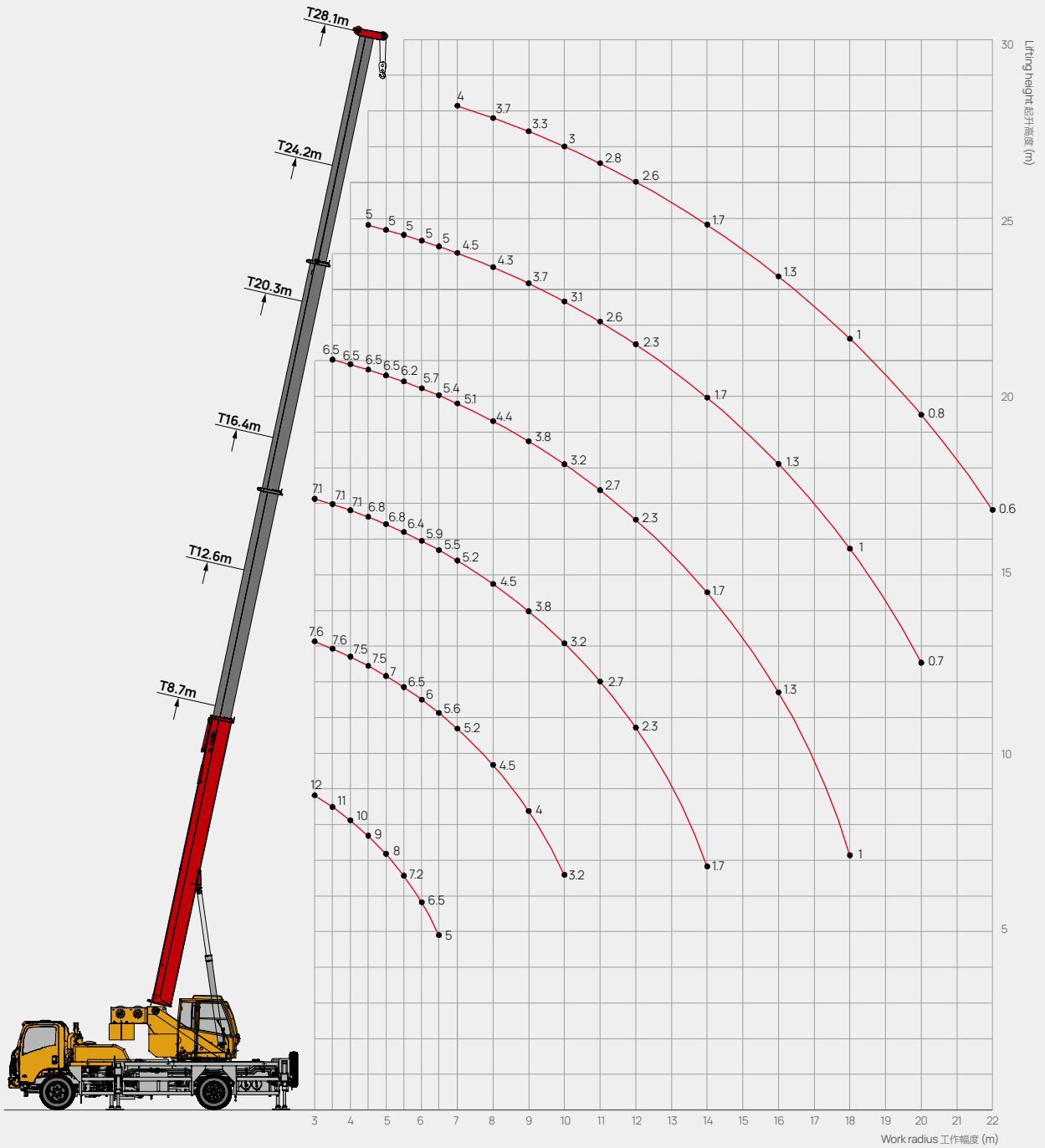
- Load moment indicator: Based on the loading mechanics model, the LMI system is established in the method of analytical mechanics. Through online empty-load calibration, the rated hoisting accuracy can reach $\pm 3\%$ to fully protect the hoisting operation. Once the operation is overloaded, the system will automatically alarm to provide security for the operation.
- The hydraulic system is equipped with hydraulic balance valve, overflow valve, two-way hydraulic lock, etc. to realize the stability and reliability of the hydraulic system.
- Boom head is equipped with A2B limit switch to prevent the wire rope from over winding.
- The length & angle sensor and pressure sensor are equipped to display the operating status of the crane in real time, automatically cut off dangerous actions, and give a buzzer alarm.
- 力矩限制器: 采用分析力学方法, 建立了基于吊重力学模型的力矩限制器计算系统, 通过在线空载标定, 额定吊重精度达到 $\pm 3\%$, 全方位保护吊载作业; 超载作业时, 系统自动报警提示, 为操纵作业提供安全保障。
- 液压系统配置液压平衡阀、溢流阀、双向液压锁等元件, 实现液压系统稳定可靠。
- 主臂臂端配置高度限位器, 防止钢丝绳过卷。
- 配置长度角度传感器、压力传感器, 实时显示起重机作业状态, 自动切断危险动作, 蜂鸣报警。

Optional equipment at extra fees 选配

- Anemometer
- Boom angle indicator
- Reversing radar
- Operator's cab Heating & cooling AC
- Customized painting
- 风速仪
- 角度指示器
- 倒车雷达
- 操作室冷暖空调
- 特殊涂装

Operating Range

起升高度曲线













Load Chart - Telescopic Boom

性能表 - 主臂

Unit: kg

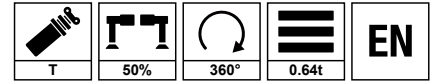










 m	8.7	12.6	16.4	20.3	24.2	28.1	 m
3	12000	7600	7100				3
3.5	11000	7600	7100	6500			3.5
4	10000	7500	7100	6500			4
4.5	9000	7500	6800	6500	5000		4.5
5	8000	7000	6800	6500	5000		5
5.5	7200	6500	6400	6200	5000		5.5
6	6500	6000	5900	5700	5000		6
6.5	5000	5600	5500	5400	5000		6.5
7		5200	5200	5100	4500	4000	7
8		4500	4500	4400	4300	3700	8
9		4000	3800	3800	3700	3300	9
10		3200	3200	3200	3100	3000	10
11			2700	2700	2600	2800	11
12			2300	2300	2300	2600	12
14			1700	1700	1700	1700	14
16				1300	1300	1300	16
18				1000	1000	1000	18
20					700	800	20
22						600	22
 2#	0%	20%	40%	60%	80%	100%	2# 
 3#	0%	20%	40%	60%	80%	100%	3# 
 4#	0%	20%	40%	60%	80%	100%	4# 
	6	6	5	4	3	3	

Load Chart - Telescopic Boom

性能表 - 主臂

Unit: kg



 m	8.7	12.6	16.4	20.3	24.2	28.1	 m
3	12000						3
3.5	10000	7500					3.5
4	9000	7500	6800				4
4.5	7800	7500	6800	6000			4.5
5	6300	6300	6500	5700			5
5.5	5200	5100	5300	5500	5500		5.5
6	4300	4300	4500	4600	4800		6
6.5		3700	3850	3900	4000		6.5
7		3300	3450	3500	3600	3500	7
8		2600	2750	2800	2800	2800	8
9		2100	2150	2200	2300	2300	9
10			1800	1850	1850	1900	10
11			1500	1550	1550	1500	11
12			1200	1250	1300	1300	12
14				900	950	950	14
16				600	650	700	16
18						500	18
 2#	0%	20%	40%	60%	80%	100%	2#
 3#	0%	20%	40%	60%	80%	100%	3# 
 4#	0%	20%	40%	60%	80%	100%	4#
	6	6	5	4	3	3	



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