

## ○ 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 fine filter
- Engine oil coarse filter
- Radiator with protective screening
- Radiator auxiliary water tank
- Fan aerofoil
- 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

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

### Alarm lamp

- Engine oil pressure insufficient
- Engine coolant temperature too high
- Fuel oil volume insufficient
- Failure code alarm

\* indicates optional configuration

### 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
- Ashtray and escape hammer
- Storage box and sundries bag
- Pilot controlled cut-off lever
- Fully-automatic air conditioner
- Sun shade

### Air conditioning system

- Dual-purpose air conditioner
- 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 track guide mechanism
- Hydraulic tensioning device of tracks
- Bolted driving wheel
- Thrust wheel and carrier wheel
- Reinforced chain trail with pin 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
- Reinforced all-welded box-type arm

### 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



- Rated power  
118kW/2000rpm
- Total weight  
21900kg
- Bucket capacity  
0.93m<sup>3</sup>

# SY215 Hydraulic excavator

Brand new change

QUALITY CHANGES THE WORLD  
Lead by Innovation Splendid SANY



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Note

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# SY215

## Classic Succession Value leader

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



### Selling Points

SY215 is a new-generation grade-21 super excavator for earthwork produced by SANY Heavy Machinery. It is designed for earthwork conditions and takes stonework into consideration. It targets to improve investment return of the customer. As compared with the competitor, it features "super excellent performance, super strong adaptability, super long life and super low maintenance cost" etc.



Super excellent  
performance



Super strong  
adaptability



Super long life

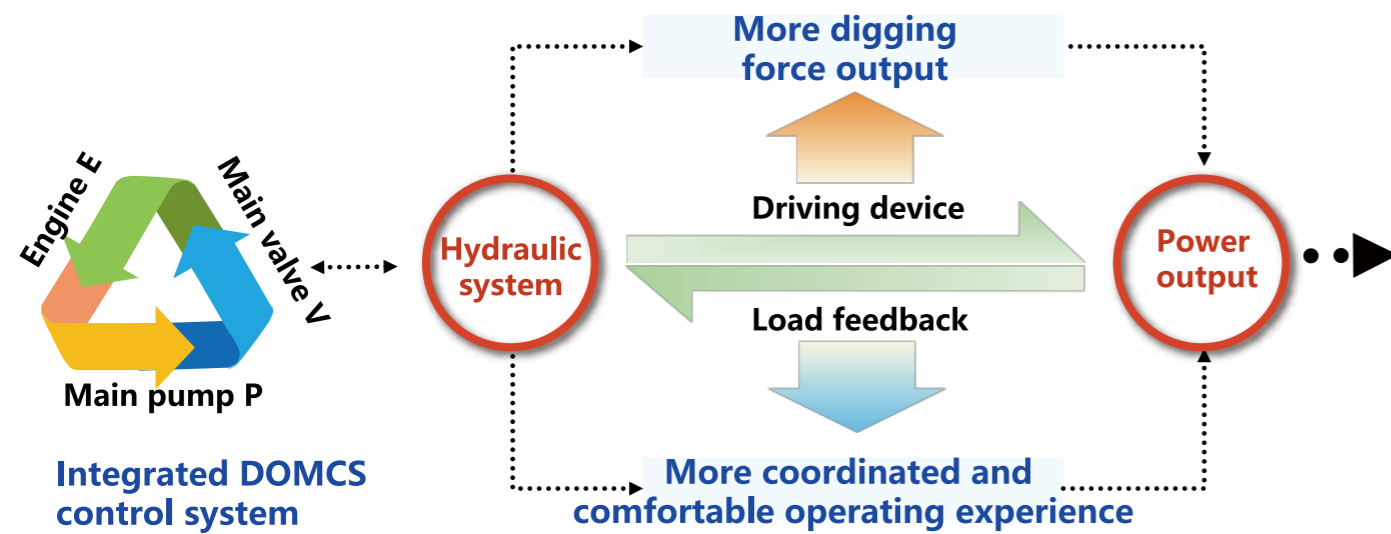


Super low  
maintenance  
cost

# Super excellent performance

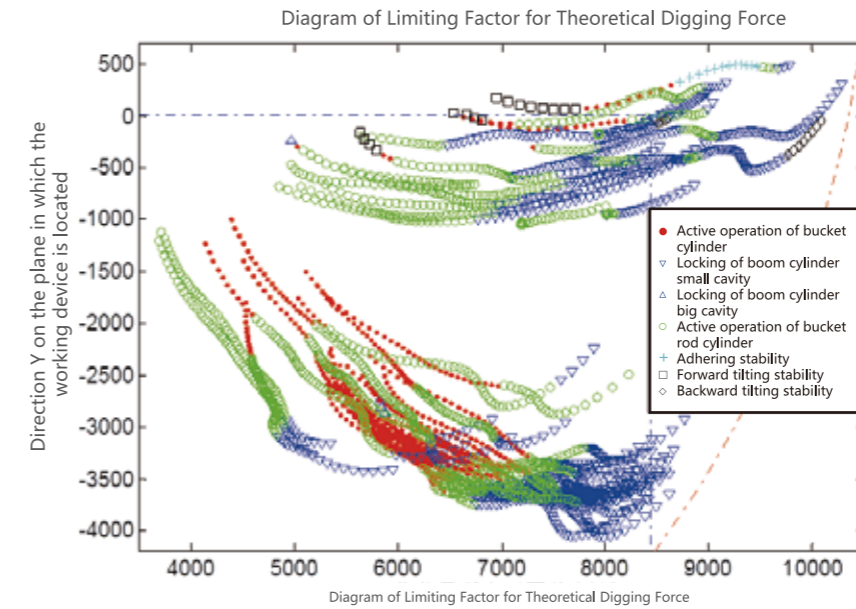
## o Efficient and low consumption

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.



## o Super high digging force

By way of regulating power in real time in digging process and atlas analysis of digging force under full working conditions, the digging force is given into full play, and the efficiency is improved by 25%.



Green curve in the diagram indicates that the digging efficiency is given into full play and blue curve indicates other digging efficiency. As shown in the diagram, the region in which the digging force of SY215 is given into full play reaches 90% and others only reach 50%.

## o Smooth controllability

With special handle, optimized valve core structure, 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.





# Super adaptability

By improving safety and heat dissipation capability, and using efficient filter system and "high corrosion-resistant" coating, the adaptability of SY215C to the environment, working condition and oils is improved.

## High corrosion-resistant coating

With new coating system, service life of the paint is improved by 50%

50%

## New-type engine system

High pressure common rail electronic controlled fuel injection system, water-cooled EGR and 4-valve structure

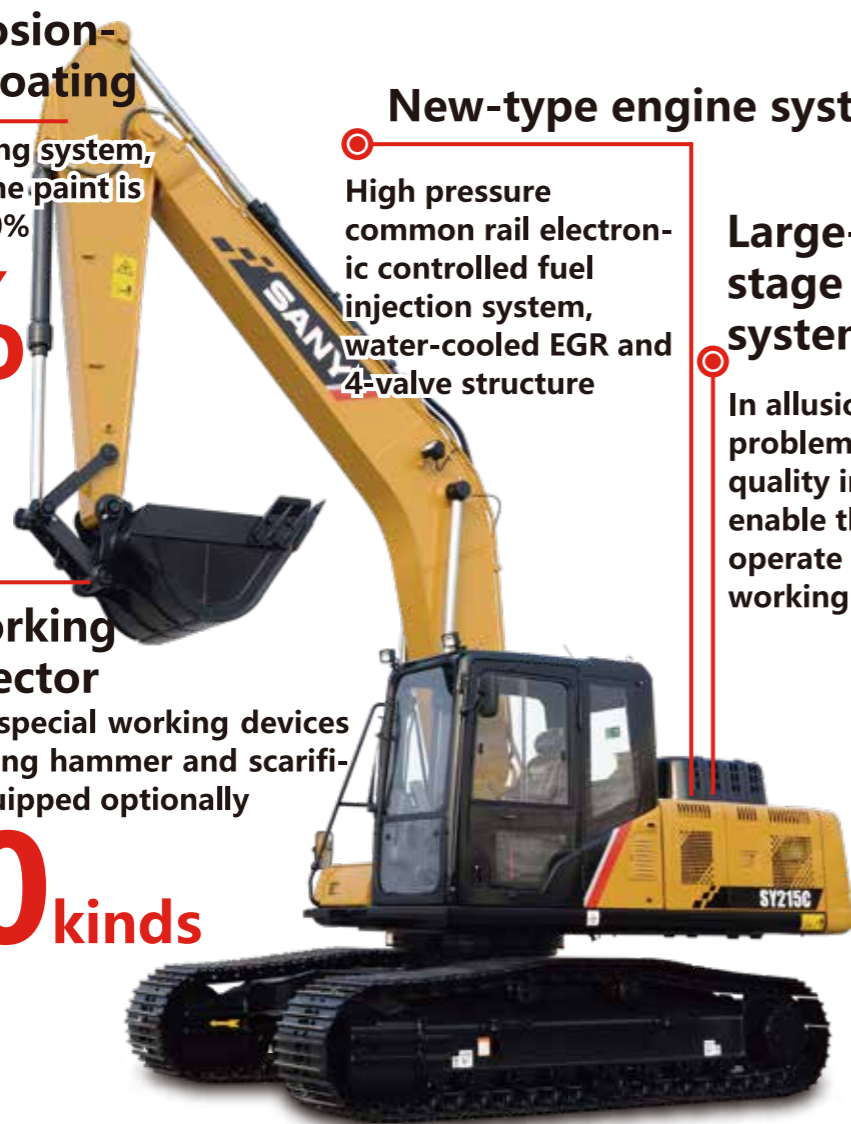
## Large-size multi-stage filter system

In allusion to the problem of poor fuel quality in China, enable the machine to operate under severe working conditions

## Standard working device connector

Over 20 kinds of special working devices including quartering hammer and scarifier etc. may be equipped optionally

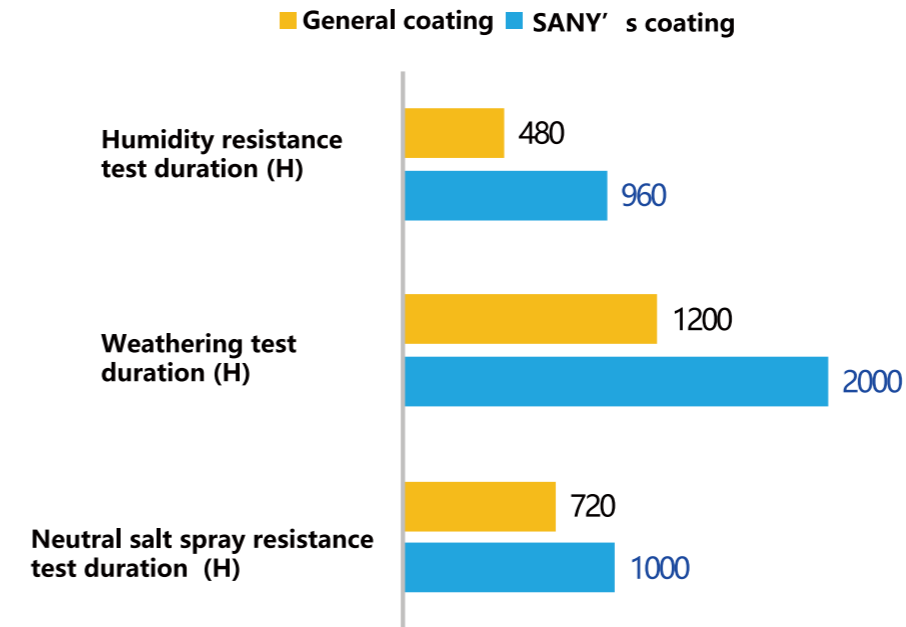
Over 20 kinds



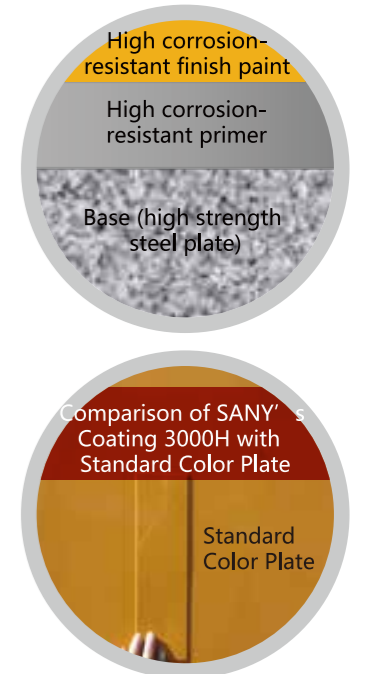
## High corrosion-resistant coating

By cooperating with world known paint brands, aging life of the paint reaches the level of competitor brands and is 40% higher than that of general excavator

### Comparison of coating endurance test data

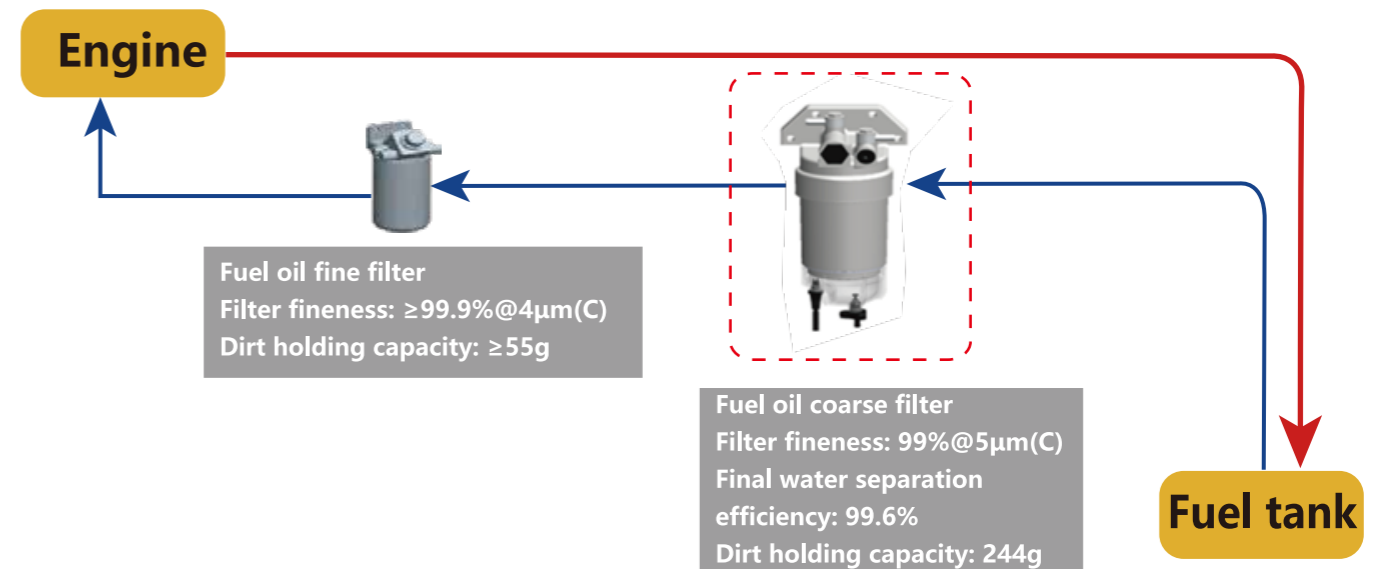


Coating distribution of SANY's high corrosion-resistant paint



## Large-capacity multi-stage filter system

Domestically initiative self-circulation "large-capacity multi-stage filter system" is launched in allusion various oils and meets emission requirements of national III standard. Top-level protection

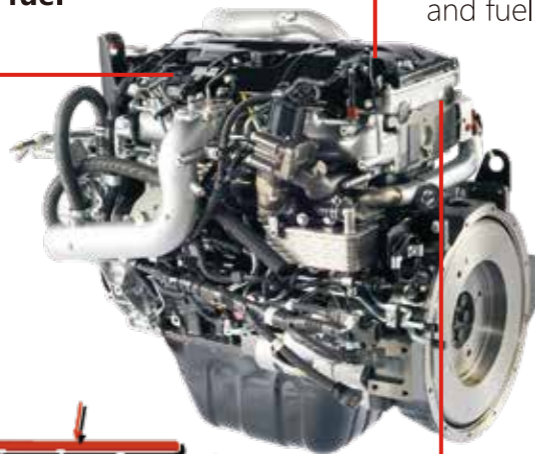


## ○ New-type engine system

With new-type engine system, the efficiency improves by over 8% and fuel consumption declines by over 10%.

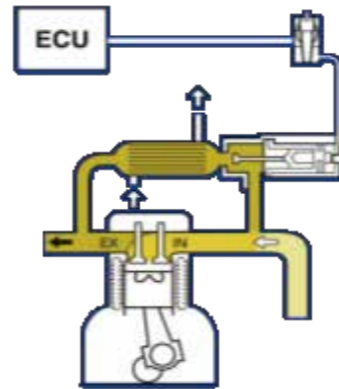
### High pressure common rail electronic controlled fuel injection system

With precise control, combustion efficiency and power are improved



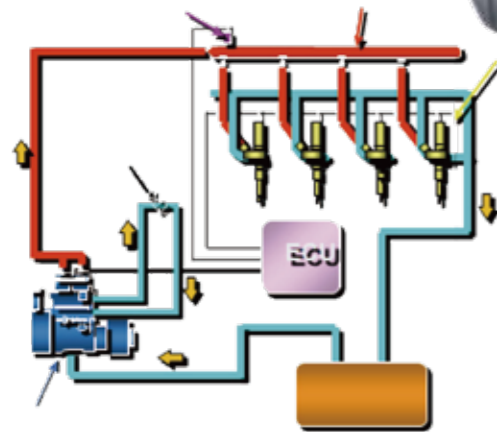
### Water-cooled EGR

Reduce exhaust emission and fuel consumption



### 4-valve structure

Increase air cylinder suction volume to improve combustion efficiency and realize high power



2 valves



4 valves

## ○ The machine serves several purposes

In allusion to individual demands of the customer for this tonnage, this product may work with more than 20 working devices, and various modified products to improve the earning power of the customer

### Configuration Table of Working Devices of SY215C Excavator

Model	SY215C			Remarks	
Boom (m)	5.7	8.5			
Bucket rod (m)	2.9	2.4	6.02		
Bucket m <sup>3</sup>	0.35	-	-	■	Maximum material density (kg/m <sup>3</sup> ): ● ≤2100; ■ ≤1800; ◆ ≤1500; ▲ ≤1200 - Unavailable
	0.93	●	-	-	
	0.9	■	-	-	
	1	■	-	-	
	1.2	-	■	-	

### Example of special working device of SY215



**SY215C**  
quartering hammer



**SY215C**  
extension boom



# Super long service life

Through the accumulation over 15 years, design life of SY215C exceeds 15,000h and surpasses competitor brands with the help of initiative "three-dimensional" design test system for large-scale excavator.

## Five major structural members

As compared 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 is four times of general 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.

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.

Dedicated heavy-duty four-wheel & one-belt is used, and the service life is doubled.

## 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.



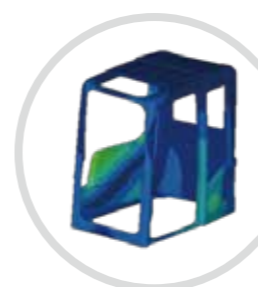
Hydraulic components like oil cylinder and retarder etc. must be subjected to impulse test according to the requirements higher than industrial standard. They can be put into operation only after reaching the requirements. Through this process, the service life of the components is 30% higher than that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



# 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; as compared with competitor brands, the maintenance cost is reduced by 40%.

## ○ 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.



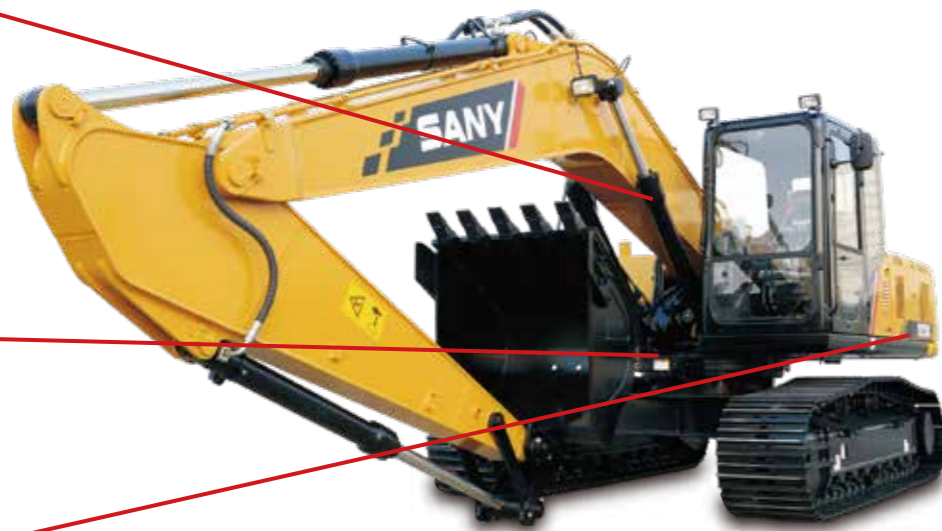
Pilot transition block is moved from main valve to the platform below air filter for the convenience of maintenance.



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.



## ○ 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!



Replace air filter element

Easy to replace air filter element



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 increases by 20%, and water drain valve and diesel oil check valve are added



# Product Introduction

## o 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

### Engine



Engine meets emission standard and is equipped with high pressure common rail electronic injection system. It outputs high power and helps the customer to solve the operating difficulties of heavy-duty working condition.

### Main valve



It 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.

### Main pump



Customized parallel pump for SY215; as compared with traditional tandem pumps, the power output increases by 10%, the arrangement structure is more compact and the maintenance becomes more convenient.

## o Construction cases



SANY in Australia



SANY in ceramics mine of Hunan Province



SANY in national railway station of Thailand



## ○ Technical specifications

Specifications		Main performance	
Total weight	21900kg	Traveling speed (high/low)	5.4/3.3(km/h)
		Gradeability	70%(35°)
<b>Engine</b>		Ground pressure	47.4/45.9kPa
Model	4M50	Digging force of bucket	138kN/148kN (turbocharged in two times)
Type	4-cylinder, 4-stroke, water-cooled, electronic injection, common rail, with turbocharger	Digging force of arm	103kN/107kN (turbocharged in two times)
Rated power	118kW/2000rpm		
Maximum torque	580N.m/1600rpm		
Displacement	4.9L		

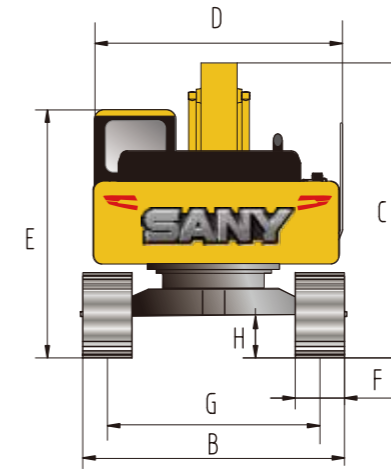
Capacity of oil and coolant		Traveling section	
Fuel tank	340L	Number of track shoes	47
Hydraulic oil	239L	Carrier wheel on each side	2
Coolant	29L	Thrust wheel on each side	8
Final drive	2×5.0L	Standard track	600mm
Engine oil	22L		

## ○ Table of Lifting Capacity

SY215C		Rated lifting capacity under first working condition		Rated lifting capacity under second working condition		Removed bucket weight: 770kg		Unit: kg				
Conditions	B	A						Maximum point position				
		3.0m	4.5m	6.0m	7.5m	9.0m	mm					
Bucket rod 2919mm Boom 5700mm Counter weight 5700kg	7.5m			4439.18	4439.18			3142.46	3142.46	6275		
	6.0m			5210.52	4631.08			3143.33	3143.33	7360		
	4.5m			5905.03	4466.82	4636.06	3133.94	3099.06	2783.4	8025		
	3.0m		8686.56	6388.9	6380.68	4225.13	4523.84	3031	3182.79	2540.63	8370	
	1.5m			9504.66	5894.4	6112.18	3985.7	4396.98	2914.62	3381.35	2450.68	8435
	0	6663.3	6663.3	9129.42	5577.9	5922.25	3816.32	4296.37	2822.33	3717.27	2494.18	8230
	-1.5m	10709	10353.9	9085.85	5541.2	5840.95	3743.83	4275.64	2803.31	4110.75	2703.05	7730
-3.0m	16361	10539.8	9156.21	5600.5	5882.45	3780.84			4996.22	3295.6	6870	
-4.5m	14692	10913	9415.98	5819.6					6959.28	4477.58	5485	

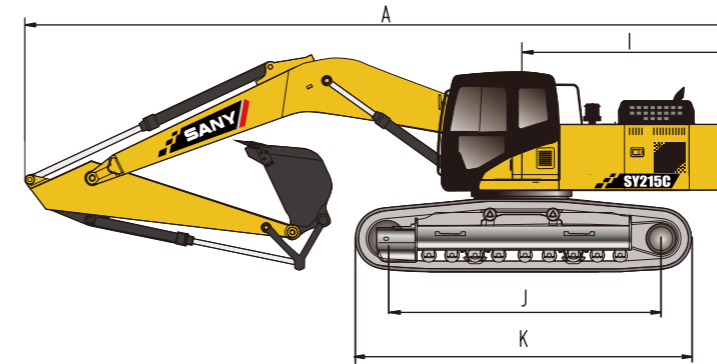
- The lifting capacity is calculated in accordance with ISO10560 and SAEJ1097, where limit coefficient of hydraulic system is 0.87 and tilting limit coefficient is 0.75;
- The item with the mark \* is limited by hydraulic pressure and the item without the mark "\*" is limited by stability;
- Lifting point is front support hole of bucket rod (excluding the weight of bucket). It is necessary to deduct from the above lifting capacity if additional accessory is installed such as bucket etc.
- Lifting capacity of SY225C is improved by 1.04 times on the basis of SY215C.

## ○ Overall dimensions (mm)



### Overall dimensions: mm SY215C

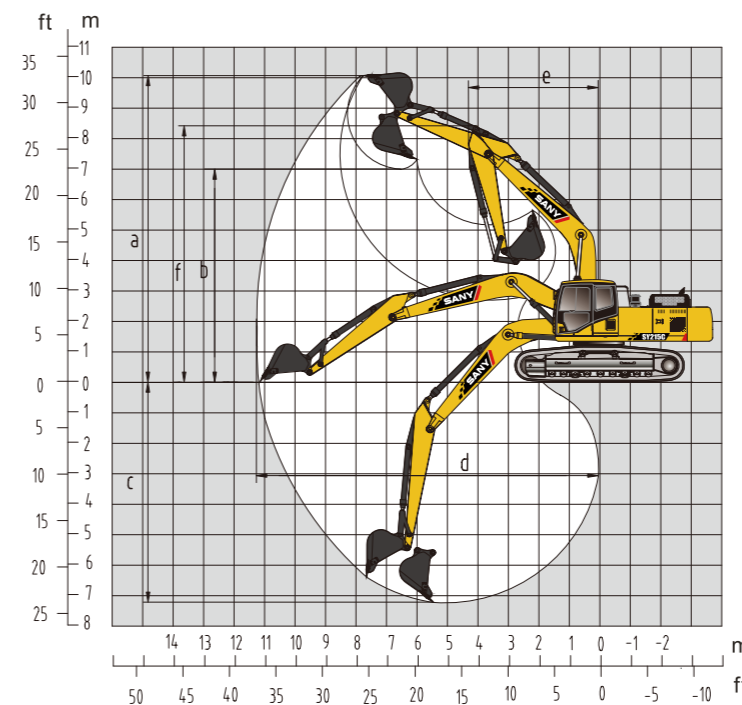
A. Overall length (in transportation state)	9680
B. Overall width	2980
C. Overall height (in transportation state)	3440
D. Upper width	2875
E. Overall height (cab top)	3075
F. Width of standard track shoe	600
G. Track gauge	2380
H. Minimum ground clearance	440
I. Slewing radius of tail	2900
J. Ground contact length of track	3445
K. Track shoe length	4250



### Performance Parameters SY215C

Total weight, kg	21900
Bucket capacity, m <sup>3</sup>	0.93
Rated power, kW/rpm	118/2000
Traveling speed (high/low), km/h	5.4/3.3
Slewing speed, rpm	11
Gradeability	70%/35°
Ground pressure, kPa	47.4
Digging force of bucket, kN	138/148
Digging force of bucket rod, kN	103/107

## ○ Operating range (mm)



### Operating range: mm SY215C

a. Maximum digging height	9600
b. Maximum unloading height	6730
c. Maximum digging depth	6600
d. Maximum digging distance	10280
e. Minimum slewing radius	3730
f. Maximum height at minimum slewing radius	7680





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