

Construction Equipment

# FR60E





## FR60E, ENERGY SAVING, EXCELLENT

### Energy saving

High-power engine matching the three-pump throttling control system, reasonable matching between the pump output power and the working load, low fuel consumption.

### Reliability

Reinforced work unit and chassis, durable.

### Efficiency

Better performance matching, efficient, low fuel consumption.

### Comfort

Spacious, ergonomically design, excellent view, comfortable drive.

### Maintenance

Simple routine inspection, long maintenance intervals.







**A LEADING INTELLIGENT & EFFICIENT BRAND OF GLOBAL CONSTRUCTION  
EQUIPMENT INDUSTRY**

## ENERGY SAVING

High-power engine matching advanced three-pump throttling control system, reasonable matching between the pump output power and the working load, low fuel consumption.

### ○ High power engine

Yanmar engine, meeting China's stage III emission standards, strong power, high fuel economy.

### ○ Three-pump throttling control system

Exclusive three-pump throttling system, intelligent confluence and regeneration with 8% torque increase and 6% fuel consumption reducing.

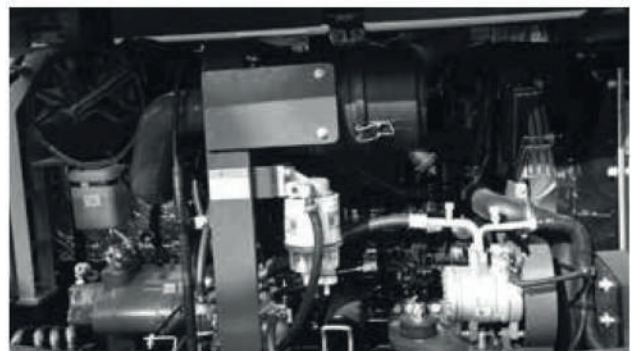
### ○ Advanced technology, superior performance.

Large passage main valve, large diameter pipeline, optimized pipeline direction, low pipeline friction loss, and reduce the energy loss of the hydraulic system by 5%.



#### Excellent coordination

- Long joystick for easy and soft operation.
- LOVOL's exclusive main control valve core, precise micro-manipulation.



#### High adaptability

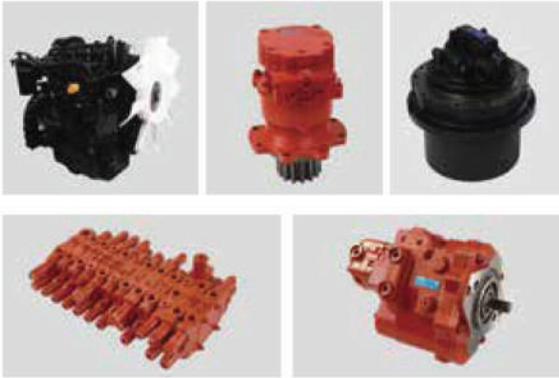
- Various operating conditions under -35~40°C;
- Match the crushing device for various crushing operations
- Max. climbing angle: 35°.





## RELIABILITY

Reinforced working device and chassis, durable.



### Core components

- Relying on R&D system of Japan Engineering Center, we have established a solid partnership with internationally renowned companies to continuously optimize and improve the quality and service life of our components. Engines, pumps, valves, motors, cylinders and controllers are given priority.



### Key structural parts

- Optimized structure design, stress testing, welding process and sheet metal research to comprehensively improve the service life of key structural components;
- The structural parts are subjected to CAE finite element analysis to strengthen the weak parts, made by professional structural parts manufacturers.







### Enhanced working device

- Integrated design for boom lower cover, high stability and durability;
- Wear-resistant bucket, high durability and wear resistance;



### Rugged chassis

- Enhanced chassis, low stress concentration, high reliability and stability;
- Wear-resistant dozer blade, box body structure design, high reliability;
- Excellent soil discharge of track beam, avoid damage to the carrier roller.



## EFFICIENCY

**Excellent performance matching, efficient operation at lower fuel consumption.**

### **Super digging force**

On the basis of ensuring static digging force, the company is committed to the development of dynamic digging force. In the case of encountering large resistance during the excavation, the system will automatically adjust the output pressure to ensure a strong digging effect in the process of dynamic excavation.

### **Excellent performance**

Thanks to the most advanced technology and hydraulic system, the proven Yanmar engine has excellent performance in terms of hourly fuel consumption and tons of material fuel consumption.





○ **High overall response**

Optimized engine, pump and valve, reasonable matching between pump output power and load, improved efficiency and response of hydraulic system.

○ **Rich working device**

Various work devices for various operating conditions.

Optimized bucket shape, high loading/unloading efficiency.



## COMFORT

Spacious, bright, ergonomic design and excellent view, comfortable drive.

### Excellent work space

High-quality mechanical suspension seat, comfortable, suitable for various working conditions.

TOPS/FOPS cab, safer operation

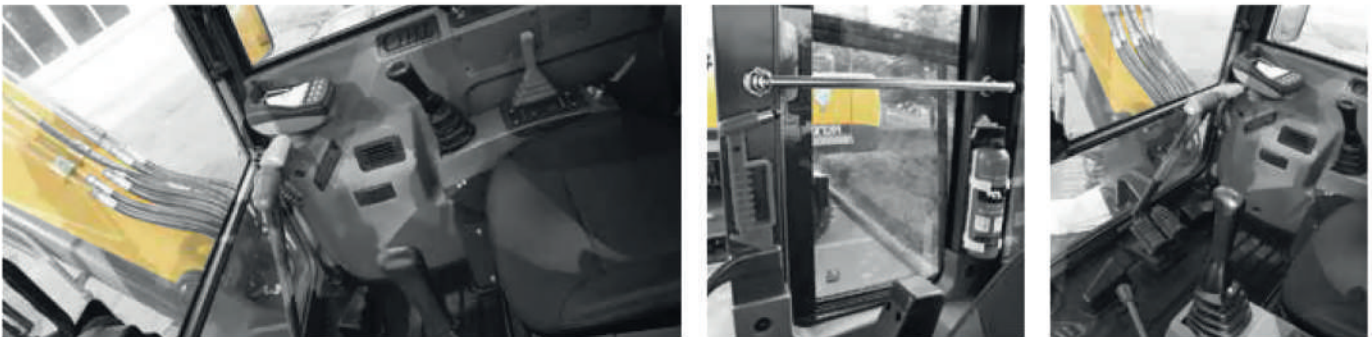
### Ergonomic joystick

Proportional joystick, precise control of the sensitivity, accuracy and fluency of the machine.

### Fully upgraded large LCD

Larger LCD, clearer review.

IP65 grade connectors, waterproof, dustproof, electrical safe.



### Friendly configuration

- Long joystick, easy and soft operation;
- Excellent outlet design, cool air at driver's face and feet in all directions, comfortable driving;
- Front windshield which can be partially or fully retracted to the roof;
- Intelligent and reliable air conditioning, excellent cooling effect;
- Standard UV protection glass.







**NASR**





## MAINTENANCE

**Simplified routine inspection, long maintenance intervals.**

### ○ Easy maintenance

Anti-slip materials attached to all walking areas of the upper frame, safe and convenient maintenance.

Free maintenance for swing gear.

The battery, all filter elements and centralized lubrication points can be maintained while standing on the ground, quick and easy routine maintenance and inspection.

### ○ Long maintenance cycle

Long maintenance and repair cycles, high machine utilization, low operating cost.

Engine oil	500h	Engine oil filter	500h
Hydraulic oil	2000h	Hydraulic oil filter	1000h



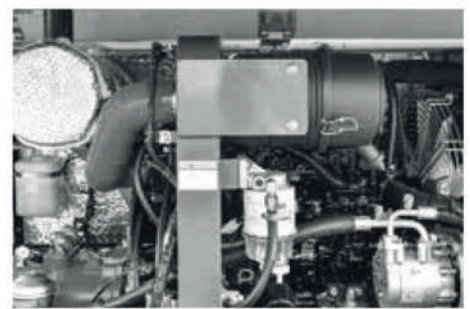
#### Water separator

- Oil-water separator with a large fuel filter element for easy access from the ground.



#### Fuel filter

- Adopt fiberglass filtration technology, effectively improve protection of engine;
- More than 99.5% of foreign particles are filtered, long oil change interval.



#### Engine oil filter

- Advanced filtration of engine oil filter, low pressure in engine body, long service life;
- Friendly installation position, quick and easy replacement of oil filter.

## STANDARD CONFIGURATION



### Engine

- 4-stroke water-cooled direct injection
- China stage III emission standard
- Radiator with net
- Air filter with pre-cleaner
- Intake heater
- Fan guard
- Fuel pump



### Hydraulic system

- Automatic hydraulic system (merging system)
- Multi-stage filtration system
- Cylinder buffer
- Auxiliary hydraulic valve
- Two-speed travel motor
- Slope anti-rotation device
- Waste oil discharge pipeline
- Hydraulic hammer pipe
- Arm regeneration
- Boom retaining valve



### Cab

- Ashtray
- Cigarette lighter
- Seat belt
- Front sunshade
- Storage box
- Glass breaking hammer
- Thermostatically controlled air conditioner
- Audio
- Shock absorber (silicone oil, rubber)
- Flexible antenna
- Radio
- Hydraulic safety lock lever
- Sun blocking window
- Carpet
- Pull-up front window
- Removable lower windshield
- Sun window
- Wipers
- Skylight



### Electronic and electronically controlled system

- 12V power supply
- Display brightness adjustment
- Maintenance tips
- Safe Stop/Start
- Main switch
- Engine start protection
- Multilingual display
- Cab ceiling light





## Swing platform

Toolbox

Large pedal

Large arm rest

Bottom shield



## Chassis

Fixed chassis

400mm, triple grouser

## OPTIONAL CONFIGURATION

Some optional devices may be standard in some markets, but some optional configurations may not be available in certain markets. You must contact your local dealer to know the availability of equipment or adjust according to the corresponding requirements. The specific configuration is subject to the concrete one.

For special operating environments in high altitude areas, it is recommended to select NASR special products developed for the characteristics of the plateau



## Working device

Standard bucket: 0.2m<sup>3</sup>

Hammer

Quick coupler

Ditching bucket

Hydraulic compactor

Auger

Log grapple



## Safety system

Front protection device on the cab

Travel alarm

Swing alarm

## SPECIFICATION



### Engine

Model	Yanmar 4TNV94L-BVFN
Type	Water-cooled, self-priming, direct injection
Rated power ( kW/rpm )	36.2/2100
Max. torque (N•m/rpm)	198/1400



### Hydraulic system

Max. system flow ( L )	135
Max. working oil pressure (MPa)	24.5
Max. pilot system pressure (MPa)	3.5

Comply with China stage III emission standard of off-road mobile machinery.



### Track drive

Max. gradability ( ° )	35
Max. travel speed ( km/h )	4.2
Max. traction ( kN )	50.5



### Swing mechanism

Swing speed ( r/min )	10.2
Swing torque ( kN•m )	11.2



### Service capacity

Fuel tank ( L )	120
Hydraulic system total ( L )	141
Hydraulic tank ( L )	90
Engine oil ( L )	8
Engine coolant ( L )	12.7
Swing drive ( L )	1.5
Final drive ( L )	0.9



### Working device

Boom (mm)	3100
Arm (mm)	1500
Arm digging force ( kN )	30
Bucket capacity ( m³ )	0.2
Bucket digging force ( kN )	44.5

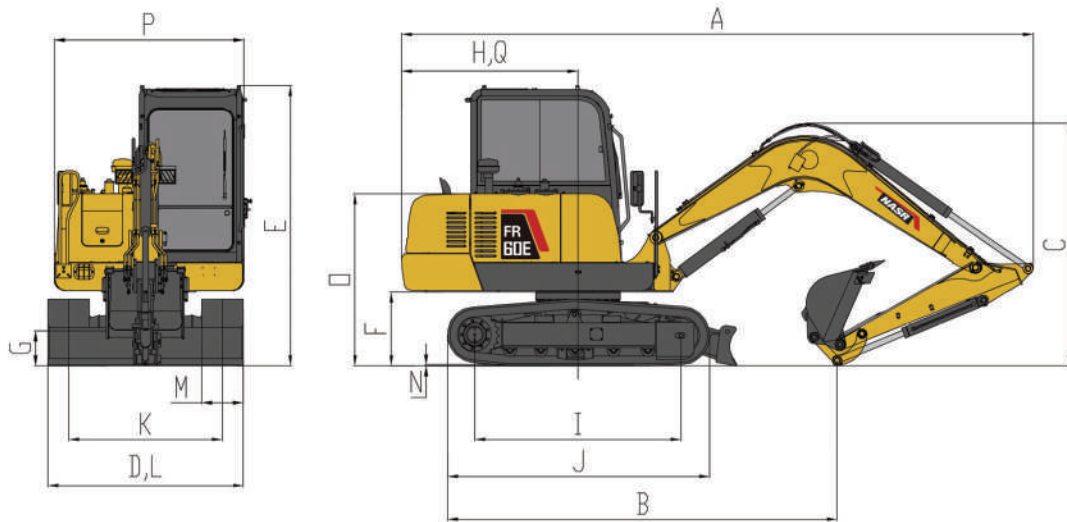


### Working device combination

Working environment	Bucket		Arm	Boom
	Types	Bucket capacity (m³)	1500mm	3100mm
Loading operations of excavator for common materials such as ordinary soil. mixed with stones, clay and building stones.	Earth bucket	0.20	●	●
Loading operations of excavator for common materials such as ordinary soil. mixed with stones, clay and building stones.	Earth bucket	0.18	●	●
Excavation and loading of loose materials such as soft soil and dry sand	Earth bucket	0.22	●	●

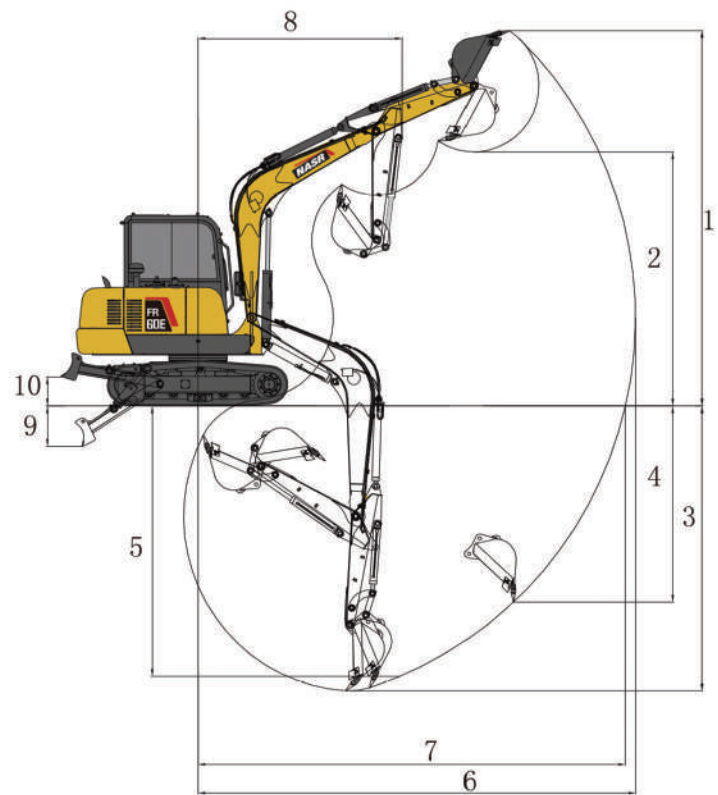
●:Standard





## Shipping size

Total length	A	mm	6090
Grounding length (transport)	B	mm	3760
Total height (to top of boom)	C	mm	2300
Total width	D	mm	1950
Total height (to top of cab)	E	mm	2660
Ground clearance of counterweight	F	mm	700
Minimum ground clearance	G	mm	330
Tail turning radius	H	mm	1700
Track grounding length	I	mm	2010
Track length	J	mm	2550
Gauge	K	mm	1480
Track width	L	mm	1880
Track shoe width	M	mm	400
Tooth height	N	mm	14
Machine cover height	O	mm	1635
Machine cover width	P	mm	1830
Distance from rotation center to the back	Q	mm	1700



## Working range

Max. digging height	1	mm	5170
Max. dumping height	2	mm	3500
Max. digging depth	3	mm	3925
Max. vertical digging depth	4	mm	2700
Max. excavation depth for horizontal cutting at angle of 8°	5	mm	3510

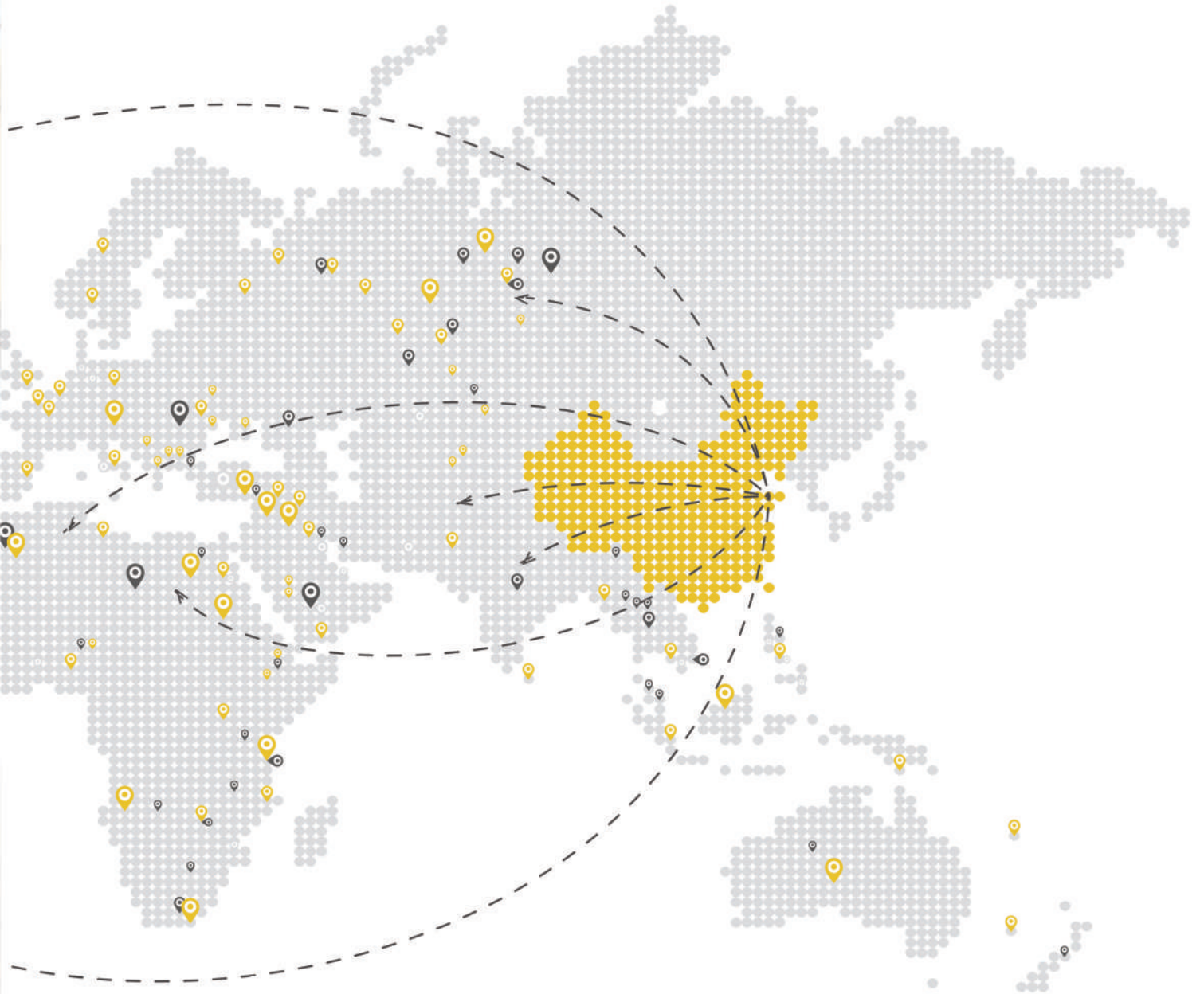
Max. digging radius	6	mm	6110
Max. ground digging radius	7	mm	5970
Min. radius of rotation	8	mm	2860
Dozer blade lifting height	9	mm	400
Dozer blade descending height	10	mm	560

## PRODUCT SUPPORT NETWORK

NASR MACHINE INT., CO. has established a complete service network covering more than 50 countries in Asia-Pacific-Africa. South America and Russia etc., so as to provide better services for global customers.







Certain specification(s) are based on engineering calculations and are not actual measurements. Specification(s) are provided for comparison purposes only and are subject to change without notice. Specification(s) for your individual Doosan equipment will vary based on normal variations in design, manufacturing, operating conditions, and other factors. Pictures of Doosan units may show other than standard equipment.

# Powered by Innovation

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