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SANY



LEADING INNOVATION



MEDIUM EXCAVATORS

SY305H

Product Specifications

OPERATING WEIGHT

31,500 kg

RATED POWER

212 kW / 2000 rpm

BUCKET CAPACITY

1.6m³

ENGINE

Isuzu GH-6HK1



Classic Succession Value leader

SY305/335H

**New-generation
Super Hydraulic
Excavator for Mining**

Selling Points

SY305H is a new-generation 30T-level super hydraulic excavator product for mining produced by SANY Heavy Machinery. It is designed particularly for heavy-duty mining conditions and targets to improve customer's investment return. As compared with competitor brands, it has the advantages including "super excellent performance, super high adaptability, super long service life and super low maintenance cost".



**Superior
performance**



**Super high
adaptability**



**Super long
service life**



**Super low
maintenance
cost**

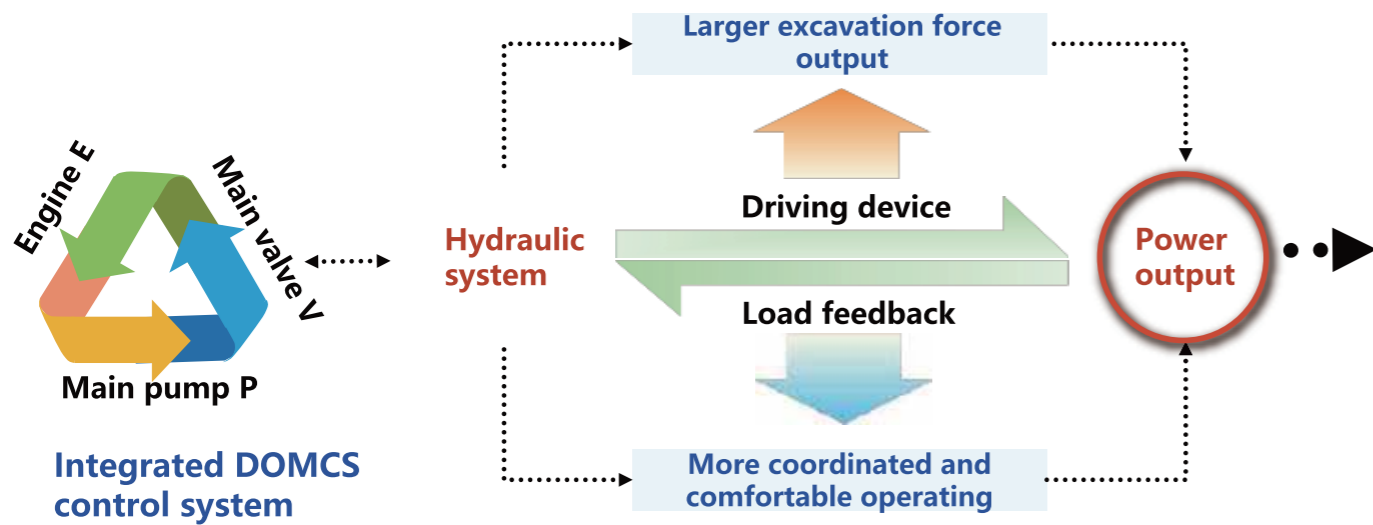
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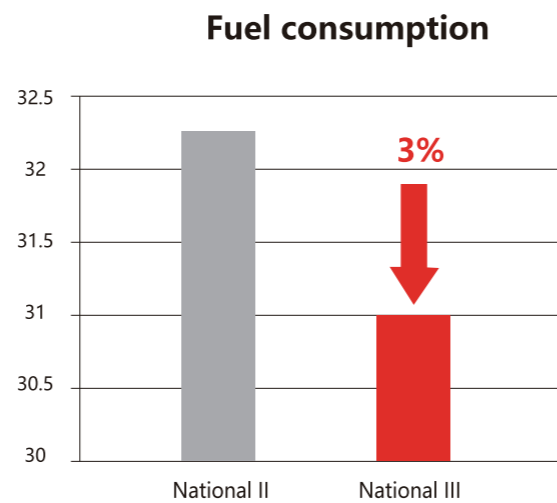
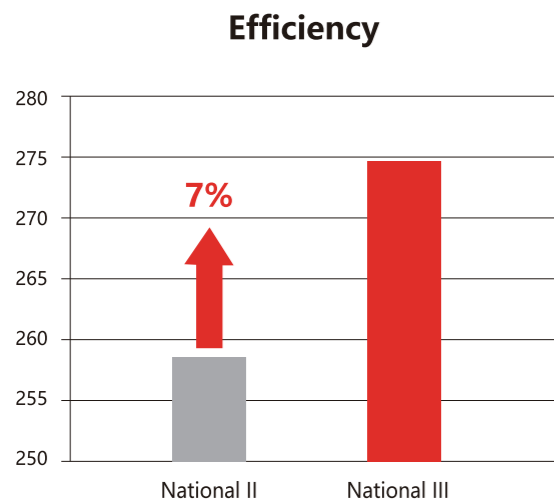
SUPERIOR PERFORMANCE

o High efficiency and low consumption

With "positive flow" system and "DOMCS" integrated engine-pump- valve control system developed independently by SANY, the efficiency and fuel consumption surpass competitor brands. The efficiency is 8% higher and the fuel consumption is 10% lower.

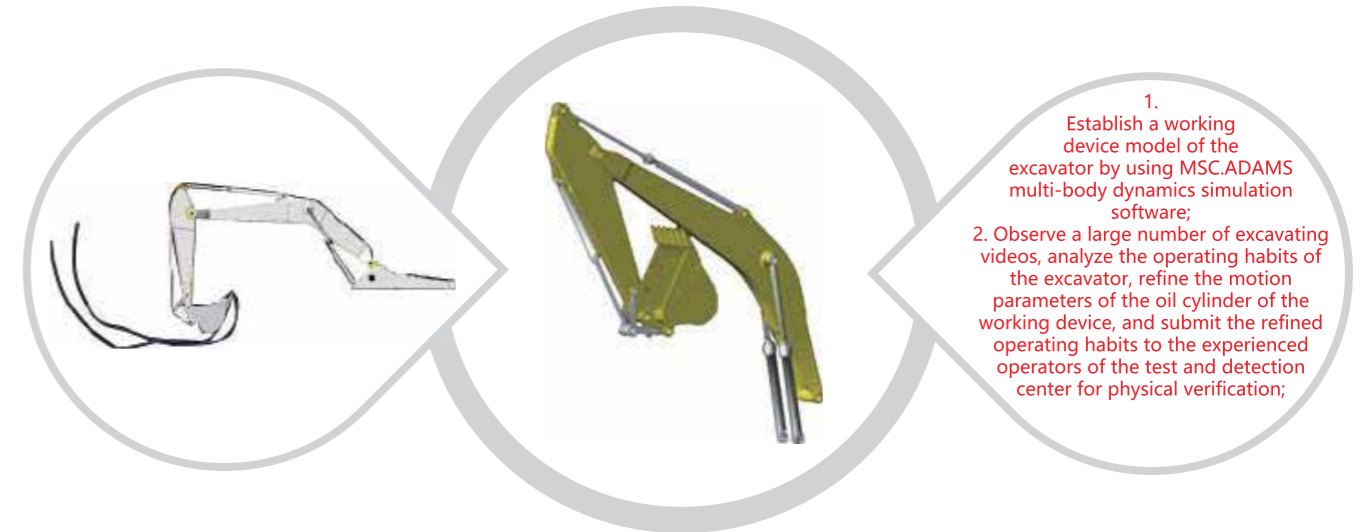


Under basic condition with the efficiency improved by over 7%, fuel consumption of SY305H with engine emission meeting national III standard reduces by over 3% as compared with SY305H with engine mission meeting national II standard



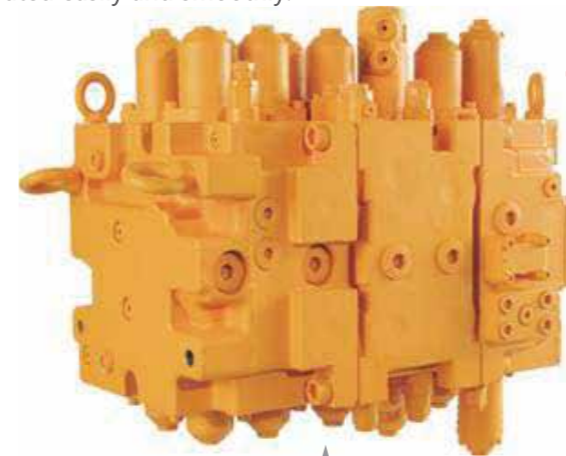
o Super large excavating force

By way of excavating process and atlas analysis of excavating force, the excavating force is given into full play, and the efficiency is improved by 10%.



o Smooth controllability

With special handle, optimized valve core structure of multi-way valve, regenerating channel and added intelligent interflow control etc. the pressure loss is reduced, operation coordination is improved and the equipment can be operated easily and smoothly.



The efficiency is improved by 5-7%

The diameter of the valve core is increased from 28mm for 15RB valve to 32mm for 32NA valve, increasing the opening area of the valve core. After the internal passage of the valve body is enlarged, the pressure drop at the center of the valve core is reduced by 10% at a flow rate of 300L/min, further reducing the loss.

High adaptability

By improving safety & cooling capacity, and utilizing efficient filtering system and "highly corrosion-resistant" coating, the adaptability of SY305KHL to environment, working conditions and oils is improved.

High corrosion-resistant coating
With new coating system, service life of the paint is improved **50%**

Standard working device connector
More than 20 special working devices such as crushing hammer and scarifier may be modified randomly **Over 20 kinds**

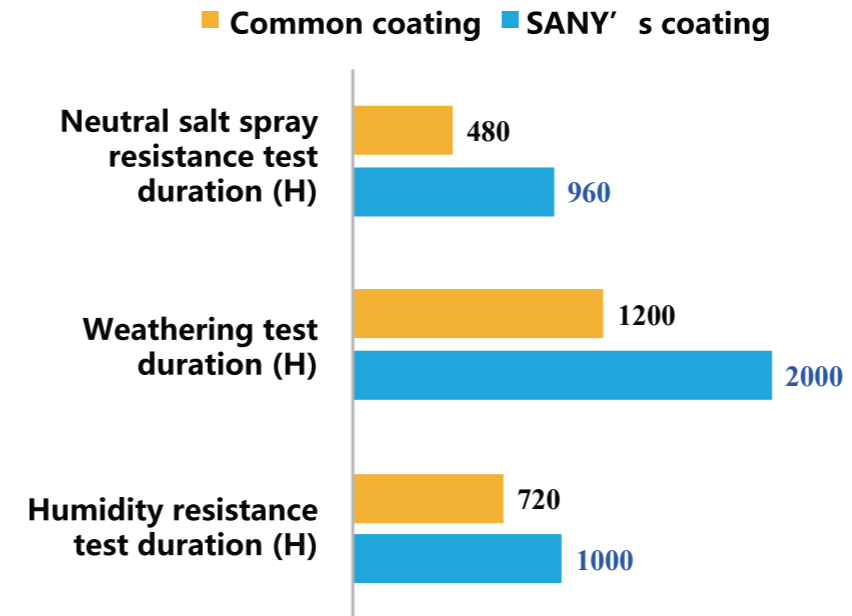
Large-size multi-stage filter system
In allusion to the problem of poor fuel quality in China, enable the machine to operate under severe mining conditions

With high-strength cab and protective screening etc., working safety is improved by

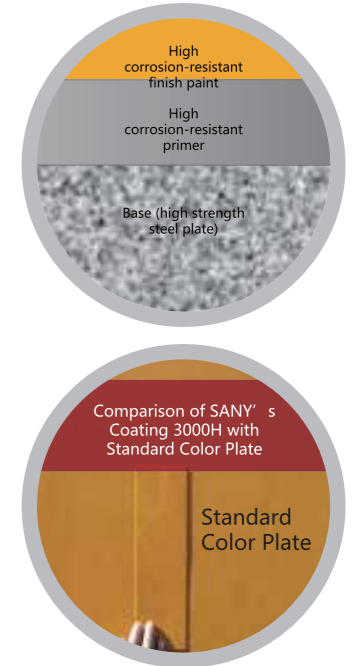
High corrosion coating

By cooperating with world known paint brands, aging life of the paint reaches the highest level in the industry. The adaptability is improved by 40%

Comparison of coating endurance test data

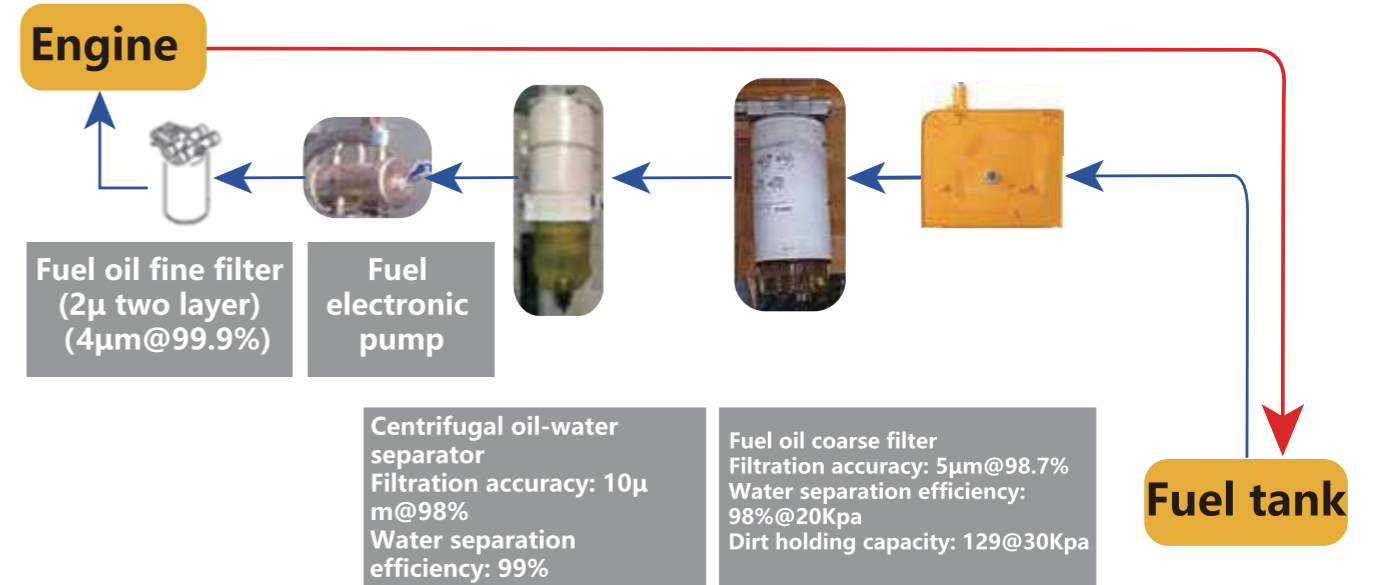


Coating distribution of SANY' s high corrosion-resistant



High-capacity Multi-stage Filtration System

The newly designed fuel oil filtration system adopts three-stage filtration to improve filtration accuracy, of which two stages have water separation function to improve water separation efficiency, increase ash content and widely adapt to various oil products in the Chinese market.

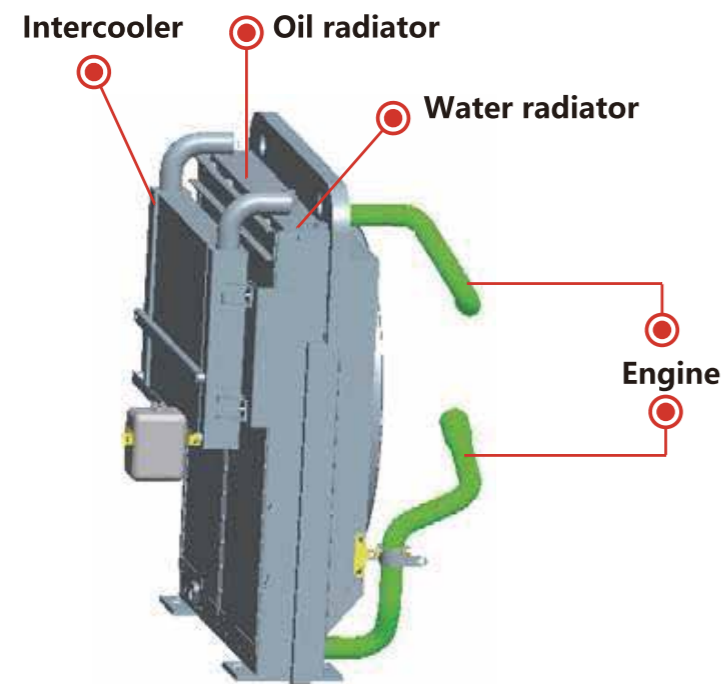


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o Independent oil radiator

Larger oil radiator system is introduced. System operating temperature is 8-10°C lower than common excavator. The adaptability to high temperature environment is improved significantly. Service life of rubber parts is improved by 30%.

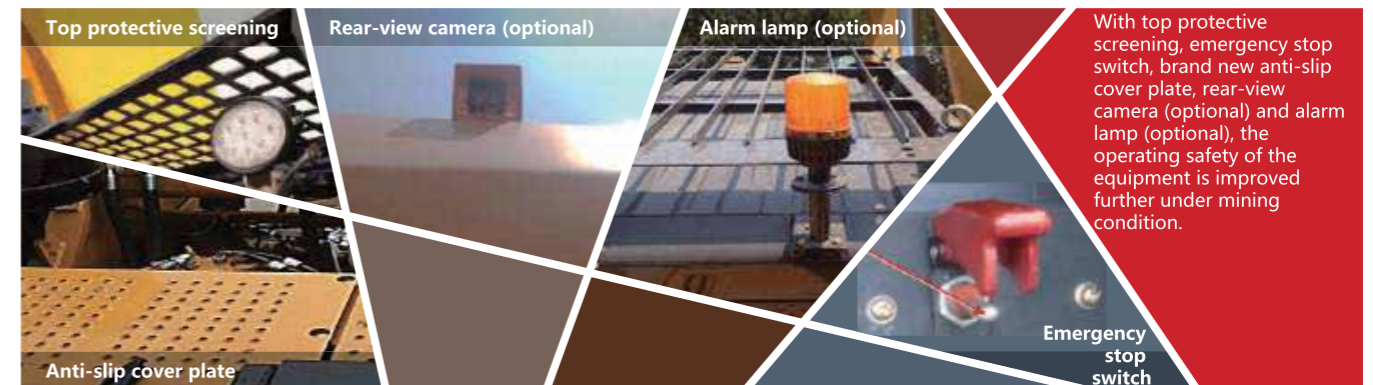


o Safe and comfortable

In allusion to mining conditions, the newly developed dust control & noise reduction technology for cab are used so that the safety is improved by 5 times as compared with general cab. The noise in the cab is reduced by 5kPa and is much better than that of other brands.



FOPS/ROPS cab is used. Through finite element modal analysis, steel structure and sealing performance of the cab are optimized; its strength is 5 times of general cab, the safety performance is extremely high and meanwhile the cab noise is reduced by 3-5dB, which makes the operation more comfortable.



Super long service life

Through the accumulation over 15 years, service life of SY305HKL exceeds 15,000h under mining conditions, and surpasses competitor brands with the help of initiative "three-dimensional" design test system for large-scale excavator.

Five major structural members

As compared with the product of previous generation, the service life of key structural members like boom, bucket rod, platform and undercarriage etc. is doubled

Hydraulic system

Delivery cleanliness of hydraulic system reaches NAS7 and is not only higher than competitor brands but also higher than industrial standard

Core parts

Core parts like main pump, main valve, oil cylinder and retarder etc. guarantee super long life



Key structural members

With most advanced international methods including optimization design of structural members, stress test, research of welds and plates, endurance test, 100% UT detection for key components and fatigue test for two axles, the service life of key structural members is improved comprehensively.



The boom adopts box-type structure with higher strength and is made of high-strength steel plates through advanced welding and molding process. The service life under mining conditions is **four times** of common boom.

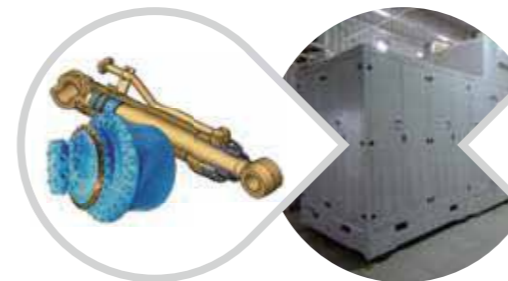


Bucket rod adopts bottom plate reinforcing bars and forging front support etc. As compared with competitor brands, the stress on main loading point is **30% lower**, and the service life is **30% higher** under mining conditions.

In allusion to the positions with concentrated stress such as oil cylinder connections and boom root etc., special welding process and protection structure are used. The stress on loading point is **20% lower** than the competitor.

Core parts

Relying on the only endurance test system for excavator parts in China, and through joint research with world famous research institutions, the research on service life of the parts is carried out for improving the service life of core parts comprehensively. The service life of components including pump, valve, oil cylinder, retarder, fuel tank and cab etc. is doubled.



Hydraulic components like oil cylinder and retarder etc. must be subjected to impulse test according to the requirements higher than industrial standard. They can be put into operation only after reaching the requirements. Through this process, the service life of the components is **30% higher** than that of general brands.

Oil cylinder impulse test bed

Pump- valve test bed



With pump-valve endurance test bed, the service life of main pump and main valve are tested and analyzed. In combination with research achievements of long-life parts of the customer, the service life of the pumps and the valves is improved by **1 time**.



With vibration test bench and test bed, fuel tank and the cab has been tested by over hundreds of thousands of times on aspect of the vibration to improve the service life of the component by **50%**.

Vibration test bench and test bed

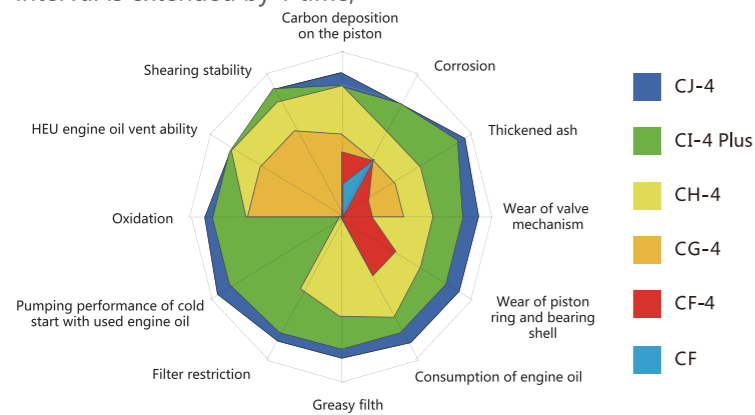
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Super low maintenance cost

Super low maintenance cost

SANY is developing long-life engine oil, diesel oil filter and hydraulic oil jointly with professional manufacturers. Through two years' market verification, maintenance cost of the product is reduced by 50%, and maintenance interval is extended by 1 time;



Hydraulic oil: Service life of hydraulic oil is 4,000h and is extended by 1 time as compared with the competitor;
 Engine oil: Replacement interval is 500h and is extended by 1 time as compared with the competitor;
 Fuel filter element and engine oil filter element: Maintenance interval is extended from 250h to 500h;
 Hydraulic oil suction filter element: Maintenance interval is extended from 1,000H to 2,000H;

Super easy management

Four-dimensional construction management system developed by SANY independently is equipped to improve maintenance convenience of maintainable parts, and make equipment management easier and simpler.

Pilot transition block is moved from main valve to the platform below air filter for the convenience of maintenance.

Engine oil drain pipe is added to prevent engine oil splashing in the process of maintenance.

Tail plate of the platform is straightened and storage battery is placed in front of the radiator for the convenience of service and maintenance.

EVI V2.20 "EEVIA" Customer management system

Maintenance convenience

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 easier!



Air filter maintenance space



Replace air filter element

Easy to replace air filter element



Maintenance convenience



Replace diesel oil filter element

Easy to replace diesel oil filter element



Inspect the situation of engine oil



Pump oil by one push after engine goes off abnormally

Easy to inspect engine oil; pump oil by one push after engine goes off abnormally



Engine compartment



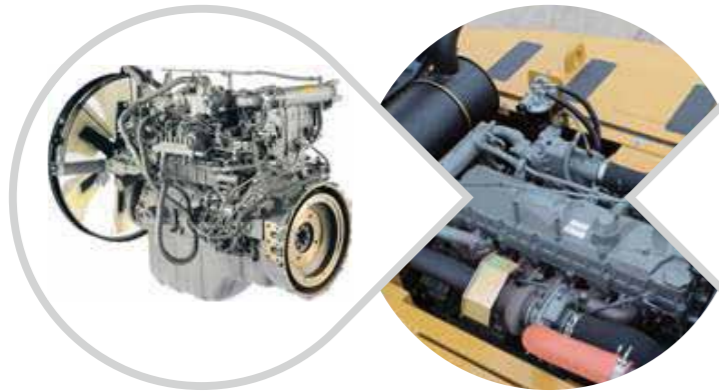
Water drain valve and check valve of fuel tank

Engine compartment volume is increased by 20%, and water drain valve and diesel oil check valve are added

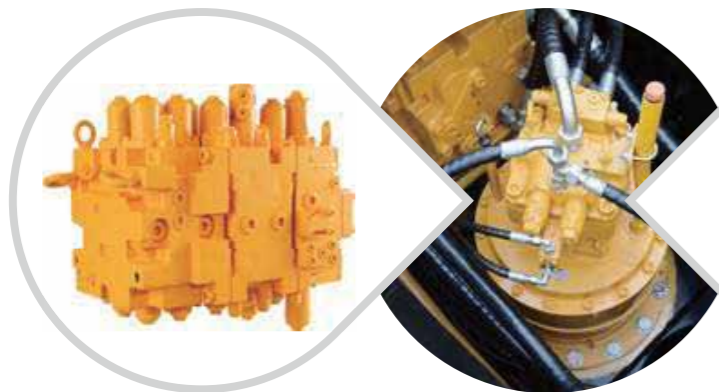
PRODUCT INTRODUCTION

○ Main configuration

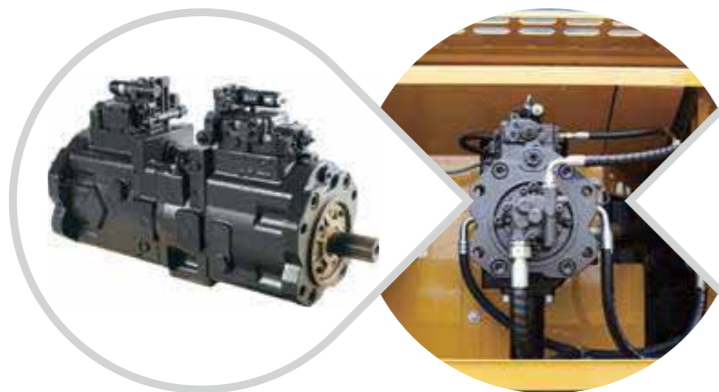
Core components like pumps, valves and engine etc. are designed jointly with proprietary intellectual property rights, and are manufactured by world famous manufacturers to ensure high quality and satisfy professional demands of SANY' s customers



6HK1 engine meets emission standard of national III and the displacement and the torque are generally 20% higher than competitor brands. It outputs high power and helps the customer to solve the operating difficulties of heavy-duty working condition.



32NA main valve is developed and designed according to the needs of the customer, and has outstanding advantages including "high reliability, low pressure loss, high flow distribution efficiency and smooth compound control action" . It could handle heavy-duty operation conditions for the customer



K5V160 main pump which is specially customized and specially calibrated for SANY. As compared with traditional pump, power output is improved by 10%, the arrangement is more compact and the maintenance is more

○ Construction case



Worksite: Sichuan Province
Working condition: Stonework
Operating type: Dumping - loading



Worksite: Guizhou Working condition: Stonework (decomposed rock)
Operating type: excavation- loading
Work undertaken by SY305: Stone stripping, and loading

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o Technical specifications

Specification	SY305H	SY335H	Main performance	SY305H	SY335H
Total weight	31500kg	34300kg	Traveling speed (high/low)	5.2/3.4(km/h)	
Standard bucket capacity	1.6m ³	1.5m ³	Slewing speed	9.5rpm	
Engine			Gradeability	70%	
Model	GH-6HK1		Ground pressure	62kPa	59.6kPa
Type	In-line direct injection, 6-cylinder, 4-stroke, turbocharged, inter-cooling and water-cooled		Excavation force of bucket	220kN	
Rated power	212kW/2000rpm	190.5kW/2000rpm	Excavation force of bucket rod	170KN	
Maximum torque	1080N·m/1500rpm				
Displacement	7.79L				

Capacity of oil and coolant	SY305H	SY335H	Traveling section	SY305H	SY335H
Fuel tank	540L		Number of crawler plates	47	49
Hydraulic oil	380L		Carrier wheel on each side	2	
Coolant	35L		Thrust wheel on each side	8	9
Final drive	11L		Standard crawler	600mm	
Engine oil	2×4.0L				

o Lifting capacity

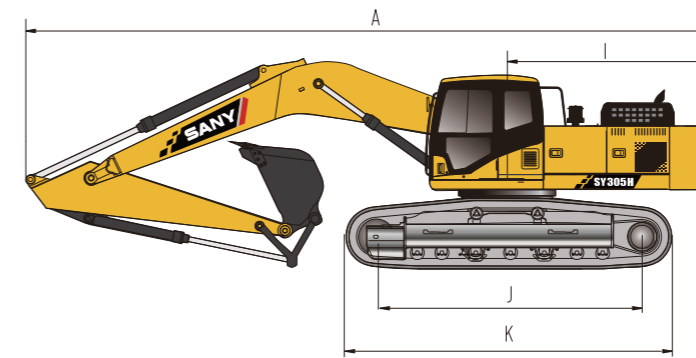
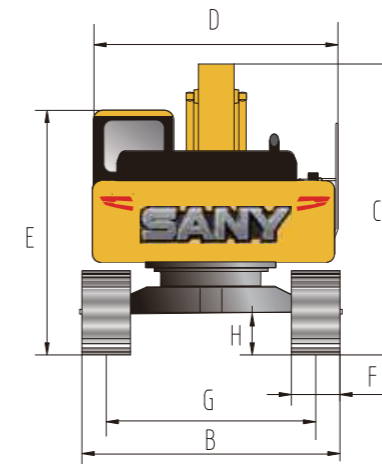
SY305H		Rated lifting capacity under first working condition		Rated lifting capacity under second working condition		Removed bucket weight: 770kg		Unit: kg							
Length of bucket rod	B	A					Maximum point position								
		3.0m	4.5m	6.0m	7.5m	9.0m	mm								
Bucket rod 3200mm Counter weight 1278kg	7.5m	Kg					*6142.2	*6142.2			*5422.9	*5422.9	7629.5		
	6.0m	Kg					*6842.5	*6842.5			*5300.9	*5300.9	8519.7		
	4.5m	Kg			*8726.3	*8726.3	*7317.9	*7317.9	*5995.7	*5995.7	*5407.4	*5407.4	9074.9		
	3.0m	Kg		*13843.1	*13843.1	*9919.8	*9919.8	*7913.6	*7913.6	*6689.8	*6689.8	*5715.7	*5715.7	9356	
	1.5m	Kg		*15367.1	*15367.1	*10847.2	*10847.2	*8405.8	*8405.8	*6853.4	*6853.4	*6259.7	*6259.7	9388.1	
	0	Kg		*15451.2	*15451.2	*11188.6	*11188.6	*8595.4	*8595.4	*6768.5	*6768.5	*6560.1	*6560.1	9173.8	
	-1.5m	Kg	*14931.6	*14931.6	*14523.7	*14523.7	*10847.7	*10847.7	*8291.1	*8291.1			*6574.1	*6574.1	8694.6
	-3.0m	Kg	*16499.3	*16499.3	*12719.6	*12719.6	*9674.4	*9674.4	*7166.8	*7166.8			*6445.4	*6445.4	7901.4
-4.5m	Kg	*12100.6	*12100.6	*9680.7	*9680.7	*7201.2	*7201.2					*5891.4	*5891.4	6680.8	

* Indicates that it is limited by the capacity of the hydraulic system rather than the tipping load.

The lifting capacity is calculated according to ISO10567:2007 standard.

The lifting load shall not exceed 75% of the tipping load of the excavator and 87% of the hydraulic lifting load (marked with *).

o Overall dimensions (mm)



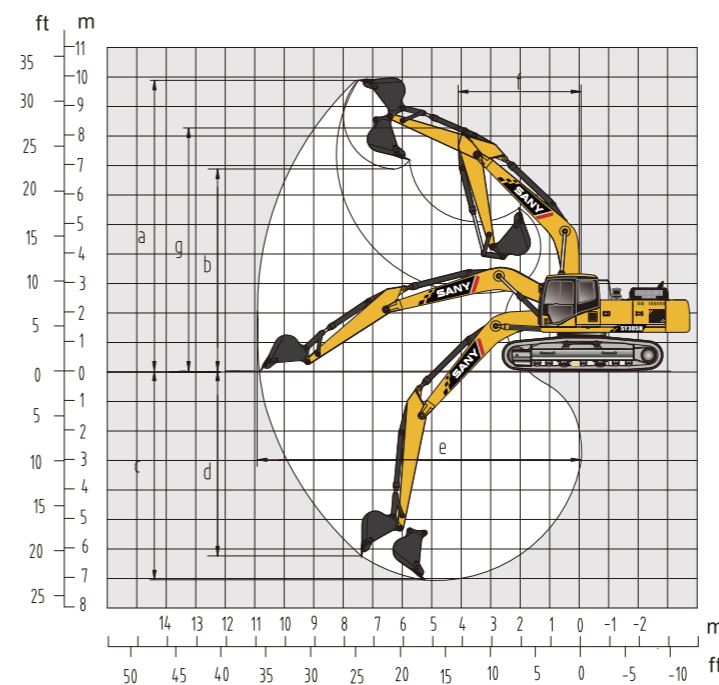
Overall dimensions: mm SY305H SY335H

A. Overall length (in transportation state)	10667	11100
B. Overall width	3190	3190
C. Overall height (in transportation state)	3470	3600
D. Upper width	3175	3145
E. Overall height (cab top)	3280	3085
F. Width of standard crawler plate	600	600
G. Track gauge	2590	2590
H. Minimum ground clearance	550	550
I. Slewing radius of tail	3315	3300
J. Ground contact length of crawler	3916	4140
K. Crawler length	4840	5080

Performance parameters SY305H SY335H

Total weight, kg	31500	34300
Bucket capacity m ³	1.6	1.5
Rated power, kW/rpm	212/2000	190.5/2000
Traveling speed (high/low), km/h	5.2/3.4	5.2/3.4
Slewing speed rpm	9.5	9.5
Gradeability	70%	70%
Ground pressure, kPa	62	59.6
Excavation force of bucket, kN	220	220
Excavation force of bucket rod, kN	170	170

o Operating range (mm)



Operating range: mm SY305H SY335H

a Maximum excavation height	10497	10100
b Maximum unloading height	7359	7025
c Maximum excavation depth	6815	7410
d Maximum excavation depth with vertical boom	6170	6170
e Maximum excavation distance	10870	11050
f Maximum slewing radius	4000	4450
g Maximum height at maximum slewing radius	8405	8500

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○ Standard configuration

Engine

- 24V/5.0kW starter motor
- 50A alternator
- Air prefilter
- Dry type dual-element air filter
- Cylinder-type engine oil filter
- Cylinder-type fuel oil filter
- Engine oil cooler
- Radiator with protective screen
- Radiator auxiliary water tank
- Fan shroud
- Isolated mounted engine
- Automatic idling system

Hydraulic system

- Operating mode selector switch
- Control valve with main overflow valve
- Spare oil port of control valve
- Oil suction filter
- Return oil filter
- Pilot filter

Slewing platform of superstructure

- Hydraulic oil level gauge
- Tool kit
- Slewing parking brake
- Rearview mirror (right)

Cab

- Sound-proof steel-structure cab
- Reinforced light-color glass window
- Silicone oil rubber damper
- Openable top/front wall upper window and door window
- Emergency exit on rear window
- Wiper with washer (mute)
- Adjustable tilting seat with adjustable armrest
- AM-FM radio with digital clock (as a gift)
- Foot rest and floor mat
- Loudspeaker and rearview mirror
- Seat belt and fire extinguisher (as a gift)
- Cup holder and compartment lamp
- Ash tray and escape hammer
- Storage box and sundries bag
- Pilot controlled cut-off lever
- Fully-automatic air conditioner
- Sun shade
- Front protective screen

Air conditioning system

- Dual-purpose air conditioner (imported high-quality)
- A/C control panel
- Fresh air inlet system (fresh air exchanging function)

Instruments of monitoring system

- Hour meter and fuel tank oil level gauge
- Engine coolant temperature

Traveling body of undercarriage

- Traveling parking brake
- Traveling motor guard plate
- H-shaped crawler guide mechanism
- Hydraulic tensioning device of crawlers
- Bolted driving wheel
- Thrust wheel and carrier wheel
- Reinforced caterpillar track with pin shaft seal
- 600mm triple track shoes
- Reinforced side pedal
- Bottom cover plate

Front-end working device

- Flange pin
- Bucket clearance adjuster
- Welded connecting rod
- Central lubricating system
- All bucket pins are equipped with dustproof seal ring
- Reinforced all-welded box-type boom

Others

- Standard storage battery
- Lockable engine hood
- Lockable fuel filler cap
- Anti-slip sticker for armrest and sidewalk
- Traveling direction sign on traveling carriage
- Manual grease gun

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