



QUALITY CHANGES THE WORLD



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Machinery

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This manual was printed in May 2021. When you read it, the product information may have changed.

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Surging Power and Driving Time

Brand New SY650H/SY650HB

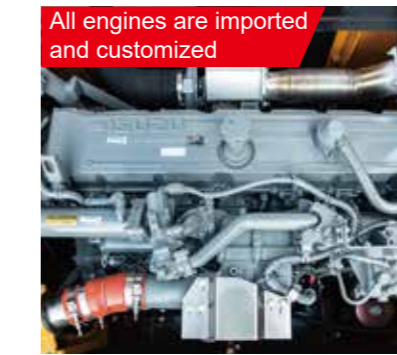


Brilliant and Heart Shaking



Selling Point

SY650H is a new generation of 60T super mining excavator manufactured by SANY Heavy Machinery Co., Ltd., which is specially designed for heavy load conditions of mines and aims to improve the return on investment of customers.



All engines are imported and customized



Advanced electro-hydraulic system based on ACE-P technology



Intelligent car-class cab

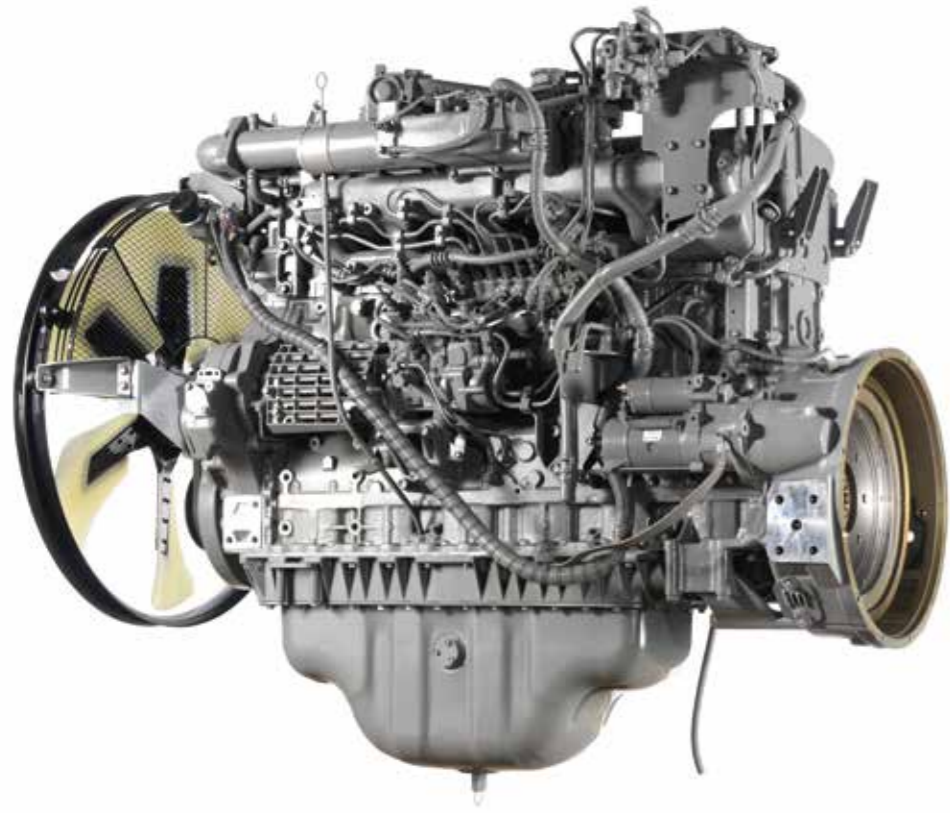


Reinforced structural parts with high strength

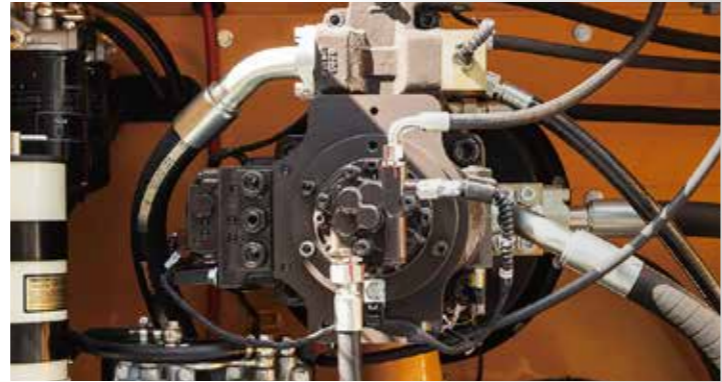


One machine for two purpose which can be equipped with 210 sledgehammer

Engine, main pump and main valve



Isuzu 6WG1X-345kW engine customized and imported by SANY, with sufficient power reserve, can meet the high load demand of mine operation, optimized engine curve, large economic fuel consumption area and lower fuel consumption.



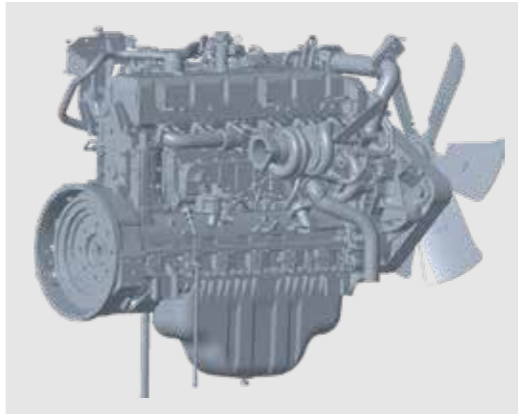
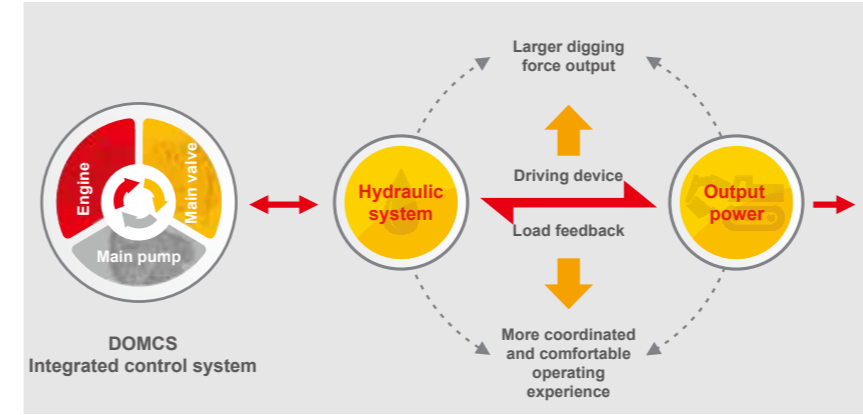
Kawasaki K7V280 large displacement main pump customized by SANY, with advanced electro-hydraulic system and optimal matching output flow, can achieve what you need. The heavy load power increasing control, that is, the pump output power increases with the increase of main pressure, which can improve the heavy load operation efficiency and strong mining persistence.



Kawasaki KMX36NAE electronic control main valve is a leader in the industry. Its flow capacity is 25% higher than that of 32NA main valve, which is more energy-saving. After one year, SANY and Japanese experts carefully carried out commissioning to make the coordination performance more excellent.

Dynamic Optimization Intelligent Control System

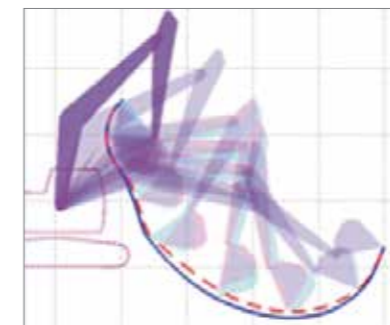
The "Positive Flow" system and the "DOMCS" engine pump valve integrated with dynamic optimization intelligent control system independently developed by SANY can make each gear and mode work in the best fuel consumption area of the engine with high efficiency and low consumption.



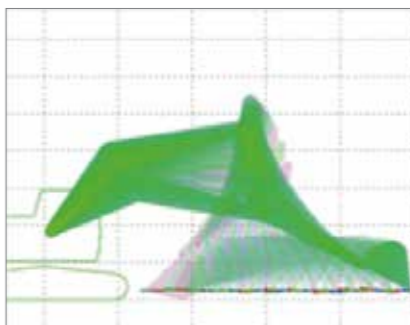
- Super power**
The rated power is 345 kW, which can meet the high load requirements of mine operation.
- Energy Efficiency**
The dynamic optimization intelligent control system can make the fuel consumption lower and the efficiency higher.
- Customized**
Optimize the engine curve to achieve the best matching
- High stability**
Specially designed for domestic oil products, with stronger adaptability and low failure rate

Advanced Electro-hydraulic System

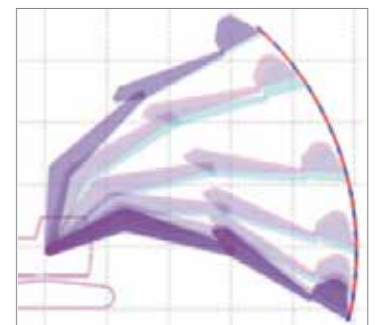
- The advanced electro-hydraulic system can improve the operation adaptability, improve the operation coordination, control accurately and gently, and make the operation easy and smooth.
- Dual microcomputer controller, high precision control, fast response, small impact of micro action control.



Improve the triple-compound operation performance



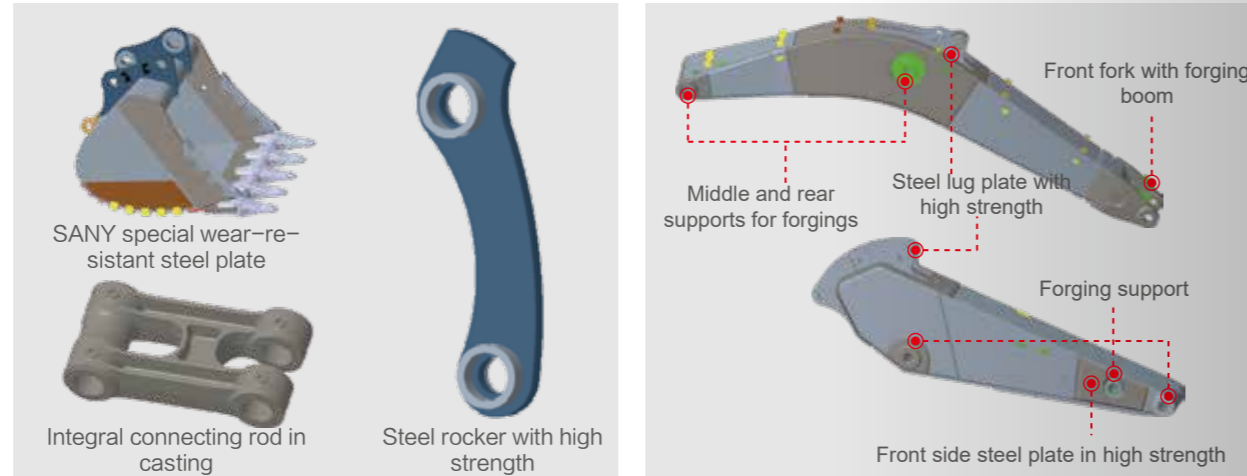
Improve the performance of horizontal tension



Reduce and stop the impact

Enhanced Structure

- Stress reduction: fatigue optimization design that the maximum stress reduction of the working device is more than **30%**.
- Structure optimization: mining-type working device and three-section box structure that the bending section coefficient is increased by **20%**.
- Advanced welding technology of prolonging welding life, such as increasing weld toe, optimizing weld formation, large weld root and deep penetration.
- Material selection: high strength steel plate + high strength forging + wear resistant steel with integral connecting rod in casting.
- Chassis with integrated assembly welding: robot-ship multi-layer welding, and **100%** ultrasonic testing for welding.



Brand New Cab

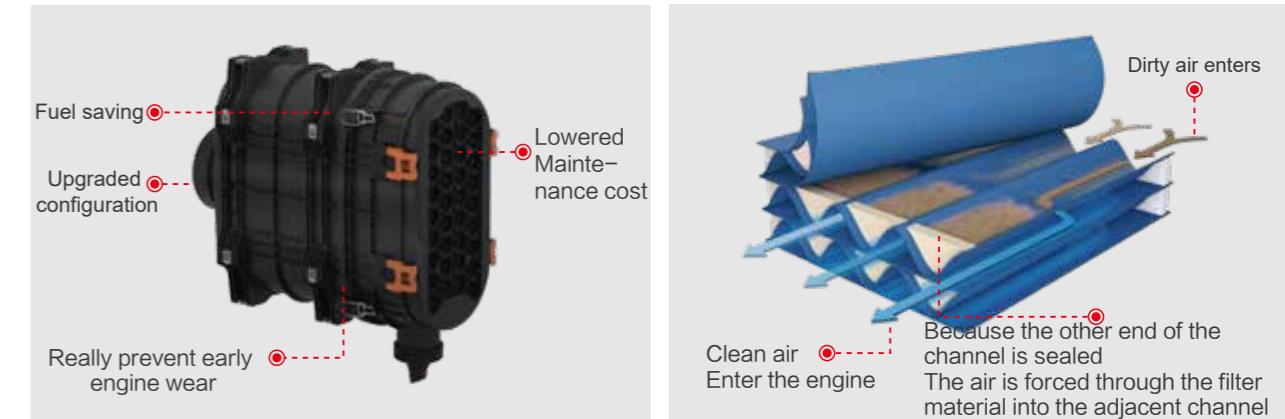
New intelligent cab surpassing in the sense of digital technology sense, operation convenience, automatic and safe construction.

- According to the characteristics of long working time and large vibration amplitude of large models, an air suspension seat (with Comfort Grade A) is selected to reduce the driver fatigue.
- One button start/stop, 10' touch screen, multi-function key panel, rear view camera video display, automatic air conditioning, etc., can reduce 90% of the physical buttons, make human-computer interaction more convenient, and bring the feeling of automobile driving.



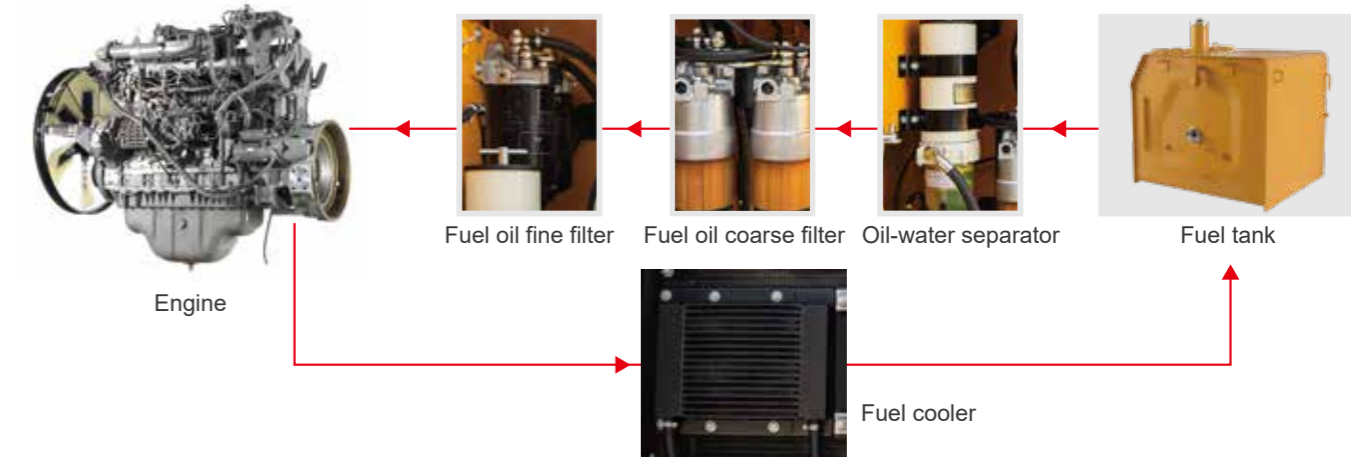
Straight-flow air filter system

The straight-flow air filter system is suitable for medium and heavy dust conditions with straight-flow air intake, low intake resistance and fuel saving. During the whole life cycle, the pre-filtering efficiency is always about **90%**, which reduces the maintenance cost. Nanofiltration materials, with filtration efficiency up to **99.997%**, can effectively prevent early wear of engine and provide the first-class protection for devices.



High-capacity Multi-stage Filtration System

The "large-scale multi-stage filtration system" initiated in China was launched to deal with the problem of poor oil quality in China and meet the emission requirements of National III Standard. The impurity filtration reached **99.9%**, and the water separation efficiency was above **95%**, which was higher than the industry standard.



Independent Oil Radiating System

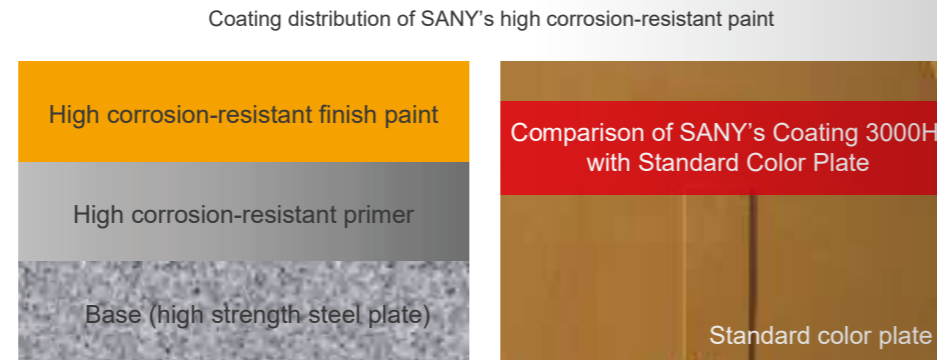
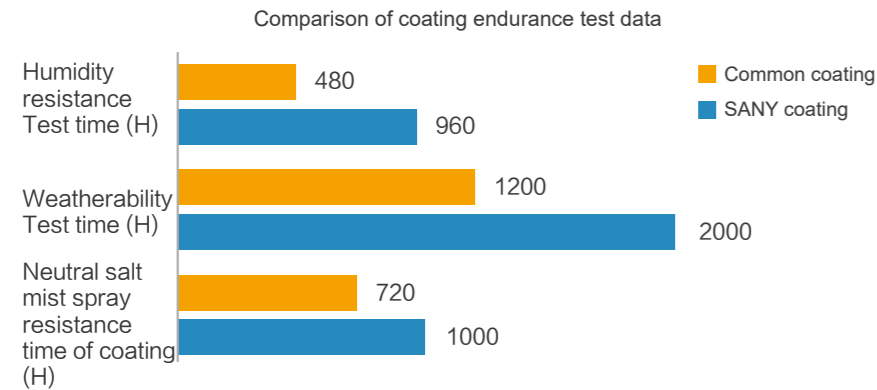
Compared with the ordinary excavator, the head radiation efficiency is increased by **20%**, the working temperature of the system is reduced by **8-10°C**, the adaptability to high temperature environment is greatly improved, and the service life of rubber parts is increased by **30%**. Compared with the integral cooling system, the energy saving is increased by **30%**.



The right-angle plate-fin type fin is adopted, the area of air duct IS greatly increased, and the radiating efficiency is increased by 20% as compared with ordinary radiator; the pressure resistance of radiator is increased by 10%, and the service life is prolonged.

High Anticorrosive Coating

Cooperating with international famous paint companies, the aging life of paint has reached the highest level in the industry, and the adaptability has increased by 40%.



Relying on SANY large excavator test system, which is the first "Trinity" in China, and inheriting a full range of mature technologies, SY650H has a designed working life of more than **150,000 h** under mine conditions through nearly 20 years of accumulation.

Hydraulic system
The plant cleanliness of hydraulic system reaches **Level NAS7**, which is higher than that of competitive brands and industry standards.

Key structural members
The design life of boom, grab arm, platform, chassis and other key structural parts exceed **15,000 hours**.

Core components
Relying on SANY's only domestic excavator parts durability testing system, the service life of pump, valve, oil cylinder, motor, oil tank, cab and other parts is increased in **double**.

Enhanced four-wheel and one-belt
Heavy 228-pitch four-wheel and one-belt, optimized local structure of roller and idler, and double-support carrier roller structure.

Dual-usage

1. According to the individual requirements of the tonnage users, the product can be equipped with 210 sledgehammer as standard to solve the problem of hard rock breaking and improve the profitability of customers.

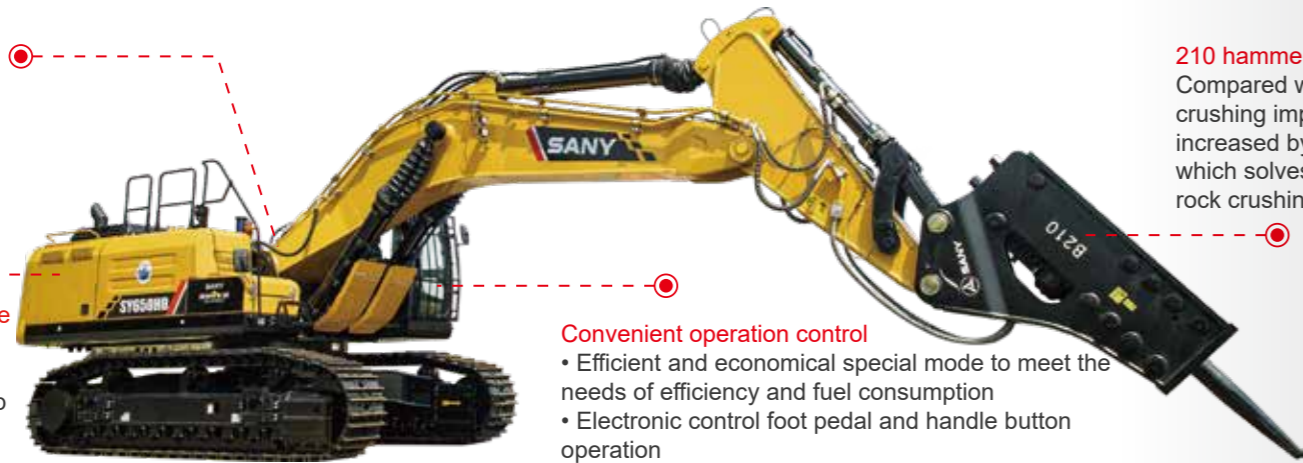
Model	SY650H			Bucket/crushing hammer
Boom (m)	7m		6m	
Bucket rod (m)	2.5m	3.0m	3.0m	
	Φ210 (SY650HB Professional Crushing)	Φ 210		Breaking
Configuration		●		3.4 m ³ (narrow)
Situation	○	○		3.5m ³
	□	□	○	3.8m ³
		○	○	4.2m ³

Buckets are classified according to their purposes as follows: Heavy duty bucket ●2100kg/m³ Rock bucket
 ◎1800kg/m³ Earthwork bucket □1500Kg/m³ Coal bucket ○1300Kg/m³
 The red configuration is sy650h standard configuration, and the crushing hammer pipeline can be configured

2. SANY customized 210 crushing hammer is jointly developed with professional manufacturers. By matching with the basic machine parameters, the crushing impact energy is increased by more than 30%, and the peak oil return pressure is reduced by 60%.

Double slewing upgraded slewing torque
Strengthen the ability of soil and rock sweeping after crushing, increase by more than 24%

Special crushing control procedure
Cooperate with domestic well-known mainstream crushing hammer manufacturers to develop exclusive crushing program so as to realize the perfect match between the basic machine and hammer.



210 hammer
Compared with 200 hammer, the crushing impact energy is increased by more than 30%, which solves the problem of hard rock crushing

Convenient operation control

- Efficient and economical special mode to meet the needs of efficiency and fuel consumption
- Electronic control foot pedal and handle button operation
- Slip key control, one hand crushing
- Automatic cracking function

Dual-usage

3. The breaking rhythm is smooth and does not rebound, and the crushing efficiency is improved by more than 30%. For the first time in the industry, high-speed camera technology is applied to match and verify, and the core competitiveness of the special crushing machine is mastered.

By increasing the kinetic energy of piston, the impact energy is increased by more than 30%

Oil return pressure monitoring to protect oil radiating

Professional accurate verification and quantitative testing

The breaking rhythm is smooth, and the efficiency is increased by more than 30%

Crush without rebounding to protect the working device

Convenient operation to break easily with one hand

4. "Armor Level" protection of crusher to protect the personnel safety and enhance the device protection.



The front of the cab is protected by full protective net to prevent stones from splashing and breaking the glass to ensure the safety of personnel.



A protective net is added to the boom cylinder at the front of the platform to prevent the broken stones from jumping to the platform.



All oil cylinder piston rods are provided with rubber material protecting bush, which can prevent dust and reduce the dust entering so the reliability is better.

Convenient Maintenance

In view of the harsh working conditions of the mine, the design of the convenience of maintenance parts replacement is strengthened, "large space and easy to start" and the operation space for various maintenance parts replacement is increased by 20-30% so as to realize the operation without worry, and the equipment management is easier and simpler.



Inspection and maintenance are within reach

Increase the engine compartment and pump cabin space, which is "large space and easy to start", and convenient for inspection and maintenance.



Electronic fuel pump

Electronic fuel pump, one-key automatic pump, program stop setting time, and easier exhaust.



Hammer free bucket teeth

The hammer free bucket teeth with no hammer replacement, locking pin connection, easy disassembly and assembly can improve the convenience of disassembly and assembly.



Fan reversing in oil radiating system

It is easy and fast to blow off the dust or foreign matters deposited in the radiator core.



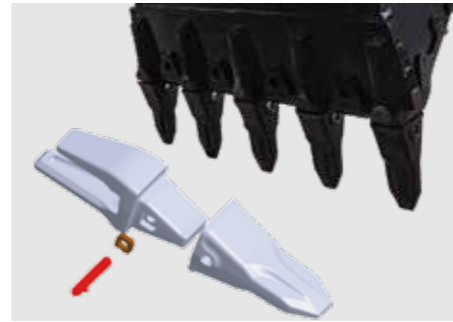
Automatic lubrication system

The standard automatic centralized lubrication system can output high-pressure grease regularly and quantitatively, improve the lubrication efficiency and reduce the labor intensity and risk of personnel.



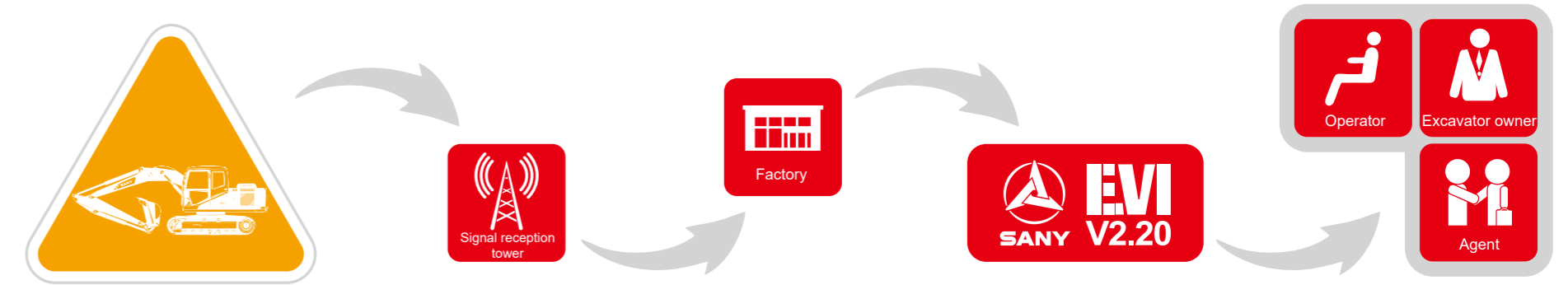
Straight-flow air filter system

The straight flow air filter system in bayonet catch design can be cleaned and replaced without any help of tools.



"EVI" Customer Management System

It is equipped with EVI system researched and developed independently by SANY to build a "four-divisional" construction management system including "plant-agent-boss-operator", make the mine construction management **with low cost, less risk and high efficiency.**



Technical Specifications

Specification	Traveling part		Capacity of oil and coolant		
Engine	Isuzu	Number of track shoes per side	52	Fuel tank	840L
Model	GB3-6WG1X-345-1800	Each carrier roller side	3	Engine oil	37-52L
Type	Direct injection, 6-cylinder, 4-stroke, turbocharged, inter-cooling and water-cooled	Each thrust wheel side	9	Radiator	36L
Maximum torque	1980/1500(N · m/rpm)	Standard track	600mm	Lubricating oil for running reducer	2 × 15L
Displacement	15.681L			Lubricating oil for rotary reducer	2 × 10.5L

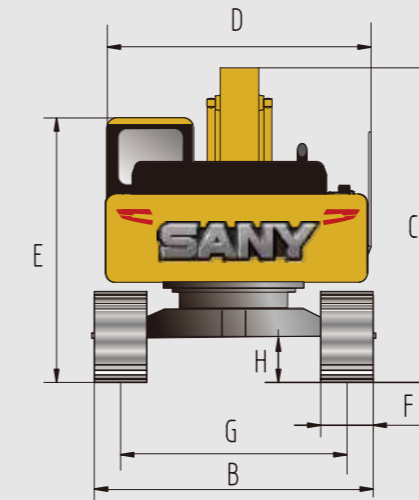
Table of Lifting Capacity

	Boom---7000mm		Grab arm---3000mm		Track width---600mm		Counterweight---11000kg				
	3.0m		4.5m		6.0m		7.5m		9.0m		
7.5m	kg	*15422	*15422	*13024	*13024	*11682	*11682	*10961	*10961		
6.0m	kg	*22440	*22440	*15811	*15811	*12984	*12984	*11497	*11497	*10797	*10797
4.5m	kg			*20090	*20090	*14895	*14895	*12449	*12449	*11136	*11136
3.0m	kg			*14671	*14671	*16880	*16880	*13518	*13518	*11659	10768
1.5m	kg			*12870	*12870	*18312	17859	*14406	13322	*12119	10435
Ground	kg			*20368	*20368	*18880	17366	*14871	12948	*12292	10234
-1.5m	kg	*16387	*16387	*24222	*24222	*18560	17275	*14710	12843	*11804	10263
-3.0m	kg	*28240	*28240	*22028	*22028	*17229	*17229	*13560	13050		
-4.5m	kg	*22812	*22812	*18214	*18214	*14236	*14236				

- The lifting capacity is calculated in accordance with ISO10560 and SAEJ1097, where limit coefficient of hydraulic system is 0.87 and tilting limit coefficient is 0.75;
- The item with the mark * is limited by hydraulic pressure and the item without the mark "*" is limited by stability;
- The lifting point is the front support hole of the grab arm (excluding the weight of the bucket). If additional accessories such as the bucket are added, they shall be deducted from the above lifting weight;

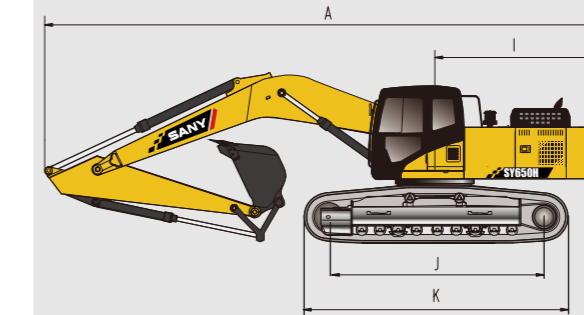
Overall dimensions (mm) SY650H

A. Overall length (in transportation state)	12710
B. Overall width	3770
C. Overall height (in transportation state)	4320
D. Upper width	3400
E. Overall height (cab top)	3670
F. Width of standard track plate	600
G. Track gauge	2900
H. Minimum ground clearance	615
I. Slewing radius of tail	4180
J. Grounding length of track	4600
K. Track length	5720



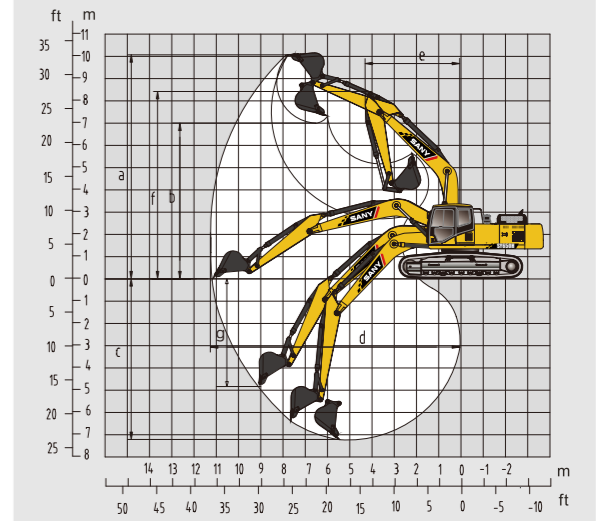
Performance parameters SY650H

Total weight, kg	63200
Bucket capacity m³	3.5-4.2
Rated power, kW/rpm	345/1800
Traveling speed (high/low), km/h	4.5/2.9
Slewing speed rpm	7.3
Gradeability	70%/35°
Ground pressure, kPa	103
Excavating force of bucket, kN	345
Excavating force of bucket rod, kN	293



Operating range (mm) SY650H

a. Maximum digging height	11135
b. Maximum unloading height	7910
c. Maximum digging depth	7210
d. Maximum digging distance	11670
e. Minimum slewing radius	5395
f. Maximum height at minimum slewing radius	9415
g. Excavation depth of maximum vertical excavation boom	4885



Note: due to the continuous updating of technology, materials and technical specifications are subject to change without prior notice. The machine in the photo may include additional devices.

Standard Configuration

Engine	Cab	Traveling body of undercarriage
High power engine ●	Car-class cab ●	Traveling parking brake ●
Dynamic optimizing mode control ●	Reinforced light-color glass window ●	Protective plate for enhanced walking motor ●
Radiator ●	Silicone oil rubber damper ●	Enhanced chassis frame ●
24 V/7.0 kW starting motor ●	Top, front upper and left windows (openable) ●	Track tensioning device ●
60A alternator ●	Emergency exit on rear window ●	Driving wheel ●
Straight-flow air filter ●	Wiper (with washer) ●	Carrier roller and thrust wheel ●
Engine oil filter ●	Multifunctional air suspension seat ●	Reinforced chain track (with pin shaft seal) ●
Three-stage fuel oil filter ●	Radio ●	600 mm double-rib track shoe ●
Engine oil cooler ●	Foot rest and floor mat ●	Reinforced double side step ●
Auxiliary radiator water tank ●	Loudspeaker and rearview mirror ●	Protective bottom cover plate ●
Fan deflector ●	Seatbelt and fire extinguisher ●	
Automatic idling system ●	Cup holder and compartment lamp ●	
	Ash tray and emergency hammer ●	
	Storage box and document bag ●	
	Pilot control cut-off lever ●	
	Fully-automatic A/C ●	
	Emergency stop switch ●	
	Falling-proof top protection net and front protection net ●	

● Standard ○ Optional

Standard configuration

Hydraulic system	Front-end working device	Upper slewing platform
Control valve (with main relief valve) ●	Flange pin ●	Fuel oil level sensor ●
Spare port for control valve ●	Connecting rod in casting ●	Hydraulic oil level gauge ●
Oil suction filter ●	Automatically centralized lubrication system ●	Toolbox ●
Oil drain filter ●	Dust seal ring (all bucket pins are equipped) ●	Slewing parking brake ●
Oil return filter ●	Reinforced all-welded box-type boom ●	Rearview mirror (right) ●
Pilot filter ●	Reinforced all-welded box-type bucket rod ●	Rearview camera ●
Blanking pipe of hydraulic damper ●	Front fork with forging boom ●	Cab warning lamp ○
Independent oil radiator ●	Hammer free bucket teeth ●	
Pipeline for crushing hammer (SY650HB standard configuration) ○		

Alarm lamp	Monitoring system instruments	Others
Controller failure ●	GPS (standard) ●	Large-capacity battery ●
Abnormal pump pressure ●	10" Color Touch Screen ●	Lockable engine hood ●
Pilot pressure of various movements abnormal ●	EEVIA system ●	Lockable fuel filler cap ●
Abnormal power supply voltage ●	Hour meter, fuel tank oil level gauge ●	Anti-slip pedal, armrest and sidewalk ●
Abnormal hydraulic oil temperature ●	Engine coolant temperature gauge ●	Traveling direction sign on traveling frame ●
Engine oil pressure insufficient and engine coolant temperature too high ●	Engine oil pressure gauge ●	Motor-driven diesel pump ●
Throttle rotary knob failure ●	Intelligent fuse box ●	
Insufficient fuel volume ●		

● Standard ○ Optional

Note: SY650H crusher pipeline and cab alarm lamp are optional, others are standard in configuration.



Great power/invincible

Brand New hydraulic excavator for mining

