

## ○ 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
- Auxiliary radiator water tank
- Fan deflector
- Isolated mounted engine
- Automatic idling system

### Hydraulic system

- Operating mode selector switch
- Control valve with main overflow valve
- Control valve with spare oil port
- Oil suction filter
- Oil return filter
- Pilot filter

### Upper slewing platform

- Fuel oil level sensor
- Hydraulic oil level gauge
- Toolbox
- Slewing parking brake
- Rearview mirror (right)

### Alarm lamp

- Insufficient engine oil pressure
- Engine coolant temperature too high
- Insufficient fuel volume
- Failure code alarm

### 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)
- Suspension seats with adjustable armrest and adjustable tilt
- 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 emergency hammer
- Storage box and sundries bag
- Pilot control cut-off lever
- Fully-automatic A/C
- Sun shade

### Air conditioning system

- Dual-purpose air conditioner (imported high-quality)
- Integrated air conditioning control panel
- Fresh air inlet system (fresh air exchanging function)

### Others

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

### Traveling body of undercarriage

- Traveling parking brake
- Traveling motor guard plate
- H-shaped track guide mechanism
- Hydraulic tensioning device of track
- Bolted driving wheel
- Carrier roller and thrust wheel
- Reinforced chain track with pin shaft seal
- 600mm triple track shoe
- Reinforced side pedal
- Bottom cover plate

### Front-end working device

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

### Monitoring system instruments

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



# SY215CACE

Brand new  
Innovation and upgrading,  
leading the future

- Rated power  
118kW/2000rpm
- Overall weight  
21900kg
- Bucket capacity  
1.1m<sup>3</sup>



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Note

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# SY215CACE

## The world's first hydraulic excavator with adjustable boom priority for slewing

At present, when performing boom lifting + slewing operation, other brands of excavators can only ensure that when the manual pilot valve is fully opened and the boom is lifted in place, its slewing angle is 180°. If loading at 90° or 45°, the operator should control the slewing speed, which increases the workload of the operator.

The boom of excavator using ACE system adopts a new algorithm and control strategy to give priority to boom, which can be adjusted according to needs. The boom is lifted by 3.5m, and the slewing can be adjusted from 45° to 180° only by pulling the slewing valve to the bottom, without operator's control.



### SELLING POINTS

#### Energy-saving, environment-friendly:

1. Compared with other similar products, the fuel saving rate can reach 7-15% at the same efficiency
2. National III emission engine

#### Comfort:

1. Low noise, best in the industry
2. Large power AC
3. Freely adjustable suspension seat
4. 7-inch color screen

#### Maintainability:

1. Maintenance • Within Easy Reach
2. Hydraulic oil lifetime 4,000h

#### High reliability:

1. Validation under rigorous test conditions
2. Reinforced structural members
3. Top-level fuel filtration protection

#### Safety:

1. Top-level safety protection measures

#### Brand-new shape:

1. Mighty and beautiful appearance
2. Brand-new cab



Energy-saving,  
environ-  
ment-friendly



High reliability



Comfort



Safety



Maintainability



Brand-new  
shape

# Energy-saving and environment-friendly - lowest oil consumption, maximum productivity

Customized to develop world class engine and hydraulic system, industry-leading AOCT (auto optimization control technology), fuel saved by 7-15%

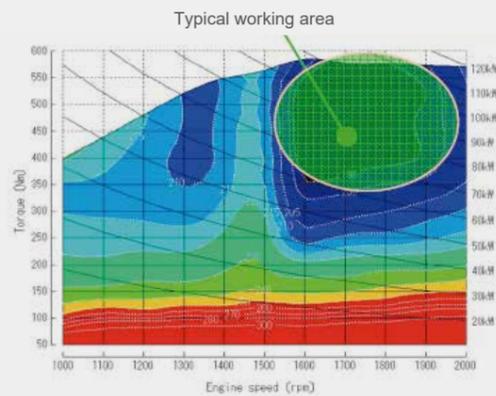
## Customized engine and hydraulic system

### Oil saving

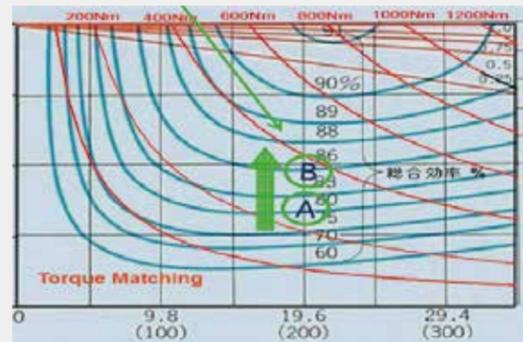
Customized engine oil-saving working area  
Customized typical working area of the main pump, optimize the main valve element structure

### High efficiency

Power reserve capacity 12%, torque 10%  
Increase the main pump capacity, optimize valve element characteristics, and improve working efficiency



Customized universal characteristics curve



Customized main pump working area

- Optimize the oil return area of boom and bucket rod valve, adjust logic valve and improve coordination;
- Optimize the logic valve of boom to bucket rod to improve the leveling performance;

- Add bucket rod buffer valve to improve impact resistance;
- Optimize the oil return area of traveling valve element and eliminate the impact of traveling speed change;

Customized main valve

## AOCT auto optimization control technology

Original AOCT (Auto optimization control technology)

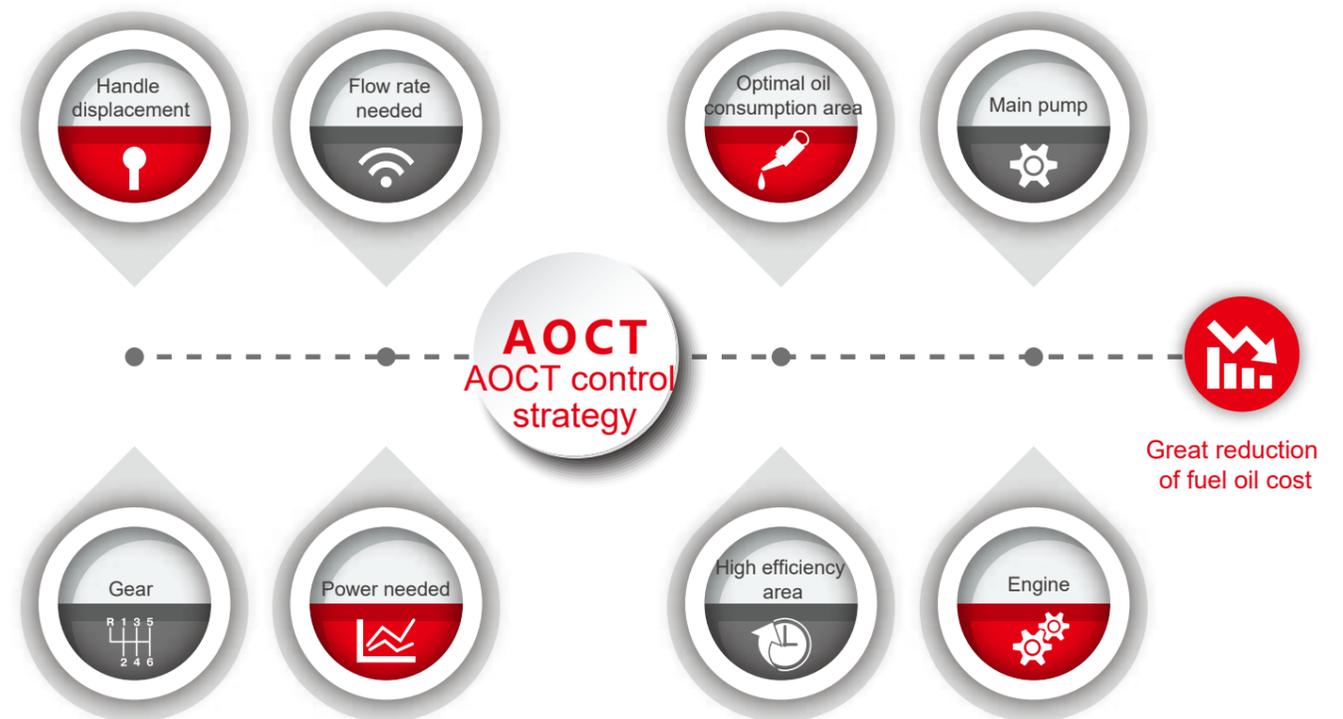
### Adopt static optimization + dynamic optimization

Make real-time **optimal** matching of engine and the main pump in accordance with load

Engine always works in the **optimal** oil consumption area

The main pump works in the **high efficiency** area

Great **reduction** of fuel oil cost



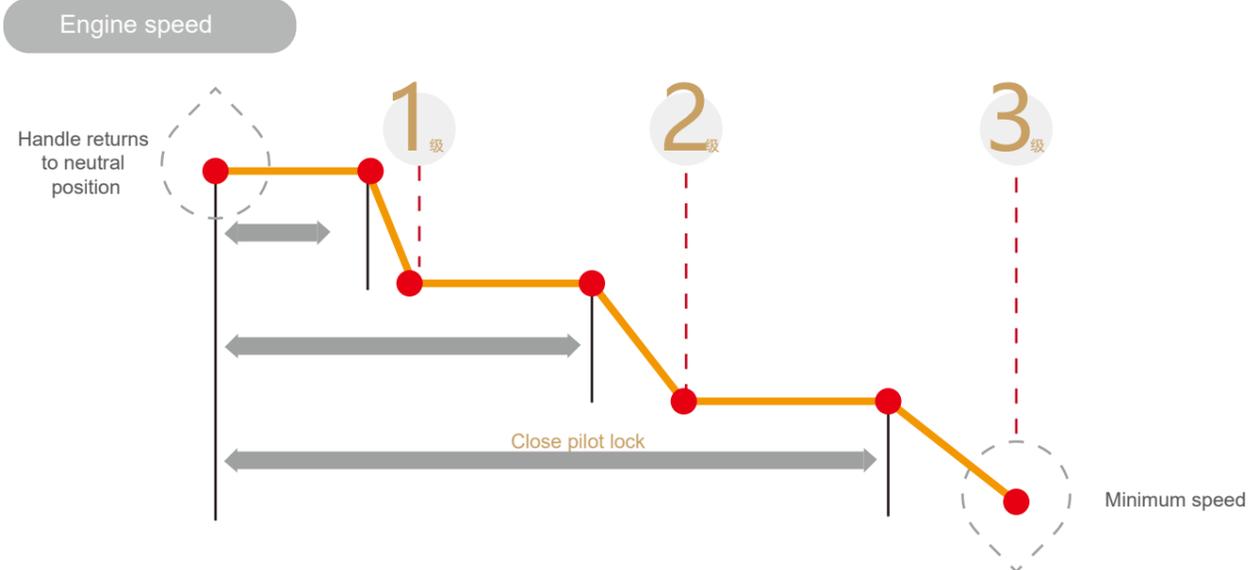
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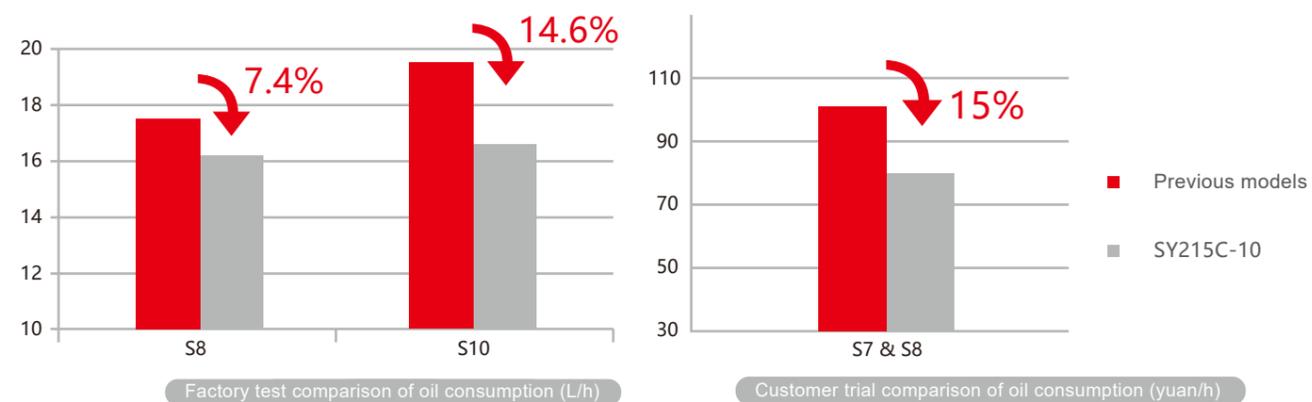
## Three level auto idle function

Decrease engine speed automatically when the operating handle returns to neutral position, add new three-level idle function, close pilot lock, the speed reduces further to its minimum idle speed, drastically reduce fuel waste, and decrease noise and exhaust gas emission.



## Fuel consumption comparison

Keep the same efficiency as previous models, save oil by 7-15%; fuel saving is more than 15% as reported in customer trial feedback



## Simple original leveling operation

A special leveling mode L is designed, which can realize leveling operation only by operating the boom and the bucket rod pilot valve, and the operation is simple and convenient.

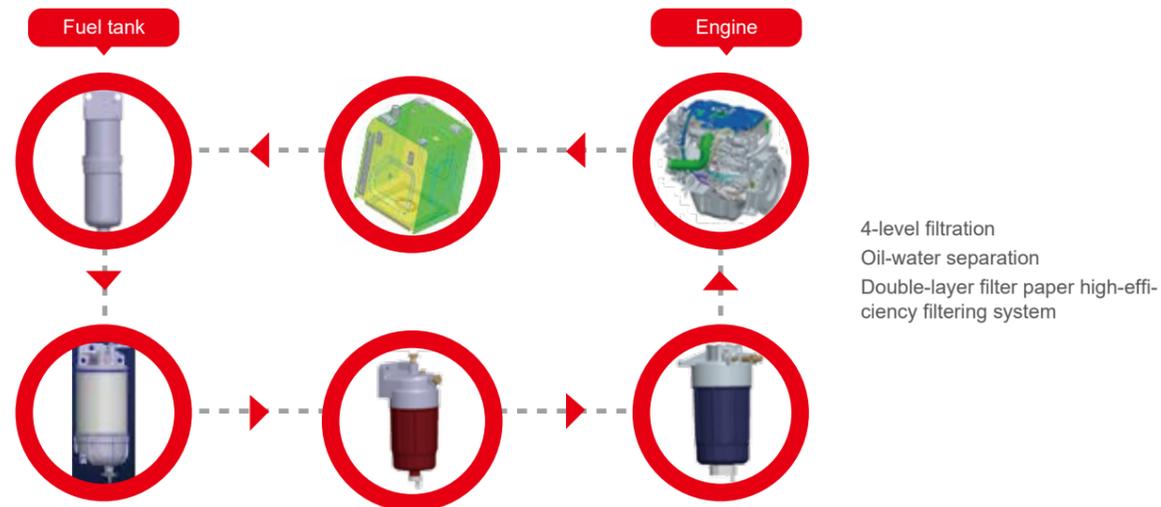


# High reliability – ensure long-time continuous operation under severe working conditions

High-strength structural members capable of severe working conditions have been verified by rigorous tests, and the reliability of the whole machine has been greatly improved

## Comprehensive protection

4-level enhanced fuel filtration protection, unique metal filter screen, extraordinary oil-water separation function, go through the verification of poor quality diesel endurance test, ensure the engine to run enduringly and reliably, and eliminate customer's concerns about the EFI engine.



Hydraulic pulse absorber can reduce hydraulic pulse, eliminate hydraulic noise, and improve the reliability of components and pipelines.



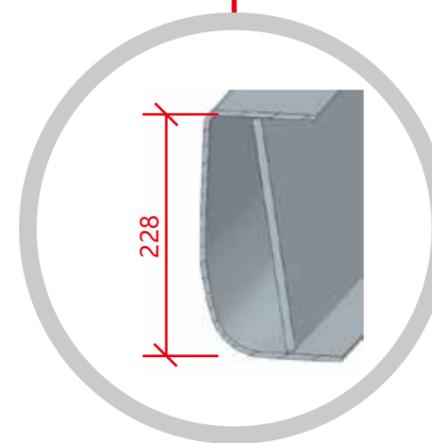
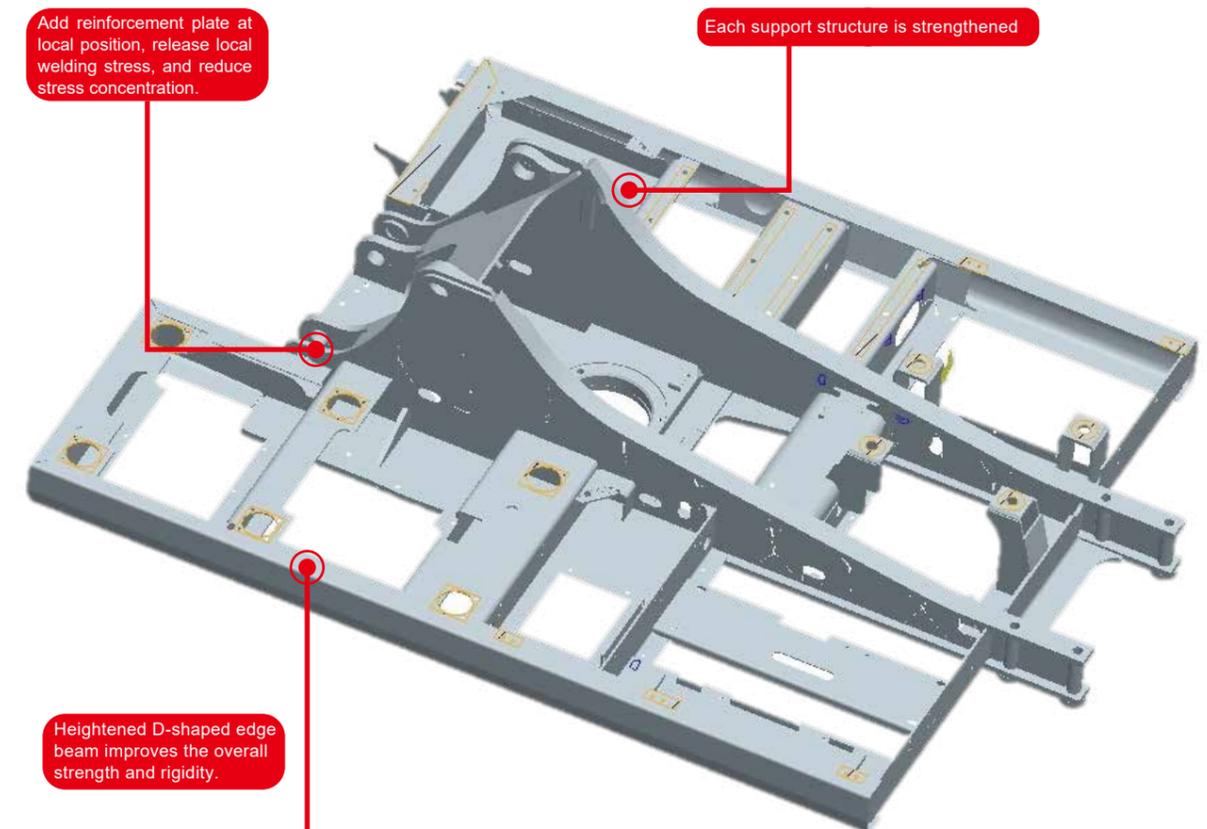
Hydraulic pulse absorber



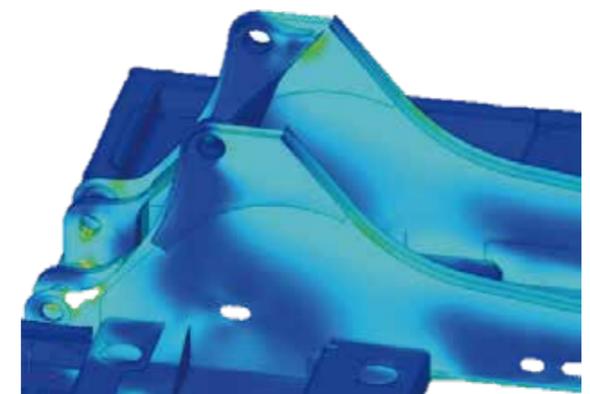
Root-mean-square curve of pressure pulsation in pressure-building conditions

## Reinforced structural members

The D-shaped edge beam and all support structures of platform are heightened, the overall strength and rigidity are improved, lifetime is prolonged greatly, and have passed rigorous vibration runway stress test and endurance test.



Professional CAE analysis



# High reliability – ensure long-time continuous operation under severe working conditions

High-strength structural members capable of severe working conditions have been verified by rigorous tests, and the reliability of the whole machine has been greatly improved

## Parallel type radiator

Use parallel type radiator to ensure each radiator to have larger radiating area, better radiation efficiency and hydraulic oil temperature is reduced by 4°C compared to previous models, satisfying the radiation needs under high-temperature operation, resulting in more stable operation.



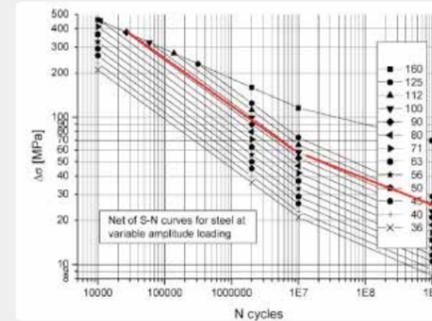
Cooling water radiator

Hydraulic oil radiator

Air-air intercooler

## Rigorous validation system

According to the fatigue life design specification for IIW metal structure, use hot spot stress analysis to evaluate the fatigue life of key weld seam of structural members and ensure the strength of working device and platform and the reliability of core parts and components via structure theory computation, finite element simulation comparison, static/impact stress test, biaxial fatigue verification based on actual conditions and enhanced endurance test.



Fatigue life evaluation (S-N curve)



Bench test of core parts and components

Static/impact stress test



Overall machine intensive test under rigorous working conditions

Simulation analysis

Bench test

Endurance test

# Comfort – Comfortable space without fatigue

Create safe and comfortable excavators for customers, with new upgraded operation comfort, and provide users with comfort and safe driving experience

## Brand-new air conditioner

Provide with high-power AC system with brand-new air outlet, quick cooling and heating performance, air circulation and purification function to keep indoor air fresh; integrated control panel, real-time display of AC status, simple and easy operation.



Brand-new layout of air outlet



Real-time display of high-power air conditioning status

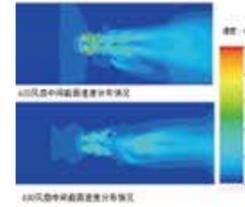


CAN



## Low noise

By professional test technique, CAE professional air duct flow field simulation analysis and test, research and develop low-noise fan. Outdoor noise is reduced by 4db, reaching the highest level in the industry; high sealing cab effectively prevents dust and improves operation comfort greatly.



Simulation analysis



Brand-new low-noise fan



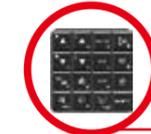
Indoor noise test

## Brand-new cab

Brand-new 10-inch color LED display, new layout of integrated key operation panel, power supply management module, USB interface and pedal, more convenient operation and use. Build a comfortable operating environment.



1. 10" touch-type colored display screen. visual operation and control interface



2. Integrated key panel makes access to easier operation



3. Comfortable pedal



4. USB interface



5. Multidirectional adjustable suspension seat, increasing driver's operation comfort



6. Large-area sky window

# Safety – Top-level safety protection

Perform product development from users' perspective, pay attention to details and take preventive measures

## ○ Comprehensive protection

The special-shaped tube frame structure cab goes through the FOPS&ROPS certification. It is provided with automatic retractable seat belt, safety hammer and fire extinguisher; the anti-slip design of reinforced handrail, pedal and top cover plate provides more safe protection.

Special-shaped tube frame structure cab



Automatic retractable seat belt



Safety hammer, fire extinguisher and escape exit



LED working light



Reinforced handrail and pedal.



Rear light and rotary warning light

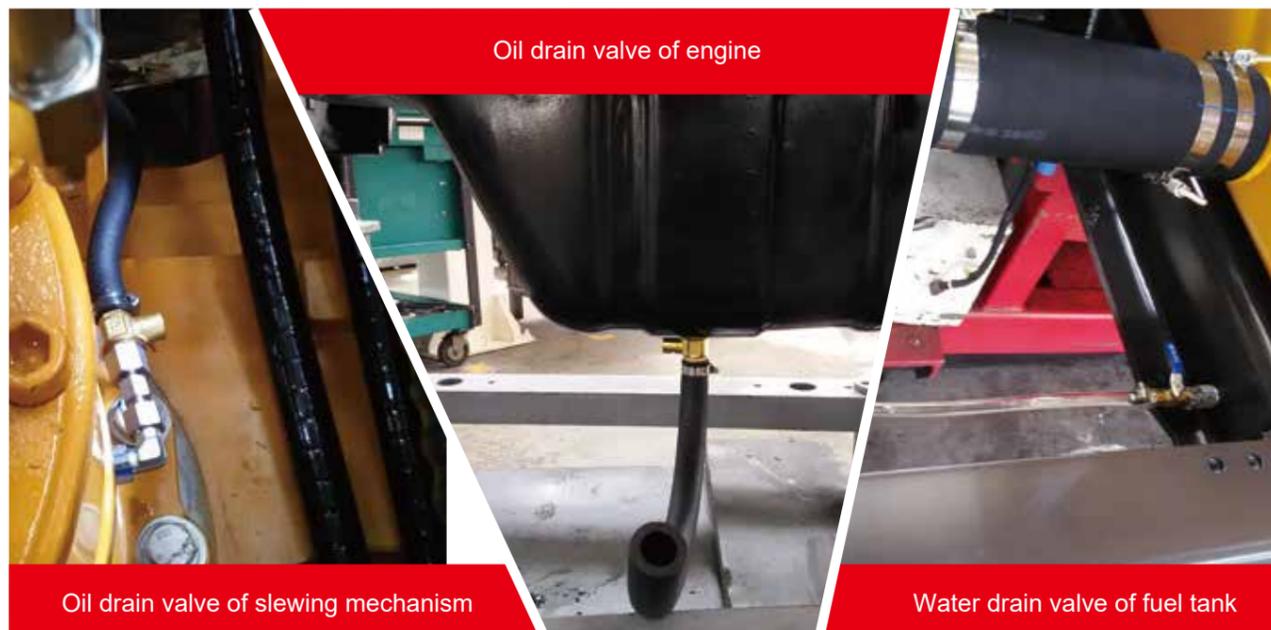


# Maintainability – Time-saving and energy-saving maintenance

Long service life antiwear hydraulic oil, integrated power supply management module, newly added engine, fuse, relay fault code visualization, maintenance within easy reach, GPS operation management platform E-Vision can access field machines in one stop

## Convenient maintenance

Integrated power supply management module, fault code shown on the display timely, various convenient water drain valves, making the whole machine maintenance more easy and convenient. The fuel tank volume increased to 390L, equipped with energy-saving technology, longer cruising power of one tank, continuously working for more than 24 hours.



## GPS provided

The newly built GPS operation management platform E-Vision by SANY is provided with four functions including **equipment management, service support, market analysis and system setting**, by which any smart equipment can visit any field machine by **one-stop** anytime and anywhere.

## E-VISION management platform



# New shape – Mighty overall machine shape

Introduce the vehicle appearance design philosophy for the first time, new shape design, mighty appearance, comfortable interior, simple, tough and beautiful overall profile, and received praises from customers at many exhibitions

## Brand-new shape

Won the China Red Star Design Award representing the highest level of Chinese industrial design and the Golden Pin Design Award, the top design award of global Chinese



France exhibition site



Bauma China

## Brand-new shape

The main parts and components are upgraded further based on the existing and previous models.

Configuration comparison table

| No. | Main elements     | Previous models     | SY215ACE             | Remark  |
|-----|-------------------|---------------------|----------------------|---|
| 1   | Engine            | 6D34 National II    | 4M50 National III    |   |
| 2   | Main pump         | K3V112              | K7V125               | Increased displacement<br>Optimized valve element |
| 3   | Main valve        | KMX15RB             | ←                    |   |
| 4   | Slewing motor     | M5×130              | M5×180               |   |
| 5   | Slewing platform  | 149mm low edge beam | 228mm high edge beam |   |
| 6   | Cab               | C9                  | Brand-new shape      |   |
| 7   | Covering parts    | C9                  | Brand-new shape      |   |
| 8   | Travelling device | C9                  | ←                    |   |
| 9   | Working device    | C9                  | ←                    |   |



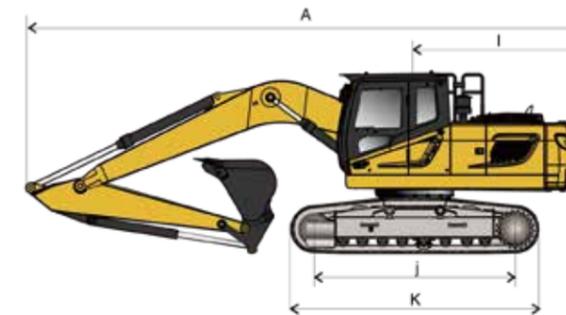
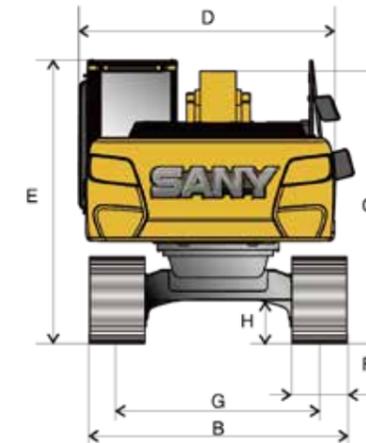
## ○ Technical specifications

| Specification            | SY215ACE New supertype  | Main performance           | SY215ACE New supertype |
|--------------------------|---|----------------------------|------------------------|
| Overall weight           | 21900kg   | Traveling speed (high/low) | 5.4/3.3(km/h)          |
| Standard bucket capacity | 1.1m <sup>3</sup>   | Slewing speed              | 11rpm                  |
|                          |   | Gradeability               | 70%(35)                |
| <b>Engine</b>            |   | Ground pressure            | 47.4kPa                |
| Model                    | 4M50  | Bucket excavator           | 138kN                  |
| Type                     | 4-cylinder, 4-stroke, water-cooled, electronic injection, common rail, turbocharged | Bucket rod excavator       | 103kN                  |
| Rated power              | 118kW/2000rpm   |                            |                        |
| Maximum torque           | 580Nm/1600rpm   |                            |                        |
| Displacement             | 4.9L  |                            |                        |

| Capacity of oil and coolant |       | Traveling part           |       |
|-----------------------------|-------|--------------------------|-------|
| Fuel tank                   | 340L  | Number of track plates   | 47    |
| Hydraulic oil tank          | 239L  | Each carrier roller side | 2     |
| Engine oil                  | 22L   | Each thrust wheel side   | 8     |
| Radiator                    | 25L   | Standard track           | 600mm |
| Final drive                 | 25.5L |                          |       |



## ○ Machine dimensions



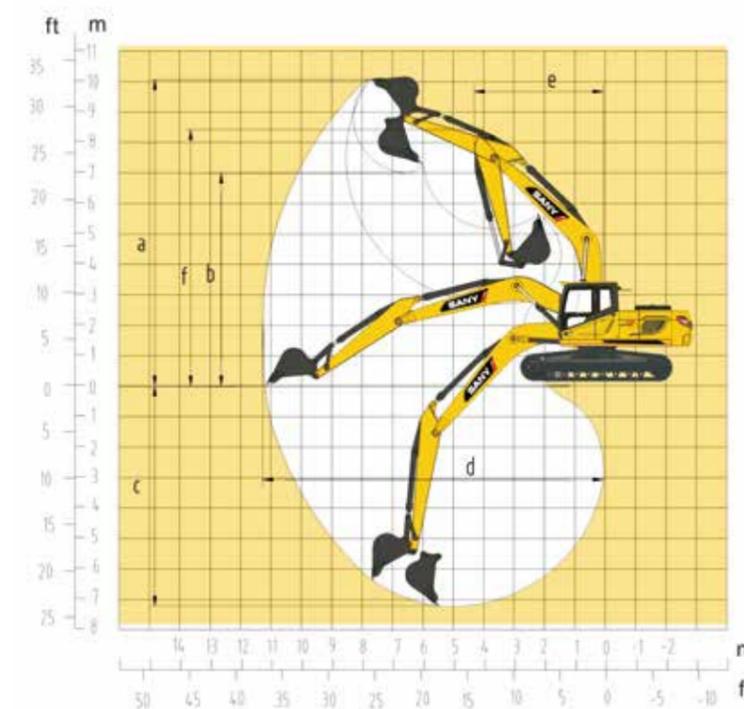
### Overall dimensions: mm SY215ACE New supertype

|  |      |
|--|------|
| A Overall length (during transportation) | 9680 |
| B Overall width                          | 2980 |
| C Overall height (during transportation) | 3440 |
| D Upper width                            | 2875 |
| E Overall height (cab top)               | 3440 |
| F Width of standard track plate          | 600  |
| G Track gauge                            | 2380 |
| H Minimum ground clearance               | 440  |
| I Slewing radius of tail                 | 2900 |
| J Grounding length of track              | 3445 |
| K Track length                           | 4250 |

### Performance parameters SY215ACE New supertype

|                                 |          |
|---------------------------------|----------|
| Working weight                  | 21900    |
| Bucket capacity m3              | 1.1      |
| 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      |
| Digging force of bucket rod kN  | 103      |

## ○ Operating range (mm)



### Name (Unit: mm) SY215ACE New supertype

|  |       |
|--|-------|
| 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  |



Innovation and  
upgrading, lead-  
ing the future

**SY215C**  
**(ACE)**

Design and create a new  
generation of excavators of low  
oil consumption, low noise and  
high reliability

