



# SY1250H

**Engine power**  
567kW/1800rpm

**Bucket capacity**  
8m<sup>3</sup>

**Operating weight**  
120000kg



More reliable and durable



More efficient and energy saving



Smarter and more comfortable



More convenient and safer



SANY HEAVY MACHINERY LTD

<http://www.sanyglobal.com>

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# Mine sharp weapon Digging in all directions

SY1250H is a new generation of mining excavator manufactured by SANY Heavy Machinery Co., Ltd in the field of large excavators. It adopts a high-pressure, large-flow fully-electrically-controlled hydraulic system. It is mainly aimed at heavy-duty mining conditions such as stone, coal, and metal. With strong heavy-duty operation capability and high reliability as the first goal, the operation energy consumption can be optimized through sophisticated matching control technology.

## More reliable and durable

High-strength and long-life structural member World-famous brands of engines and hydraulic components. Relying on the trinity test system, the service life of the whole machine is greatly improved.

## More efficient and energy saving

Fully electronically controlled large-diameter hydraulic main valve, no median flow loss; Four-pump four-loop hydraulic system, intelligent flow distribution and precise control; Independent heat dissipation based on temperature, unpowered boom descent technology, etc., make the fuel consumption lower.

## Smarter and more comfortable

Advanced full electronic control system, higher control accuracy and faster response; On-line detection of hydraulic oil cleanliness and life prediction technology of filter element; Large space cab, high-power air conditioner and air suspension seat with heating.

## More convenient and safer

Centralized design of maintenance parts, intermediate passage and online detection of hydraulic oil cleanliness make maintenance more convenient; Long life hydraulic oil and oil filter, lower maintenance cost; 360 panoramic camera and safety fence, higher security.



# Strong power

SY1250 is a super-large digging product designed by Sany for mine. It adopts fully electronically controlled hydraulic system and Cummins power that have passed the market test, with high reliability and better operability.

High strength and long service life structural parts



Electric lubrication system



8 cubic mine reinforced bucket



Double-support structure platform  
Three-row column slewing support



Large diameter electric control main valve



Large-flow electronically controlled main pump



360-degree panoramic camera



Omni-directional safety fence



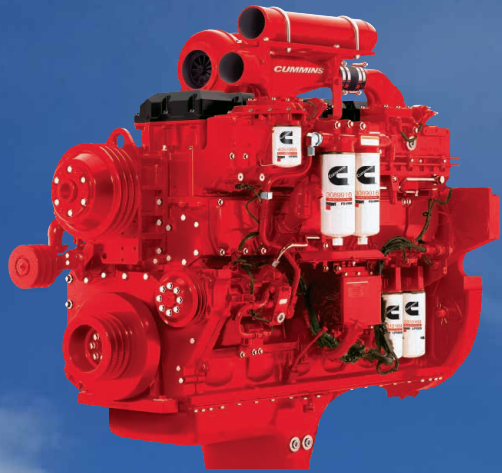
150-ton alighting structural member

Roller meeting the low temperature of minus 42 degrees

Large-space FOPS safety cab, electrically heated suspension seat, customized Cheng Xu by operator



# Dynamic system



Engine : Cummins QSK23 567 kW  
 Engine power: 567 kW / 1800 rpm  
 Maximum torque: 3468 N.m / 1350 rpm  
 Displacement: 23 L

## ► Strong motivation

Equipped with the top Cummins QSK23 engine in the industry, with rated power of 567kW and strong power, it helps customers solve the difficult problems in harsh and heavy-duty working conditions.

## ► Energy-efficient

Optimize the engine universal characteristic curve, Sany's original self-optimizing control technology, match the best fuel consumption area and control the fluctuation of speed, with lower fuel consumption and more stable work.

## ► Equipment operation monitoring

The display screen displays the engine operation, maintenance and alarm information in real time, reminding and protecting in time, making maintenance more convenient.

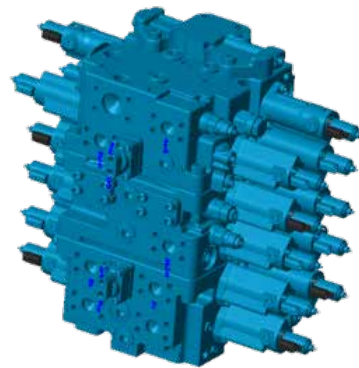
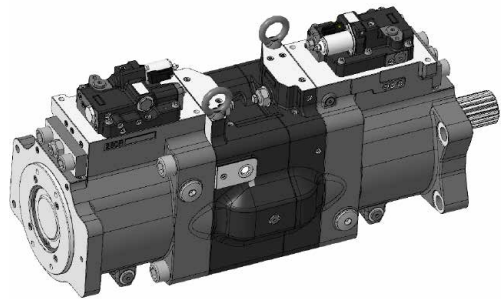


# Hydraulic system

Fully electronically controlled hydraulic system: imported 280cc electronically controlled main pump+imported fully electronically controlled main valve form a fully electronically controlled hydraulic system, which is energy-saving, efficient and soft to operate; The conventional pump valve is used to form a parallel circuit, which increases the system flow, meets the requirements of super-large digging and large flow, ensures mature application and greatly reduces the failure rate.

### Use a number of new technologies:

- ▶ 1. Multi-pump volume speed regulation technology-minimize fuel consumption rate;
- ▶ 2. Step-by-step control technology of multi-pump operation-soft and smooth action, zero impact when starting;
- ▶ 3. Rotary energy-saving control technology-rotary energy-saving and lower fuel consumption.



### ▶ Main pump

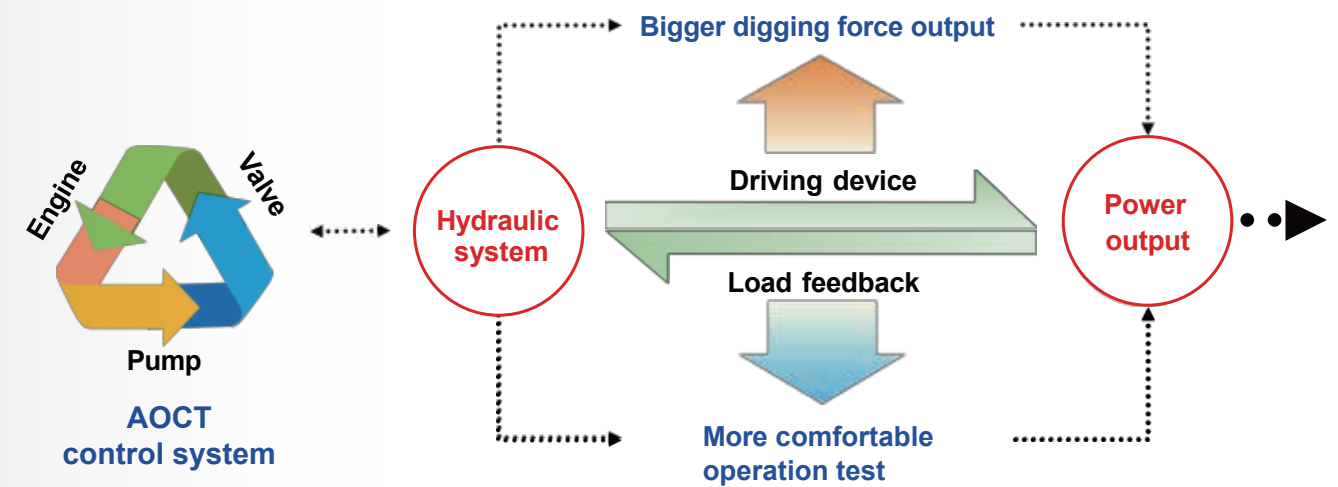
Adopt 4x280cc imported main pump, with the maximum flow of 4x540L/min, larger flow and faster speed.

The pump works in the optimal fuel consumption area of the engine and the high volumetric efficiency area of the main pump, thus achieving high efficiency and low consumption.

### ▶ Main valve

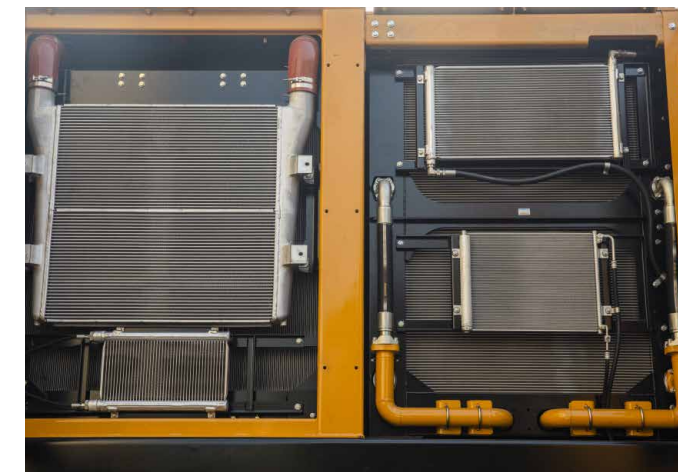
Adopt imported large-diameter fully electrically controlled main valve, with high responsiveness and lower pressure loss.

Sany's original E-P-V and AOCT integrated control system realizes that the equipment works in the optimal fuel consumption area of the engine and the high volumetric efficiency area of the main pump in all gears. According to the universal characteristic curve of the engine, adjust the power matching of the main pump, the main valve and the engine to ensure that all gears work in the optimal fuel consumption area.



Independent control system of oil dispersion and water dispersion has better heat dissipation effect.

Fan speed and volume speed control technology: automatically adjust the fan speed according to the water temperature and oil temperature, which is more energy-saving.



# Electrical and control systems



## ▶ Fully electronically controlled hydraulic multi-pump multi-loop control system

Adopts multi-pump operation step-by-step control technology, rotary energy-saving control technology, load sensing control and other control technologies, which provides absolute help to improve the performance of the whole machine. The newly developed speed coupling control technology adopts a brand-new coupling control algorithm, which completely fits and improves the dynamic response of the engine and exerts the high efficiency of the high-horsepower engine.

## ▶ Engine variable speed power matching technology,

Through automatic optimization algorithm, adjusts the engine speed to the best fuel consumption point, matches the pump displacement to improve the volumetric efficiency of the pump, and greatly reduces the system fuel consumption.

## ▶ Self-diagnosis function of the controller

Real-time self-detection of the whole machine fault. The detection equipment realizes real-time and visualization of fault diagnosis through wireless mode.

# Durable structural members

Strengthen the bucket: for the harsh working conditions, increase the bucket capacity, optimize the bucket type and strengthen the bucket.

## Increase bucket capacity

Configure 8m<sup>3</sup> square buckets.

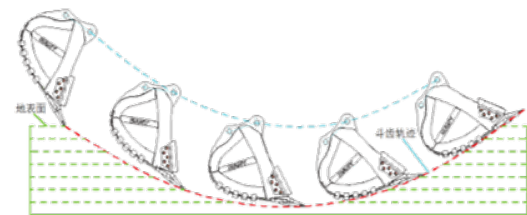
## Bucket capacity strengthening

The bucket is strengthened in all directions. CAE simulation analysis is carried out on the bucket based on the actual working conditions, and the stress at key points is reduced by about 20%.



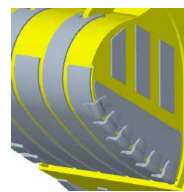
## Bucket optimization

Through the optimization of hinge points, the excavation force can be exerted more widely, the running track and bucket shape of the mechanism can be optimized, and the impact and resistance to the machine during excavation can be reduced.

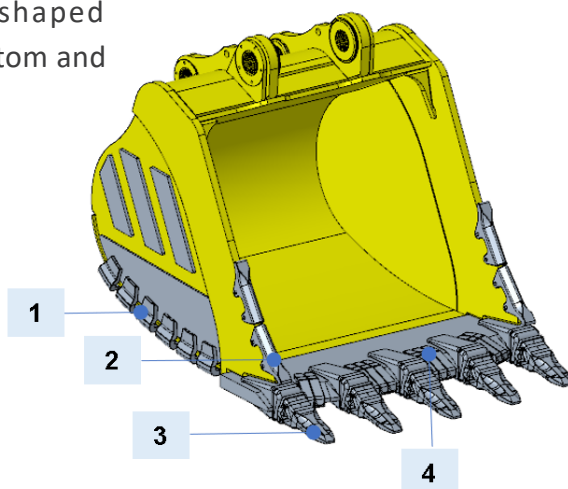
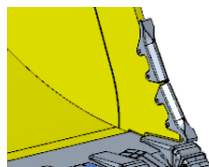


## Bucket reinforcement details

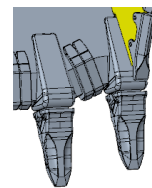
1. wear strip and L-shaped wear plates at the bottom and both sides are added.



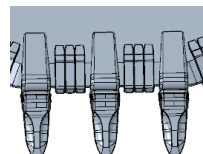
2. Bilateral teeth



3. Rock bucket teeth are standard, and pointed bucket teeth can be selected.



4. Customize the wear-resistant blade, and add the welding bucket lip sheath at the front of the blade.



The working device adopts a brand-new design structure, the manufacturing process is comprehensively improved, and the strength and durability are greatly improved.

Based on the real working conditions, the static simulation of the boom arm and the comprehensive CAE multi-body dynamics simulation of 16 postures are carried out, and the stress at the key optimization points is reduced by more than 30% through harsh impact measurement.

## Strengthening pin shaft

Alloy steel pin shaft, surface high-frequency quenching, enhance wear resistance.

## Customized shaft sleeve

The shaft sleeve has a special oil groove structure, which helps to store grease.

## Wearing ring

Wear-resistant rings are installed at the joint of the second support of the bucket rod and the connecting rod rocker, and the surface is quenched at high frequency to enhance wear resistance.

## Strengthening connecting rod

Integral casting structure, strong impact resistance.



# Durable structural members

The longest chassis of the same tonnage model adopts a 150-ton four-wheel belt with a large cross-section and high strength frame, which has the best long service life and stability.

## Middle support sprocket

The middle support is more stable, which can better solve the bending problem of the cantilever axle of the sprocket.



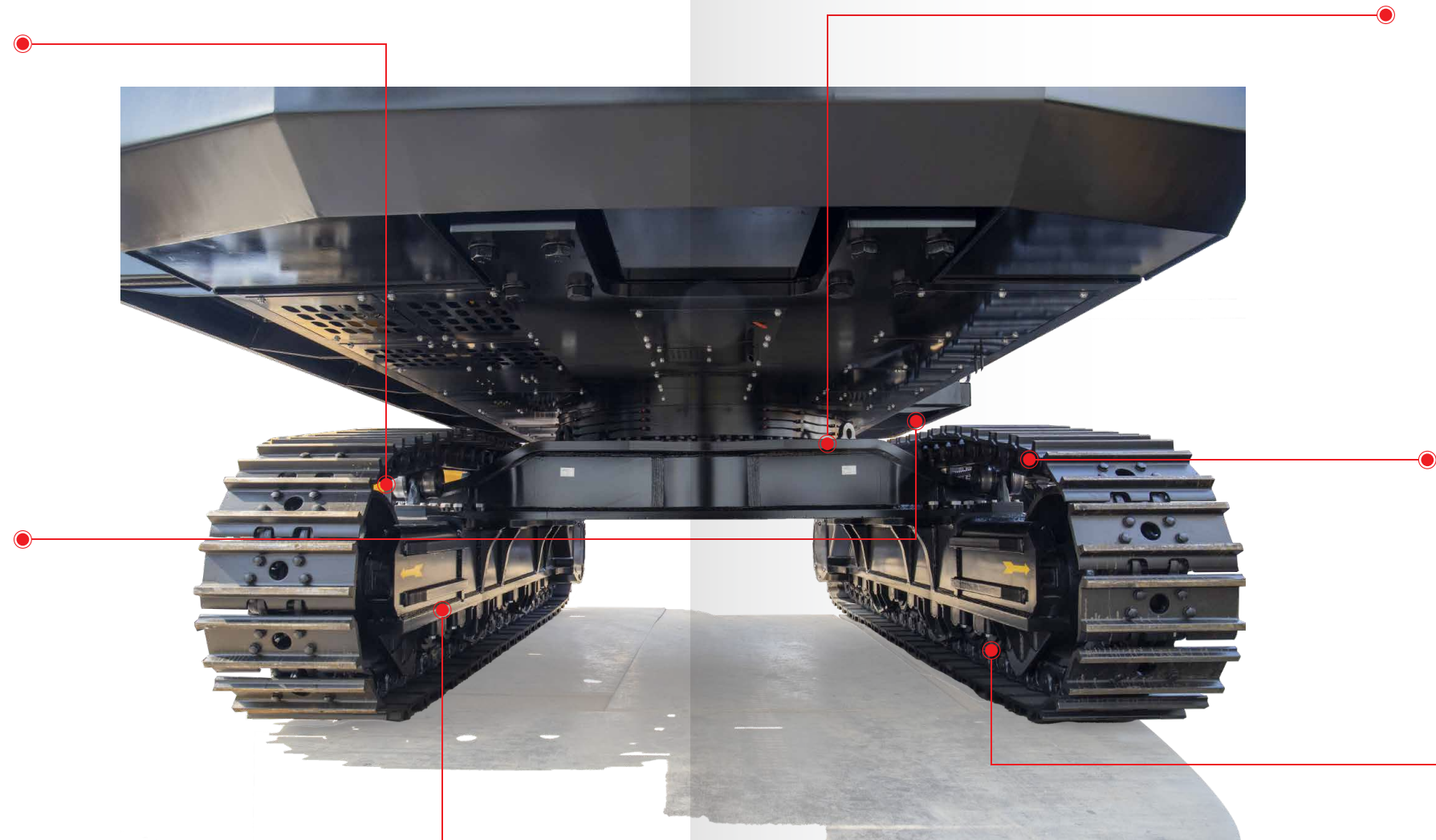
## Up-and-down escalator

Effectively improving anti-collision ability.



## Reinforced guide seat

Two reinforcing ribs are added to the outer side of the guide seat, which can better solve the problem of impact deformation of the guide seat.



## Large-section frame

Through CAE statics, multi-body dynamics simulation and harsh impact measurement, the stress of key optimization points decreased by 15%.



## Large-section frame

Customized reinforced track links, focusing on stonework conditions, more wear-resistant.



## Low temperature roller

Develop ultra-low temperature roller, which can adapt to extremely cold weather of -42 C.





# Convenient passage for both upper and lower

## .01

Channels are connected left and right, and you can work from any side of the machine.

## .02

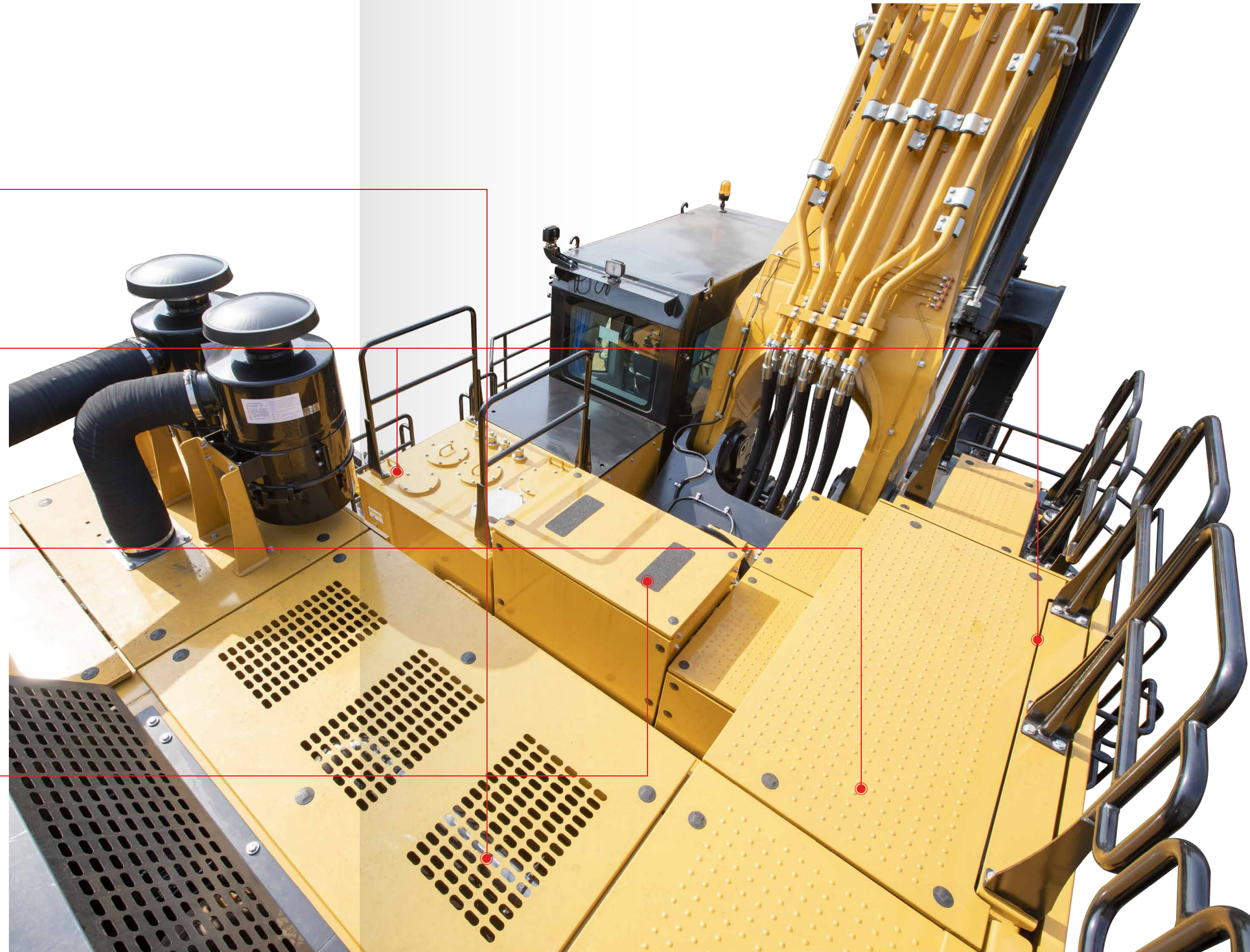
Climbing ladders on both sides are arranged around the rotation center, and the whole machine rotates 180 degrees, so the climbing ladders on getting on and off can still correspond to the upper position, which does not affect people's up and down operations.

## .03

The anti skid convex points of the cover plate are integrally extruded, with stable structure and outstanding anti skid effect.

## .04

Cover plates are arranged above and on the side of the main valve, which effectively protects the main valve from accidental impact.



# Comfortable driving

## High-comfort cockpit

Top shield conforming to OPG\*II standard (ISO).The cab is widened and lengthened by 100mm and raised by 200mm.Equipped with parallel heavy rain scraping, rainy day operation is worry-free.Looking around 360, the field of vision in the operation area is clear and safe.Multifunctional adjustable luxury air suspension seat with electric heating.Air conditioning system with large refrigeration capacity.

## High-tech intelligent cockpit

10 inch touch screen,one-key start-stop and digital multifunctional panel,looking around 360, the surrounding environment of the construction is unobstructed.

## 4G/ Bluetooth /WIFI/GPS

Device-mobile phone-cloud, data interconnection, Intelligent Service and Big Data Platform System,Centralized power management,Fault detection and alarm,Intelligent debugging and diagnosis.



# Comfortable driving

The vehicle-mounted IOT terminal is added to this machine, which can track the running information of equipment in real time and display it visually. For example, you can see the current status of the machine in the cloud and present the workload of the operator.

Example 1: Device Status Presentation

- ◆ Present the working time, position and idle time of the machine;
- ◆ Showing the machine power usage, current gear, etc.
- ◆ Present the current alarm information of the machine, etc.

Example 2: Statistics of workload

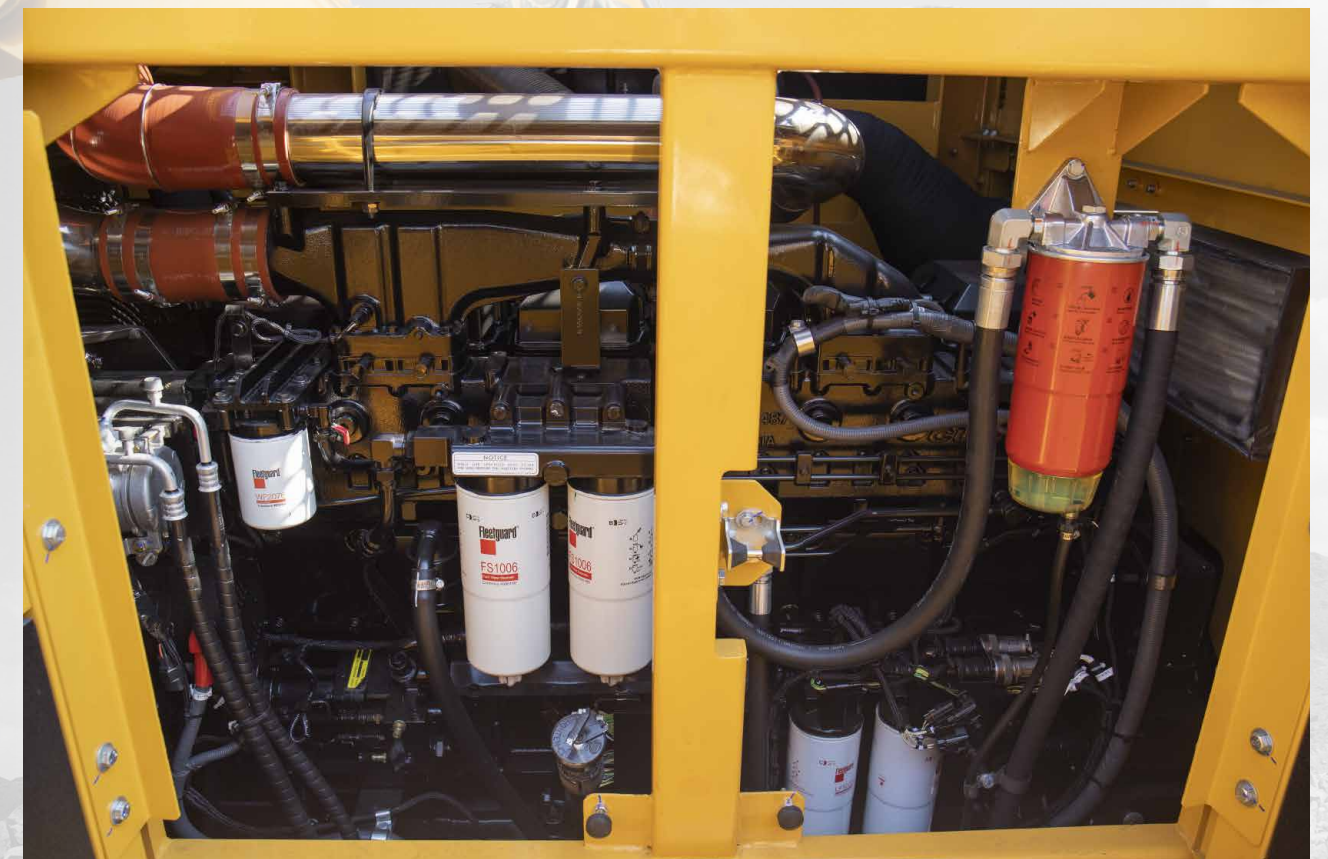
- ◆ According to the machine statistics completed workload;
- ◆ According to the operator statistics has completed the workload;
- ◆ According to the time (day, week, month) to present the completed workload.



# Convenient maintenance

In allusion severe working conditions of the mine, the design of maintenance convenience of the maintainable parts is improved. "Big space, Easy to operate". Maintenance space for various maintainable parts increases by 20%-30% and makes the operation & equipment management easier and simpler.

Maintenance filter element: the long-life oil suction/oil return filter element customized and developed by Sany prolongs the maintenance time and reduces the maintenance cost. Filter plug sensing: a new differential pressure sensor, which can check the state of oil return filter in real time to achieve the purpose of early warning.



# Safety performance

According to the operating conditions of the mine, the safety enhanced cab meeting the requirements of FOPS is used, and the safety is 30% higher than that of the ordinary cab. The cab grid guard, multiple emergency stop switches, 360 ° full protective guardrail, 360 ° panoramic camera, alarm light, platform lighting, etc. are used to further improve the safety of equipment mine operations.

360° full protective handrail



360° full protective handrail



Safety grid guard



Emergency stop switch



360° panoramic camera

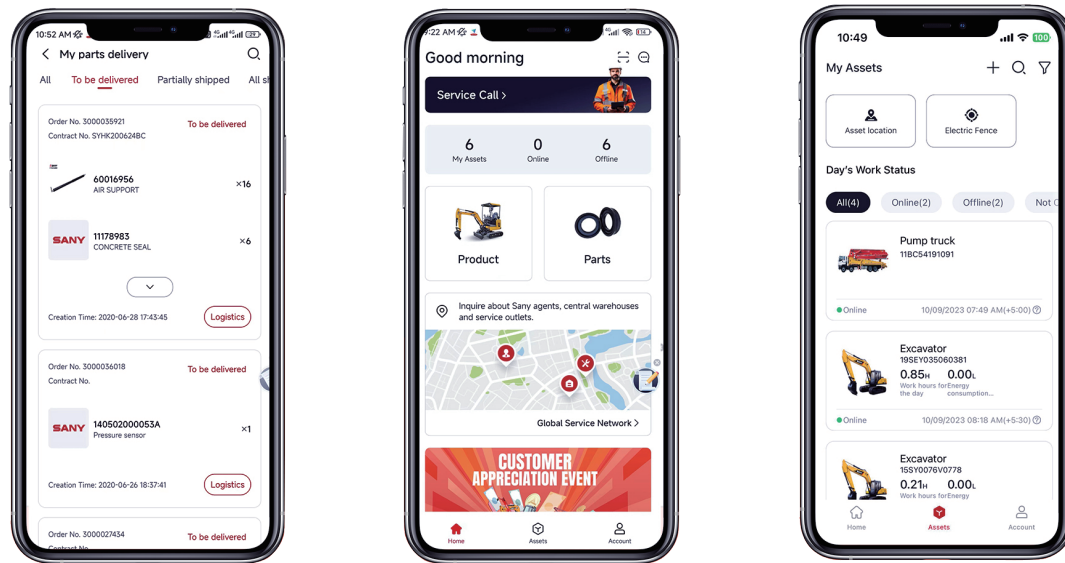


Alarm light + go-home lighting



# MySANY APP

## Easy use, quick response



### Quick Parts Access

- View parts manuals
- View parts availability
- Check equipment & parts order status

### Fleet Management

- Check equipment working condition
- Monitor equipment energy consumption
- Set up e-fence

### Streamlined Service

- One-click to initiate service request
- Check global service network
- View local service team's phone number & email



Scan to download!

# Complete research & development and test system

SANY has established complete machine endurance test center with full functions. Each model of excavator must be subjected to over 2,000h field excavating test.

Key components like working device, cab and hydraulic components etc., must be subject to fatigue test over 800,000 times.



# Advanced manufacturing technology

SANY has RGV assembling line and full automatic welding robots, and possesses high precision machining equipment and precise machining center.

SANY's manufacturing and assembling lines won five-star national site in 2013 and national quality award in 2014. In 2023, SANY Mini Excavator Factory was awarded as the intelligent factory.



# Technical specifications

Specification		Main performance	
Operating weight	120000 kg	Traveling speed (high/low)	3.5/2.4 (km/h)
Bucket capacity	8 m <sup>3</sup>	Slewing speed	5.5 rpm
Engine	Cummins	Grade ability	70%/35°
Model	QSK23	Ground pressure	148 kPa
Engine standard	Stage III	Bucket digging force	605 kN
Type	Direct injection, 6-cylinder, 4-stroke, turbocharged, inter-cooling and water-cooled	Arm crowd force	475 kN
Engine power	567 kW/1800 rpm		
Maximum torque	3468Nm/1350 rpm		
Displacement	23 L		

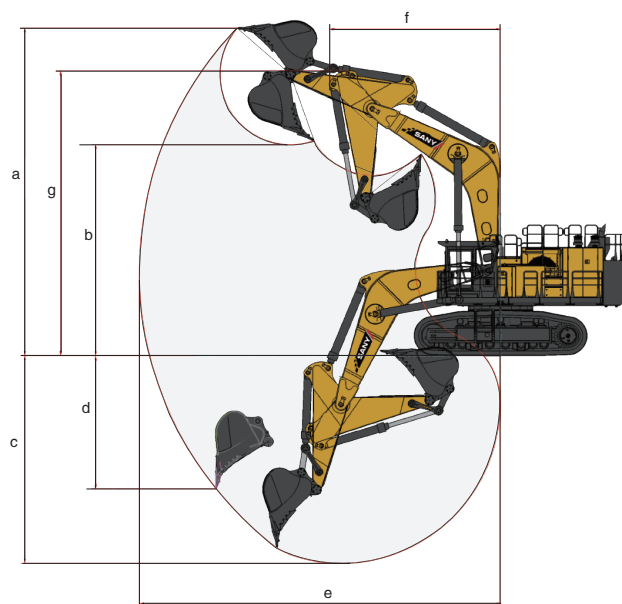
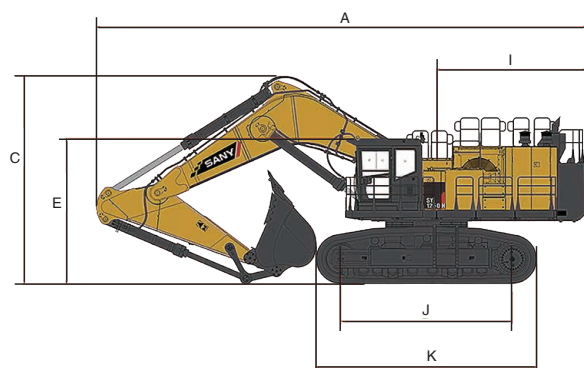
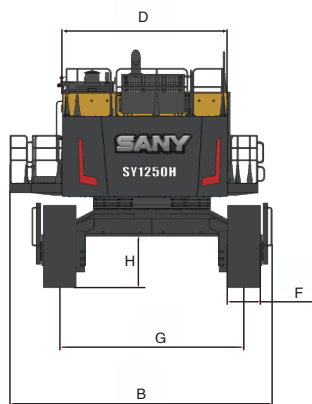
Service refill capacities		Traveling part	
Fuel tank	1560 L	Number of track plates	51
Engine oil	65 L	Each carrier roller side	3
Radiator	90 L	Each supporting wheel side	8
Final drive	2×18 L	Standard track	700 mm

# Table of lifting capacity

	Boom-7600mm		Arm-3400mm		Track width-700mm		Counterweight-17500kg					
Height of loading point (B)m	4.0m	5.0m	6.0m	7.0m	8.0m	9.0m	10.0m	11.0m				
11.0m kg												
10.0m kg												
9.0m kg												
8.0m kg												
7.0m kg												
6.0m kg												
5.0m kg												
4.0m kg												
3.0m kg												
2.0m kg												
1.0m kg												
Ground kg												
-1.0m kg												
-2.0m kg												
-3.0m kg												
-4.0m kg												
-5.0m kg												
-6.0m kg												
-7.0m kg												
-8.0m kg												

- The lifting capacity is calculated in accordance with ISO10567 and SAEJ1097, where the limit coefficient of hydraulic system is 0.87 and tilting limit coefficient is 0.75;
  - Item with \* is limited by hydraulic pressure and item without "\*" is limited by stability;
  - Lifting point is front support hole of arm (excluding the weight of bucket).
- It is necessary to deduct from the above lifting capacity if additional accessory is installed such as bucket etc.;

# Machine dimensions



Overall dimensions (mm)	SY1250H
A. Overall length (during transportation)	14710
B. Total width (including traveling platform)	5560
C. Overall height (during transportation)	6260
D. Upperstructure width (excluding walking platform)	3500
E. Overall height (cab top)	4375
F. Standard track shoe width	700
G. Gauge (operation/transportation)	3900
H. Minimum ground clearance	1085
I. Tail swing radius	4950
J. Length to centers of rollers	5150
K. Track length	6630

Operation range (mm)	SY1250H
a. Max.digging height	12550
b. Max. unloading height	7945
c. Max.digging depth	8065
d. Maximum excavation depth of vertical excavation arm	5085
e. Max.digging reach	13335
f. Min.swing radius	6550
g. Maximum height at min.swing radius	10950

# Standard configuration

Engine	Cab	Lower running body
Mining heavy-load engine	● Ultra-silence frame cab	● Traveling parking brake
Dynamic optimizing mode control	● Reinforced light-color glass window	● Traveling motor guard plate
Radiator (with full protective screen)	● Silicone rubber shock absorber	● H-shaped track guide mechanism
24V 7.5kW starter motor	● Openable left window	● Tensioning mechanism of track
140A alternator	● Emergency exit on rear window	● Bolted driving wheel
Double air filter	● Windscreen wiper (with washer)	● Carrier roller and supporting wheel
Dry-type dual-element air filter	● Multi-directional electric-heated adjustable air suspension seat	● Reinforced chain track with pin shaft seal
Engine oil filter	● Radio (with digital clock)	● 700mm double-rib track plate
Large capacity fuel filter	● Foot rest and floor mat	● Reinforced ladder stand
Fuel cooler	● Loudspeaker and rearview mirror	● Bottom cover plate
Auxiliary radiator water tank	● Seatbelt and fire extinguisher	
Fan deflector	● Cup holder and compartment lamp	
Automatic idling system	● Ash tray and emergency hammer	
Independent water radiator with reverse rotation function	● Storage box and sundries bag	
Cooling water filter	● Pilot control cut-off lever	
	● Fully-automatic A/C	
	● Emergency stop switch	
	● Front protective screen	
	● One - key start button	

● indicates standard ○ Indicates optional configuration

# Standard configuration

Double slewing reducer		Alarm system	
Fully-electrically-controlled main pump	•	Controller failure	•
Fully electrically-controlled main valve	•	Abnormal pump pressure	•
Double oil suction filter	•	Abnormal hydraulic oil cleanliness	•
Oil drain filter	•	Abnormal power supply voltage	•
Double oil return filter	•	Abnormal hydraulic oil temperature	•
On-line detection device for hydraulic oil cleanliness	•	Engine oil pressure insufficient and engine coolant temperature too high	•
Blanking pipe of hydraulic damper	•	Throttle rotary knob failure	•
Independent oil radiator	•	Insufficient fuel volume	•
		Abnormal inclination of the whole machine	•

Front-end working device		Upper rotary platform	
Flange pin	•	Fuel oil level sensor	•
Welded connecting rod	•	Hydraulic oil level gauge	•
Integrated lubricating system	○	Toolbox	•
Hammer-free bucket tooth	•	Slewing parking brake	•
Reinforced all-welded box-type boom	•	Platform lighting lamp	•
Reinforced all-welded box-type arm	•	360° panoramic imaging system	•
Anti-collision guard plate	•	Cab warning lamp	•

• indicates standard ○ Indicates optional configuration

Monitoring system instruments	Safety	Others
Global positioning system (GPS)	•	Emergency stop switch
10" color display	•	Signal/alarm horn
EVI system	•	Rearview mirror
Hour meter, fuel tank oil level gauge	•	Emergency exit on rear window
Engine coolant temperature gauge	•	Negative pole switch of storage battery
Engine oil pressure gauge	•	
		High-capacity storage battery
		Lockable engine hood
		Lockable fuel filler cap
		Anti-slip pedal, armrest and sidewalk
		Traveling direction sign on traveling frame
		Fully-automatic lubrication system
		Motor-driven diesel pump
		Electric lubrication pump

• indicates standard ○ Indicates optional configuration