

**Engine**

Cummins QSX15, Tier 3 / Stage IIIA

**Net Power**

357 kW (479 hp)

**Operating Weight**

70,500 kg

**Bucket Capacity**

4.0 - 4.3 m<sup>3</sup>

**970E**  
EXCAVATOR



**TOUGH WORLD. TOUGH EQUIPMENT.**

# TOUGH WORLD. TOUGH EQUIPMENT.

You don't need to be told it's a tough world. It's your reality, you live it every day and you know how hard it can be on your people and your machines. It's getting tougher to make your business pay too, with rising costs, increasing legislation and greater competition. We understand and we've put that understanding into action with our new 970E.

**970E. NO TOUGH COMPROMISES, JUST EVERYTHING YOU NEED AND NOTHING YOU DON'T**

The construction equipment industry has seen an expensive trend towards over-engineered products. Some manufacturers genuinely believe that adding cost, adds perceived value in customers' eyes.

**BUT YOU TOLD US A DIFFERENT STORY**

You asked for a tough, well-engineered excavator, which can do the job. Any job.



**YOU WANTED A LARGE-SIZED EXCAVATOR THAT DELIVERS ON 3 ESSENTIAL NEEDS;**

1 

**FIT FOR PURPOSE**

2 

**UPTIME AND SUPPORT**

3 

**TOTAL COST OF OWNERSHIP**



With the 970E, we've met your challenge and given you everything you want – without compromise.

## TOUGH FACTS

### TOUGH QUALITY STANDARDS

When it comes to quality, we let our actions to speak for themselves.

We are following a rigorous Six Sigma methodology and consistently achieve ISO 9001 standards.

### TOUGH RESEARCH AND TESTING

Finding tougher, smarter, safer and more cost-effective ways of working matters to you. It matters to us too. Our new Global Research & Development Centre in Liuzhou China, is a great example of this customer focused approach.

We've established an international team of industry experts, backed up with the latest world-class technology, all focused on delivering greater value to you.

### TOUGH PARTNERS

- LiuGong has teamed up with some of the industry's best known names. Here's just a few of our valued joint venture partners;
- German drivetrain components manufacturer ZF Friedrichshafen AG
  - Finnish mining and aggregates processing equipment manufacturer Metso
  - North American diesel engine manufacturer Cummins

# FIT FOR PURPOSE

Firstly, you need to know that your machine is up to the job; breaking, digging, lifting, working hard – anytime – anywhere. Excavators have got to be tough and they've got to perform.

## OUR NEW 970E HIGH PERFORMANCE FROM THE GROUND UP

### 1 TOUGHER UNDERCARRIAGE

With X-shaped frame built from high strength tensile steel, the 970E's undercarriage is designed to withstand the toughest conditions. Continuous digging, lifting and loading can put excessive stress on machines. The 970E has a long track beam and crawler system that guarantees greater stability. The structure also helps protect key components such as the travel motor from undue stress.

### 2 TOUGHER COMPONENTS

The undercarriage components are tougher too. Heavy duty rollers, reinforced idler frame and optional full track guard guarantee the integrity of our undercarriage. It's this core strength that enables our customers to keep working and earning – around the clock.

### 3 TOUGHER UPPER STRUCTURE

The upper structure of the 970E is built around a reinforced and well-engineered H-beam, allowing the boom to be mounted exactly in the center of the machine. This central positioning helps the boom cope with more stress on the attachment group. It also means better distribution of weight and tension along the entire machine.

### 4 SAFER CAB

Our cabs are designed to protect your most important asset. Your operator. FOPS (Falling Object Protection System) safeguard your most important asset: your operator in the toughest environment. Visibility is key to protecting your operator and workers on site. The large glass surface area, spacious cab, combined with the rear-view camera, provides an extraordinary view of the 970E's surroundings.

### 5 TOUGHER BOOM AND ARM

The 970E features a tougher, reinforced heavy duty boom and arm built from high-strength tensile steel, with castings and forgings in high stress areas for heavy-duty performance and maximum uptime. We also use over-sized pins to allow the 970E, not just to work harder, but to work harder for longer. Our confidence in our machines is underlined by one of the most comprehensive warranties in the industry.

### 6 SIMPLY MULTIFUNCTIONAL

Switching attachments like buckets, breakers and shears can be time consuming and hazardous. We've made it fast, safe and simple with LiuGong's quick coupler and powerlatch tilt coupler. These are perfectly matched to a range of genuine LiuGong attachments including; buckets and breakers which can be changed from the seat of the cab in less than a minute, quick, safe and easy.

### 7 SIMPLER TO DO THE JOB RIGHT

Six selectable work modes equip even the newest operator with the skills of an expert, allowing them to perfectly match machine performance with the job, whatever that job may be.



### 8 FAST CYCLE TIMES

High hydraulic flow and swing speeds combine to ensure fast cycle times on tasks such as truck loading, digging, trenching and backfilling.



### JOBSITE FACT: ANYTIME

**6000** 6000 hours registered and still working hard.  
**Tapegyseg Co. Hungary**  
 "We use our LiuGong excavator for breaking down large stone and concrete sections. In two years we have not had a problem and our machines are working 10-11 hours a day, six days a week."

### JOBSITE FACT: ANYWHERE!

**-49°C** Temperatures drop but the work rate stays high.  
 LiuGong Excavators played a key part in supporting China's Polar Exploration team. Extreme temperatures, high altitudes, strong winds and intense ultraviolet light made the Antarctic an extremely tough test environment.

### TOUGH JUDGES

Operators are tough judges. They know what they like and what they don't. We've talked, we've listened and we've delivered a no-nonsense excavator that will do everything the operator wants and needs it to do. Job done? Judge for yourself.

**TOUGH EQUIPMENT**  
**40,000** Excavators currently in the field.  
 Over **1/2 BILLION** productive hours worked.

# POWER TO GET THE TOUGHEST JOBS DONE RIGHT

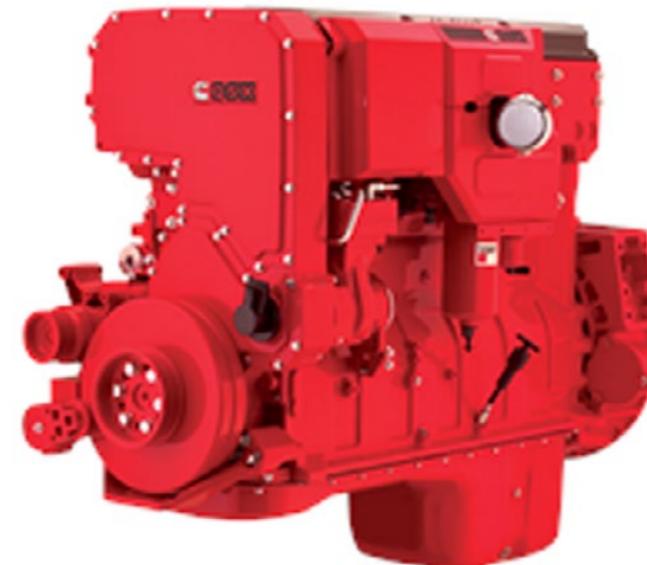
Fit for purpose is about giving your operators efficient and intelligent power when they need it, with control and precision. That's what we do.

## POWER WITHOUT COMPROMISE.

The 970E is powered by the latest Cummins QSX15 engine with a rated net power of 357 kW (479 hp) @ 2,100 rpm in compliance with EU Stage IIIA emission standards.

The QSX15 delivers unmatched and dependable power in its class yet it produces virtually zero emissions.

The engine utilizes a precise fuel injection system, turbo charger and air-to-air intercooler along with electronic engine controls to optimize machine performance. It's powerful. It's responsive. It tackles the toughest jobs without being thirsty for fuel, but above all, it's a joy to operate.



## INTELLIGENT POWER CONTROL

The 970E's advanced Intelligent Power Control (IPC) system intelligently delivers the power you need – when you need it.

This new generation computer-aided IPC system allows the 970E's mechanical, electrical and hydraulic systems to work together in perfect harmony and helps even novice operators get more from the machine. An improved pump system delivers efficient oil output under lower engine speeds, resulting in fuel efficiency and reduced noise levels.

## ADVANCED HYDRAULIC SYSTEM

LiuGong's advanced hydraulic system, regenerates oil in the cylinders more efficiently reducing heat, increasing fuel efficiency and improving cycle times.

The hydraulic system is highly effective in delivering power and precise control to where the operator really needs it, making even the toughest job simple.



## SMART FUEL ECONOMY

The intelligent combination of powerful digging force, swing torque and lifting performance make the most of every drop of fuel. The 970E maximizes fuel economy by intelligently regulating its idle speed by the second.



**1 second:** If no hydraulic request signal detected from the joystick, the engine speed is automatically dropped by 100 RPM.



**3 seconds:** If no activity is detected over three seconds the engine speed will decrease to idle. In each case, as soon as the system detects the hydraulic signal once more, the engine will immediately return to the previous speed setting.

# DAILY CHECKS AND MAINTENANCE SHOULDN'T BE TOUGH

Simple daily checks and maintenance prolong machine performance but, they can be difficult and time consuming on tough jobsites where time is precious. **Not with the 970E.**

## PRACTICAL SERVICING

Smart and effective design makes service and maintenance fast and simple – that's good news for operators who work in some of the toughest places on the planet. Handrails are fitted as standard, enabling safe and easy access to the upper structure for easy engine service and maintenance.

## ON BOARD MONITORING

With onboard monitoring, the operator can check the machine's vital signs without leaving his seat. Using the LCD display, the operator can easily check oil temperatures and pressure levels, receive service interval alerts and access other information that contributes to simple maintenance and servicing of the machine.



## EASILY ACCESSIBLE SERVICE POINTS MAKE DAILY CHECKS FAST AND EFFECTIVE

- Easily visible hydraulic oil level gauge
- Accessible, grouped filters
- Easy to replace A/C filter next to the cab door
- Maintenance free air filter

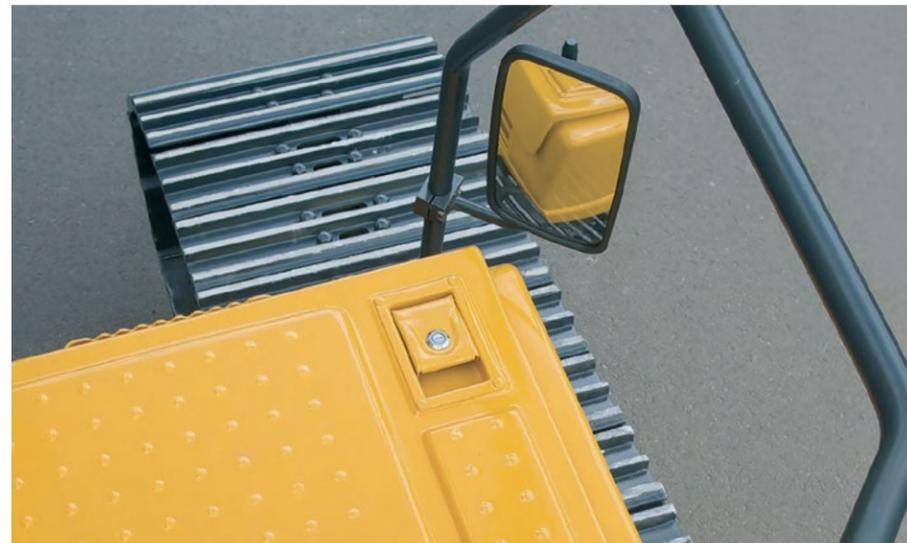


# DESIGNED TO MAKE TOUGH WORK EASY ON THE OPERATOR

Climb into the cab of the 970E and you can see that it has been designed by someone who has operated a machine in really tough conditions.

For a start, it's safe and easy to get in and out of. Trips and slips account for the majority of accidents onsite. Well-placed door handles, safety rails and anti-slip tape on the upper part of the machine make it easier and safer for operators to enter and exit the cab in all weathers and conditions. Inside, the cab is secure and protected with space to work and excellent 360 degree views of the site.

The controls are where the operator needs them to be. They are easy to see, easy to reach and easy to handle. The multi-adjustable air-suspension seats are comfortable and designed to keep the operator fresh and alert. The cab is sound proofed, vibration protected and well ventilated. It has advanced climate control to handle the changing seasons and is completely sealed to prevent dust contamination.



## WE PUT OPERATORS FIRST

It makes good business sense to give operators the very best working environment – a comfortable operator is a productive operator. The 970E keeps operators safer, more alert and more productive. Smart additions such as; rear view camera, heated seats, refrigerator or personal belonging compartment and an iPod/AUX connection combine to create the best environment– for the best operators.



## ADVANCED CLIMATE CONTROL

An advanced climate control system creates the right environment in any weather.

## LARGE LCD MONITOR

The easy-to-read, full-color LCD monitor displays all the critical information your operator needs, including working mode, hydraulic oil temperature, hydraulic pressure and service intervals.





# JOBSITE UPTIME AND SUPPORT

Fit for purpose might convince you to buy your first machine, but it's uptime and support and total cost of ownership which will keep you coming back to buy more machines. Having confidence in the machine's back up and support network is a vital part of the purchasing decision. How do we at LiuGong measure up?

## FAST RESPONDING GLOBAL NETWORK

We have an extensive dealer network in more than 130 countries. All supported by 12 regional subsidiaries and 9 global parts centers offering expert training, parts and service support.



## WHERE YOU NEED US WHEN YOU NEED US

Reliability is built into our machines but all machines have some planned downtime. Our aim is to reduce even planned down time to the minimum by getting it right. Technician training and parts availability are also high on our agenda, as is keeping you

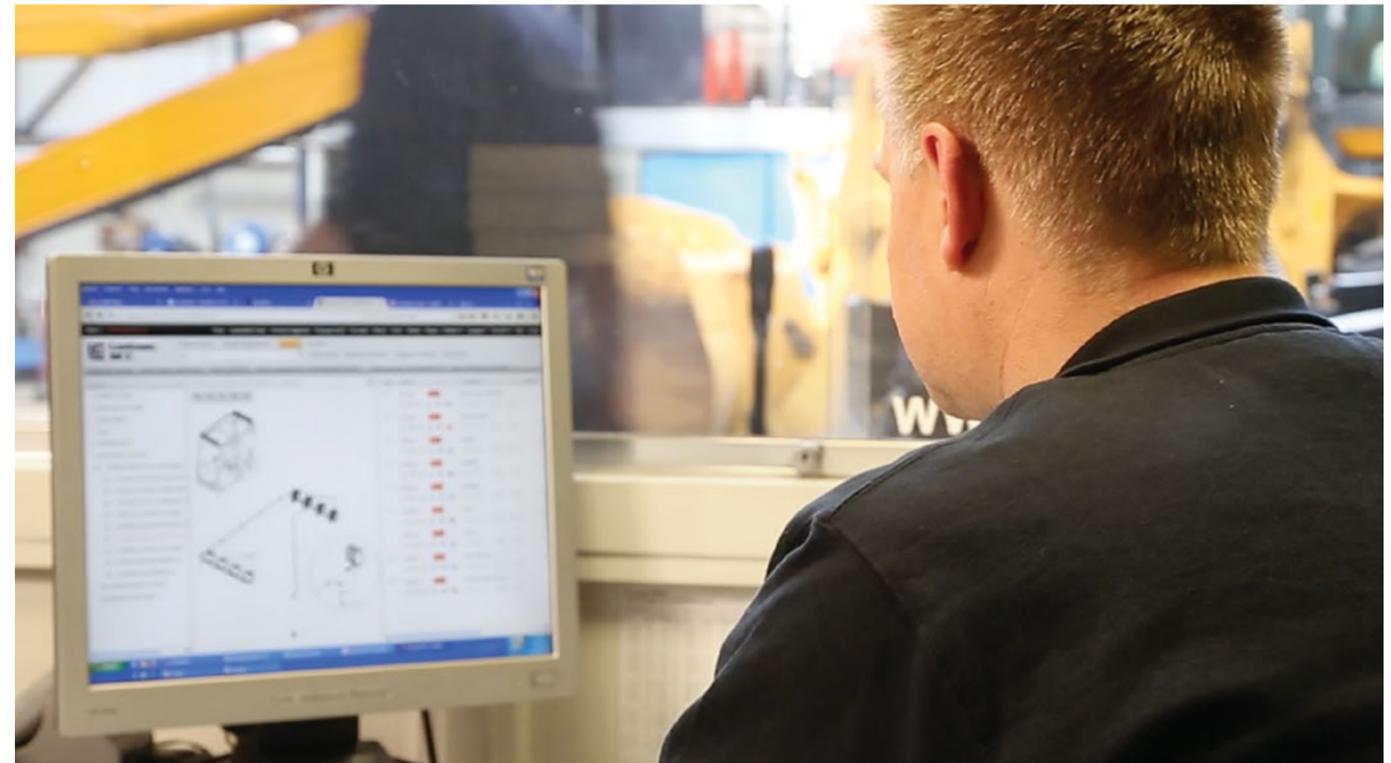
informed on service and maintenance work and providing clear and accurate estimates, invoices and communication. These may be small things, but customer feedback tells us that these basics really matter – so we aim to get them right.

## MAINTENANCE AND SUPPORT PACKAGES

From genuine LiuGong parts, to full repair and maintenance contracts, LiuGong has the flexibility to offer the level of support and response to suit your business and applications. Whatever level of support you choose you can be confident that it is backed up by LiuGong's service promise.

**Right parts.  
Right price.  
Right service.**

**Above all,  
we get it right  
the first time.**



## WE ARE LIUGONG. WORKING HARD TO KEEP OUR GLOBAL CUSTOMERS EARNING



## LIUGONG SERVICE PROMISE





# TOTAL COST OF OWNERSHIP

Fit for purpose and uptime and support are two key excavator purchasing criteria but ultimately, the machines earning potential, its overall life cost and its trade-in value really matter too.

When it comes to total cost of ownership LiuGong has a strong story to tell.

## PROFESSIONAL ADVICE

We are committed to reducing your total cost of ownership and increasing your profits. As part of this, LiuGong's experts will provide targeted advice on everything, from choosing the right machine for your needs to maximizing its efficiency on site.

## MACHINE AVAILABILITY

Our machines deliver everything you need and nothing you don't. They are expertly engineered NOT over engineered. As a result of having an extensive manufacturing operation right in the heart of Europe, we can offer significantly shorter lead times on

a range of models, compared with some manufacturers. In fact, we can deliver selected machines in as little as 4 weeks. The faster you can get a machine – the faster you can get working and earning. Our aim is to get you on to the jobsite fast.

## TICKET PRICE

At LiuGong, our aim is to provide you with real, measurable value by giving you everything you need and nothing you don't. For example, we choose high quality, proven components such as Cummins engines and Kawasaki hydraulic pumps. These proven components, combined with LiuGong design and manufacturing quality, result in a high quality, competitive machine that is totally fit for purpose.

## RESIDUAL VALUE

With the combination of LiuGong design and manufacturing excellence, world class components and comprehensive uptime support, our quality holds its value.



## IT ALL ADDS UP

With the 970E we've risen to the challenge and given you everything you need and nothing you don't.

It's an excavator which can handle any job, anywhere, backed up by LiuGong's service promise and designed to perform on the jobsite and on the balance sheet. Add up the benefits and you'll see that 970E represents the formula for success.



**FIT FOR PURPOSE**

+

**UPTIME AND SUPPORT**

+

**TOTAL COST OF OWNERSHIP**

**CUSTOMER SATISFACTION**

# SPECIFICATIONS

## OPERATING WEIGHT 70,500 kg

Operating weight includes coolant, lubricants, full fuel tank, cab, standard shoes, boom, arm, bucket and operator 75 kg.

## BUCKET CAPACITY 4.0 - 4.3 m<sup>3</sup>

## ENGINE

### Description

Cummins EPA Tier 3/ EU Stage IIIA, inline 6-cylinder, turbocharger, electronically controlled direct injection.

Air cleaner: Cummins direct flow air filter.  
Cooling system: Charge air cooler

Emission rating	EPA Tier 3 / EU Stage IIIA
Engine manufacturer	Cummins
Engine model	QSX15
Aspiration	Wastegate Turbo (WGT)
Charged air cooling	Aftercooler
Cooling fan drive	Hydraulic & Direct
Displacement	15 L
Rated speed	1,800 rpm
Engine output - net (SAE J1349 / ISO 9249)	357 kW (479 hp)
Engine output - gross (SAE J1995 / ISO 14396)	373 kW (500 hp)
Maximum torque	2,363 N·m @1,400 rpm
Bore × Stroke	137 × 169 mm

## UNDERCARRIAGE

Track shoe each side	48
Link pitch	260.4 mm
Shoe width, double grouser	650 mm
Bottom rollers each side	8
Top rollers each side	3

## SWING SYSTEM

### Description

Planetary gear reduction driven by high torque axial piston motor, with oil disk brake. Swing parking brake resets within five seconds after swing pilot controls return to neutral.

Swing speed	6.8 rpm
Swing torque	240,000 N·m

## HYDRAULIC SYSTEM

### Main pump

Type	Two variable displacement piston pumps
Maximum flow	2 × 450 L/min

### Pilot pump

Type	Gear pump
Maximum flow	30 L/min

### Relief valve setting

Implement	32 / 35 MPa
Travel circuit	32 MPa
Slew circuit	26.5 MPa
Pilot circuit	3.9 MPa

### Hydraulic cylinders

Boom Cylinder – Bore × Stroke	Φ190 × 1,745 mm
Stick Cylinder – Bore × Stroke	Φ215 × 2,030 mm
Bucket Cylinder – Bore × Stroke	Φ200 × 1,465 mm

## ELECTRIC SYSTEM

System Voltage	24 V
Batteries	2 × 12 V
Alternator	24 V - 100 A
Start motor	24 V - 9 kW

## SERVICE CAPACITIES

Fuel tank	900 L
Engine oil	46 L
Final drive (each)	20 L
Swing drive	2 × 14 L
Cooling system	72 L
Hydraulic reservoir	360 L
Hydraulic system total	680 L

## SOUND PERFORMANCE

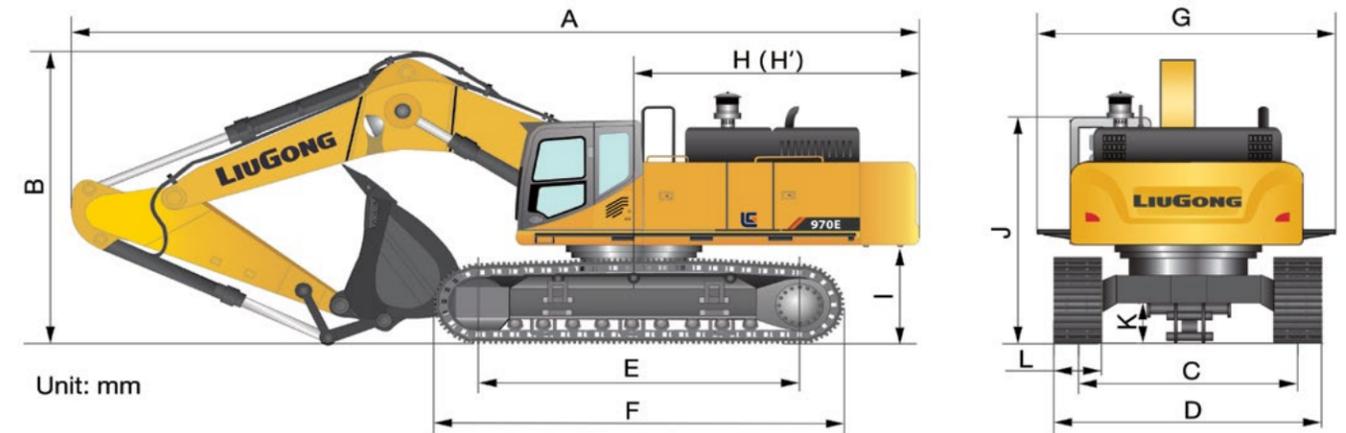
Interior Sound Power Level (ISO 6396)	71 dB(A)
Exterior Sound Power Level (ISO 6395)	109 dB(A)

## DRIVE AND BRAKES

### Description

2-speed axial piston motors with oil disk brakes. Steering controlled by two hand levers with pedals.

Max. travel speed	High: 4.4 km/h Low: 2.7 km/h
Gradeability	35%/70%
Max. drawbar pull	460 kN



## DIMENSIONS

Boom	6,600 mm
Arm Options	2,900 mm
A Shipping Length	12,230 mm
B Shipping Height – Top of Boom	4,710 mm
C Track Gauge	*3,350 mm/ 2,720 mm
D Undercarriage Width – 650 mm shoes	*4,000 mm/ 3,370 mm
E Length to Center of Rollers	4,750 mm
F Track Length	5,990 mm
G Overall Width of Upper Structure	*4,260 mm/ 3,390 mm
H Tail Swing Radius	4,090 mm
I Counterweight Ground Clearance	1,495 mm
J Overall Height of Cab	3,490 mm
K Min. Ground Clearance	867 mm
L Track Shoe Width	650 mm

\* Adjustable gauge

## BOOM DIMENSIONS

Description	Standard
Boom	6,600 mm
Length	6,880 mm
Height	2,230 mm
Width	1,080 mm
Weight	6,100 kg

Cylinder, piping and pin included. Boom cylinder pin excluded.

## ARM DIMENSIONS

Description	Standard
Arm	2,900 mm
Length	4,300 mm
Height	2,230 mm
Width	830 mm with hinge pin
Weight	3,400 kg

Cylinder, linkage and pin included.

## BUCKET SELECTION GUIDE

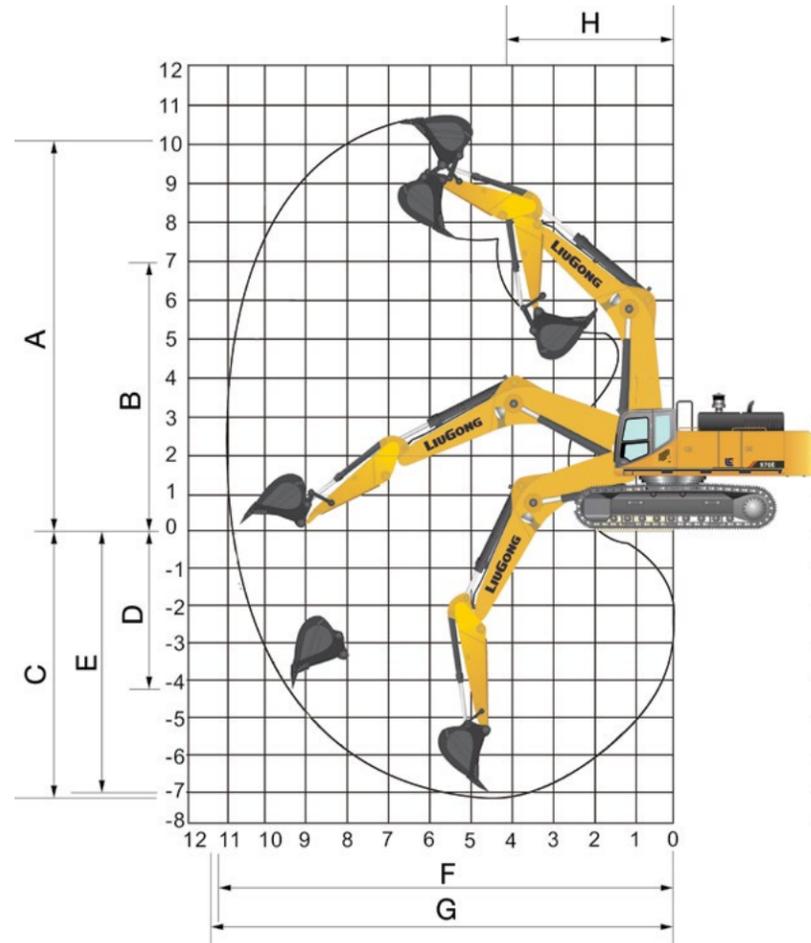
Bucket type	Capacity	Cutting width	Weight	Teeth pcs	6.6 m HD Boom 2.9 m Arm
Heavy duty	4.0 m <sup>3</sup>	1,980	4,415	5	D
	4.3 m <sup>3</sup>	1,960	4,130	5	D

The recommendations are given as a guide only, based on typical operation conditions. Bucket capacity based on ISO 7451, heaped material with a 1:1 angle of repose.

Maximum material density:  
 A. 1,200-1,300 kg/m<sup>3</sup>: Coal, Caliche, Shale  
 B. 1,400-1,600 kg/m<sup>3</sup>: Wet earth and clay, limestone, sandstone  
 C. 1,700-1,800 kg/m<sup>3</sup>: Granite, wet sand, well blasted rock  
 D. 1,900 kg/m<sup>3</sup>: Wet mud, Iron ore  
 NA. Not applicable

**MACHINE WEIGHTS AND GROUND PRESSURE**

Shoe width	Operating weight	Ground pressure	Overall width
	6.6 m boom/2.9 m arm/4.3 m <sup>3</sup> bucket/ 11,300 kg counterweight		
650 mm	70,500 kg	101 kPa	4,620 mm



**WORKING RANGE**

Boom Length		6,600 mm
Arm Length		2,900 mm
A. Max. cutting height		10,950 mm
B. Max. dumping height		7,030 mm
C. Max. digging depth		7,180 mm
D. Max. vertical wall digging depth		4,070 mm
E. Max. digging depth 2.44 m (8') level		7,030 mm
F. Max. digging reach		11,450 mm
G. Max. digging reach on ground		11,170 mm
H. Min. front swing radius		4,900 mm
Bucket Digging Force (ISO)	Normal	345 kN
	Power Boost	376 kN
Stick Digging Force (ISO)	Normal	298 kN
	Power Boost	327 kN
Bucket Capacity		4.3 m <sup>3</sup>

Lifting capacity at the arm end without bucket. For lifting capacity including bucket, weight of the bucket or the bucket with quick coupler must be deducted from the lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface.



- Do not attempt to lift or hold any load that is greater than these rated values at their specified load radius and height. Weight of all accessories must be deducted from the above lifting capacities.
- The rated loads are in compliance with ISO 10567 Hydraulic Excavator Lift Capacity Rating Standard. They do not exceed 87% of hydraulic lifting capacity or 75% tipping load.
- Ratings at bucket lift hook.
- Lifting capacities are based on machine standing on level, firm and uniform ground.
- \*Indicates the load is limited by hydraulic capacity rather than tipping capacity.
- Operator should be fully acquainted with the Operator's and Maintenance Instructions before operating this machine and rules for the safe operation of equipment should be adhered to at all times.

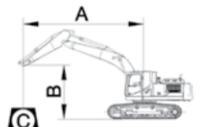
**LIFTING CAPACITY (METRIC)**

650 mm Shoes, 6,600 mm Boom, 2,900 mm Arm

**Conditions**

A: Load radius  
B: Load point height  
C: Lifting capacity rating  
Cf: Rating loads over front  
Cs: Rating loads over side

Boom length: 6,600 mm  
Arm length: 2,900 mm  
Bucket: None  
Counterweight: 11,300 kg  
Shoes: 650 mm triple grouser  
Unit: kg



B (m)	A (Unit: m)													A (m)				
	3	4	5	6	7	8	MAX REACH											
7																		
6																		
5																		
4																		
3																		
2																		
1																		
GROUND LEVEL																		
-1																		
-2																		
-3																		
-4																		

# STANDARD EQUIPMENT

## ENGINE SYSTEM

- Cummins engine QSX15, EPA Tier 3/EU Stage IIIA, turbocharged, 6 cylinder, 4 stroke, water cooled.
- Air filter with pre-cleaner
- Pre-filter with water separator
- Auto-idle speed control
- Aspiration, Wastegate Turbo (WGT)
- IPC (Intelligent Power Control) System
- Radiator, oil cooler, and charge air cooling; Hydraulic and direct drive cooling fan
- Engine overheat prevention system
- Engine oil filter

## DRIVETRAIN

- Hydraulic motor, one-piece two-gear piston and reducer
- 2-speed travel system with automatic shift

## SWING SYSTEM

- High-torque piston swing motor with integral spring set and automatic hydraulic release swing brake

## HYDRAULIC SYSTEM

- Main pump: two variable displacement piston pumps, ready for PTO
- Pilot pump: gear
- Cylinders: boom, stick, bucket
- Power boost function
- Swing with anti-reverse function
- Boom and arm regeneration circuits

- Pilot oil filter
- Pilot control shut-off lever
- 6-working mode selection system: Power, Economy, Fine, Lifting, Breaker, Attachment

## DIGGING EQUIPMENT

- 6,600 mm boom
- 2,900 mm arm
- 4.3 m<sup>3</sup> (SAE, heaped) bucket

## OPERATOR STATION

- Pressurized and sealed cab with all-around visibility, large roof window with slide sliding sun visor, front window wiper and removable lower window
- Air conditioner, heater, defroster
- Mechanical suspension seat
- AM/FM radio
- Glass-breaking hammer
- Cigarette lighter
- Cup holder
- Floor mat
- Storage box
- Fire extinguisher
- One key for all locks

## INSTRUMENTATION

- Color LCD monitor with alarms, filter/fluid change, fuel rate, water temperature, work mode, fault code, working hour, etc
- Fuel gauge
- Hydraulic oil level gauge

## ELECTRICAL

- Alternator 100 A
- Dual batteries 2 x 12 V
- Working lights, 1 frame mounted, 2 boom mounted
- Starting, 24 V

## UNDERCARRIAGE

- 650 mm track-shoes with double grousers
- Rollers, bottom - 8 each side, top - 3 each side
- 2 piece under-guards (each side)
- Towing eye on base frame

## GUARDS

- Belly guards
- Cover plate under travel frame
- Track shields

## OTHER STANDARD EQUIPMENT

- Counterweight, 11,300 kg
- Maintenance tool kit
- Maintenance parts package

# OPTIONAL EQUIPMENT

## ENGINE SYSTEM

- Electrical fuel refilling pump

## HYDRAULIC SYSTEM

- Hydraulic attachments rotation lines
- Overloading warning
- Hose burst safety valves, prevention of boom or arm supply dropped when the lines split.
- Dual way auxiliary lines
- Quick coupler lines (low and high pressure)

## OPERATOR STATION

- Operation protection guard (included cab front and top guard, bar)
- Operation protection screen (on cab front, net)
- Operation protection screen (front-lower)
- Rain visor
- Mechanic heated suspension seat

## ELECTRICAL

- LED working lights on cab, 4 front and 2 rear
- Rear view camera
- Travel alarm
- Rotating beacon

## UPPER STRUCTURE

- Upper frame protection (wire)
- Belly guard and 8 mm thickness platform bottom plate

## UNDERCARRIAGE

- Full track-guards (each side)

## DIGGING EQUIPMENT

- 4.0 m<sup>3</sup> (SAE, heaped) bucket
- Hydraulic hammers
- Hydraulic quick couplers



## Guangxi LiuGong Machinery Co., Ltd.

No. 1 Liutai Road, Liuzhou, Guangxi, PR China 545007  
T: +86 772 388 6124 E: overseas@liugong.com  
www.liugong.com

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