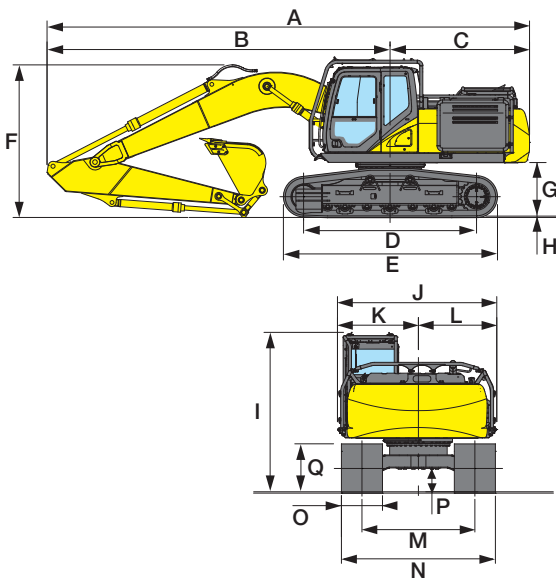


SH210F-6 Hydraulic Excavator



Standard Equipment

- [Hydraulic system]**

  - SIH:S+ hydraulic system
  - Operation mode (SP, H and A mode)
  - Automatic 2-speed travel
  - Automatic power boost
  - Arm/boom/bucket reactivation circuit
  - Automatic swing parking system
  - High-performance return filter
- [Safety equipment]**

  - Rearview mirror (left)
  - Emergency escape tool
  - Retracting seat belt
  - Gate lock lever
  - Travel alarm (with on and off switch)
  - Anti-theft alarm system
  - Engine room firewall
  - Fan guard
  - Engine emergency stop switch
  - Engine neutral start
- [Cabin/interior equipment]**

  - Strengthened cabin
  - Top guard FOPS level 1 (in cab structure)
  - Shock-less cab suspension by 4-point fluid mounts
  - Built-in type full-colour monitor display
  - Tilting console
  - Open air introducing pressurised full-automatic air conditioner
  - Defroster
  - Hot & cool box
  - Seat suspension
  - Armrest & headrest
  - Windscreen wiper (with intermittent operation function)
  - Cup holder
  - AM/FM radio (with muting function and AUX port & USB port)
  - Radio mute/ Windscreen wiper one-touch control on joystick
  - Clock
  - Magazine rack
  - Accessory case
  - Floor mat
  - Ashtray & cigarette lighter
  - Cab light (Auto-OFF function)
  - Coat hook
- [Others]**

  - Auto/one-touch idling
  - Auto idle shutdown system
  - EMS
  - Long-life hydraulic oil
  - Two lights (main unit, and left of boom)
  - Fuel filter
  - Fuel prefilter (with water separator)
  - Double-element air cleaner
  - Grease-enclosed track link
  - Large tool box
  - A set of tools
  - Tropical house
  - Refuel pump
  - Precleaner (cyclone type)

Dimensions

Model	SH210F-6
Arm length	2.94 m
A Overall length	9,390 mm
B Length from centre of machine (to arm top)	6,670 mm
C Length from centre of machine (to rear end)	2,720 mm
D Centre to centre of wheels	3,370 mm
E Overall track length	4,190 mm
F Overall height	2,920 mm
G Clearance height under upper structure	1,040 mm
H Shoe lug height	26 mm
I Cab height	3,130 mm
J Upper structure overall width	3,110 mm
K Width from centre of machine (left side)	1,580 mm
L Width from centre of machine (right side)	1,530 mm
M Track gauge	2,200 mm
N Overall width	3,000 mm
O Std. shoe width	800 mm
P Minimum ground clearance	440 mm
Q Crawler tracks height	960 mm

Accessories (option)

- Cab-top lights


- Cab-top 4-light row



- Boom foot light


- Super tropical spec housing

Accessories and specifications may differ depending on countries and regions.

# SUMITOMO

## SH210F-6

- 

**MACAN**
- Engine Rated Power (Net): 117.3 kW•159.5 PS

■ Operating Weight:  
SH210F-6..... 21,700 kg~22,400 kg

■ Bucket: ISO/SAE/PCSA Heaped: 0.8~0.9 m³





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We are constantly improving our products and therefore reserve the right to change designs and specifications without notice. Illustrations may include optional equipment and accessories and may not include all standard equipment.



# Performance Refined. Evolution Defined.

MACAN Specification 04-05

Engine and Hydraulics 06-07

- New Generation Engine System "SPACE 5+"
- New Hydraulic System "SIH:S+"
- SUMITOMO Fuel Efficiency Technology
- Dramatically Increased Productivity

Durability and Maintenance 08-09

- High Rigidity Attachments
- EMS
- Ground Level Maintenance

Safety and Operator Comfort 10-13

- Stylish and Spacious Cabin
- High-Definition Full Colour LCD Monitor

Specifications 14-16

## JAPANESE TECHNOLOGY

The world knows that Japanese designed and engineered products represent the highest quality, especially for Industrial Products. The hydraulic excavator is no exception when a totally integrated concept is required in design work involving key components, manufacturing engineering, and product quality assurance in the factory. SUMITOMO hydraulic excavators are designed and manufactured today to meet the global demands of our many customers with the concept of Performance, Reliability, and Fuel Efficiency foremost in our minds. This proven Japanese technology and quality gives SUMITOMO excavator customers total peace of mind and provide a complete solution for the demands of the construction industry.

**MACAN**

Photos may include optional equipment





## Full-spec Toughness Guard Designed Specifically for MACAN Models (option)

A specially-designed full guard is available as an option to suit MACAN models working on harsh worksites, protecting the machine from the unexpected – falling trees, construction rubble or other flying debris. The heavy-duty guard is installed with superior high-strength mounting points, while also enhancing visibility around the machine without hindering operations. Options like the cab top 4-lamp row can also be used to enhance work operations.

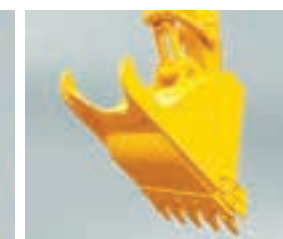


### Horn Bucket (option)

The horn bucket is professionally designed for high durability, which is useful for tough cleaning jobs on palm oil land. The use of reinforced bucket links ensures excellent safety during demand jobs.



Reinforced bucket links



Horn bucket

### MACAN specifications (optional packages, excluding 10 11 13 )



1 Upper cab guard (guard closed)



(guard opened)



2 Reinforced-side frames



3 Cab right guard



4 HD upper under cover



5 Cab right side guard



6 Side guard

Newly designed with greater coverage up to the top of the machine, with higher strength mounting points for an even higher level of safety.



7 Rear emergency escape window



8 Toolbox front guard



9 Stopper (handle stay cover)  
The lower mounting point makes it easier to open and close.



10 Folding engine hood guard (additional option)



11 Cab-top 4-light row (additional option)



12 Boom foot guard



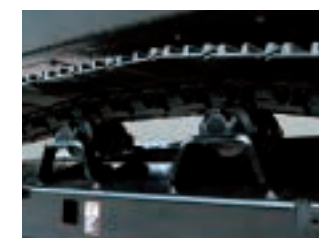
13 Boom foot light (additional option)



14 Lower under cover



15 Reinforced idler frame



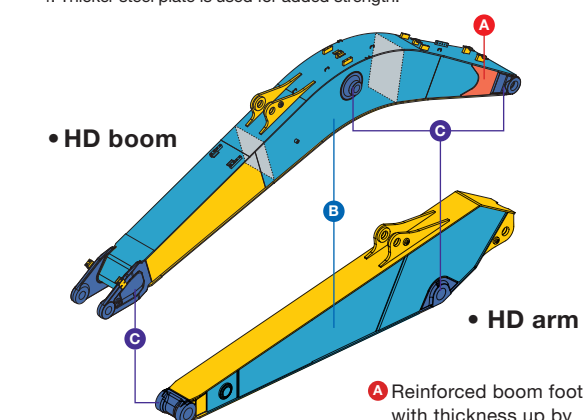
16 Reinforced upper rollers



17 Centre guard (Triple)

### Boom & Arm

1. The boom structure is now 2 pieces instead of 3.
2. High strength castings are used for the boom base and arm end.
3. One size larger piping is used for the boom boss area.
4. Thicker steel plate is used for added strength.



**B** The improved boom plate structure has reduced the number of weld sections that reduce the strength, thereby improving the quality.

**A** Reinforced boom foot with thickness up by additional plate.

**C** The molded units (forging/casting) prevent concentration of force (stress) and improve the welding quality as well.





**Performance Refined.  
Evolution Defined.**

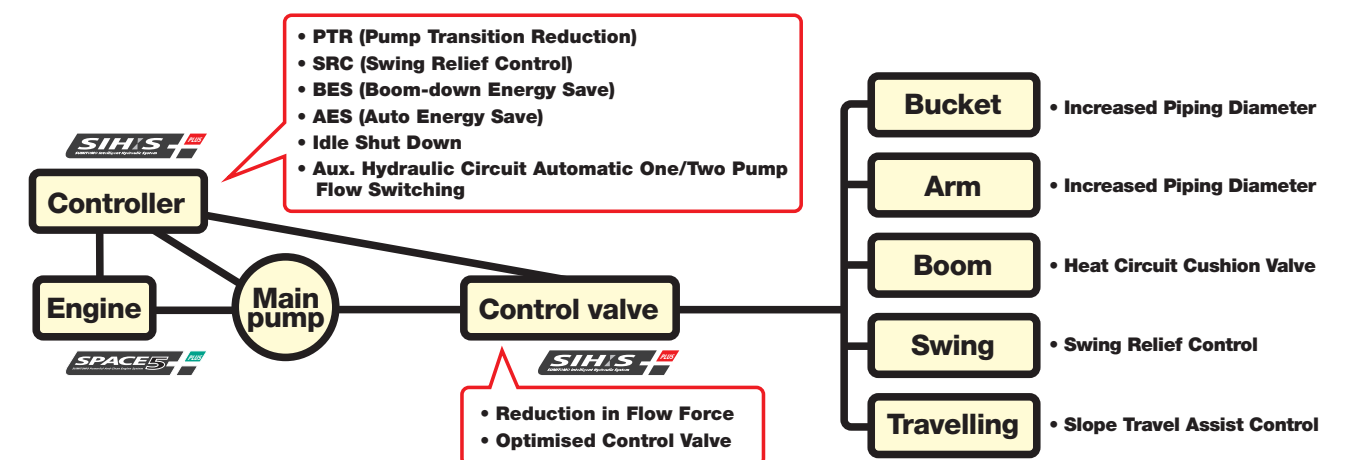
New Engine System **SPACE 5+ PLUS** + New Hydraulic System **SIH:S+ PLUS** = **11% Reduction in Fuel Consumption**  
(as compared with SH210F-5 [H mode])

### New Generation Engine System "SPACE 5+"

The new engine system optimises fuel efficiency and environmental performance via the advanced common rail fuel injection system, and turbocharger. At the same time, excellent response times are achieved.

## Engine and Hydraulics

SH210F-6 has achieved a 11% reduction in fuel consumption in comparison with our DASH 5 series, by fusing the new generation engine system "SPACE 5+" and the new hydraulic system "SIH:S+", further refining fuel efficiency. At the same time the newly developed ISUZU engine, contributes greatly to the environment.



### Mode Selection by Throttle **SUMITOMO UNIQUE DESIGN**

There are three working modes available:  
SP (Super Power) for heavy duty applications,  
H (Heavy) for normal working conditions,  
A (Auto) for a wide range of operations.



### Further Improvement of Fuel Consumption

The new technology has improved operations and reduced fuel consumption on each working mode.

- **SP mode** **8% Reduction in Fuel Consumption**
- **H mode** **11% Reduction in Fuel Consumption**
- **A mode** **11% Reduction in Fuel Consumption**

(as compared with SH210F-5)

\*Fuel consumption may vary from time to time depending on site and working conditions, operator skill and other circumstances.

### ECO Gauge Showing Low Energy Operation

The energy saving conditions can be seen at a glance, as well as the fuel consumption indicator shown on the monitor.



### SUMITOMO Technology for Fuel Efficiency

● **BES (Boom-down Energy Save)** **SUMITOMO UNIQUE DESIGN**  
Lowers engine speed upon boom-down and swing operation which does not require large oil flow.

● **AES (Auto Energy Save)** **SUMITOMO UNIQUE DESIGN**  
Lowers engine speed accordingly when low engine load is sensed.

● **PTR (Pump Transition Reduction)**  
Decreases engine load when the pump flow requirement is reduced upon abrupt pump load.

### ● Idle Shut Down & Auto Idle

Upon activation, idle shut down automatically shuts the engine down when the machine is not in operation for set amount of time. Auto Idle is also available, which makes the engine begin idling approximately five seconds after the operation levers are in neutral position.







## Durability and Maintenance

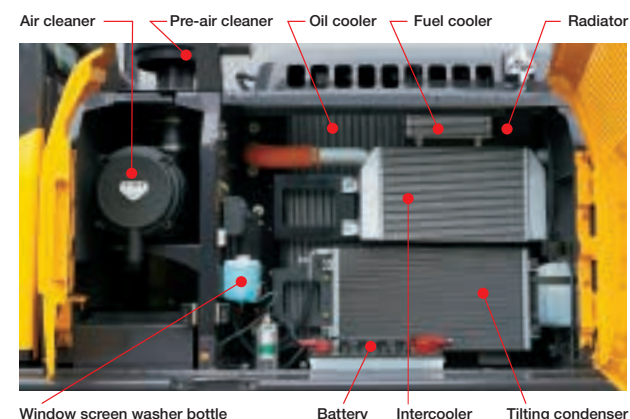
**Serviceability and durability are also important points of machine performance. Ground level access to the engine area makes daily maintenance extremely straightforward. Reliability has been further enhanced by increasing cooling capability and durability.**

### Ground Level Access to Engine Area Improves Preventative Maintenance

Parts cleaning and maintenance are possible from the ground without climbing onto the upper structure of the excavator body.

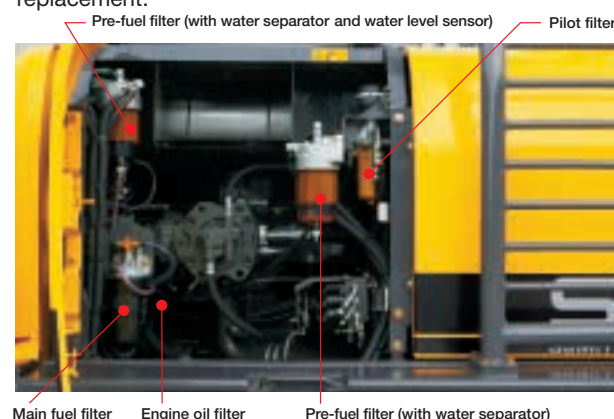
#### • Increased Cooling Capability

With the larger radiator and oil cooler, cooling capacity is increased, thus improving reliability. In addition, cleaning of the dust-proof net is simplified.



#### • Easy Filter Replacement

A fuel prefilter with water separator and water level sensor are provided as standard equipment to reduce maintenance trouble. In addition, the fuel and oil filters are installed at ground-accessible location to facilitate replacement.



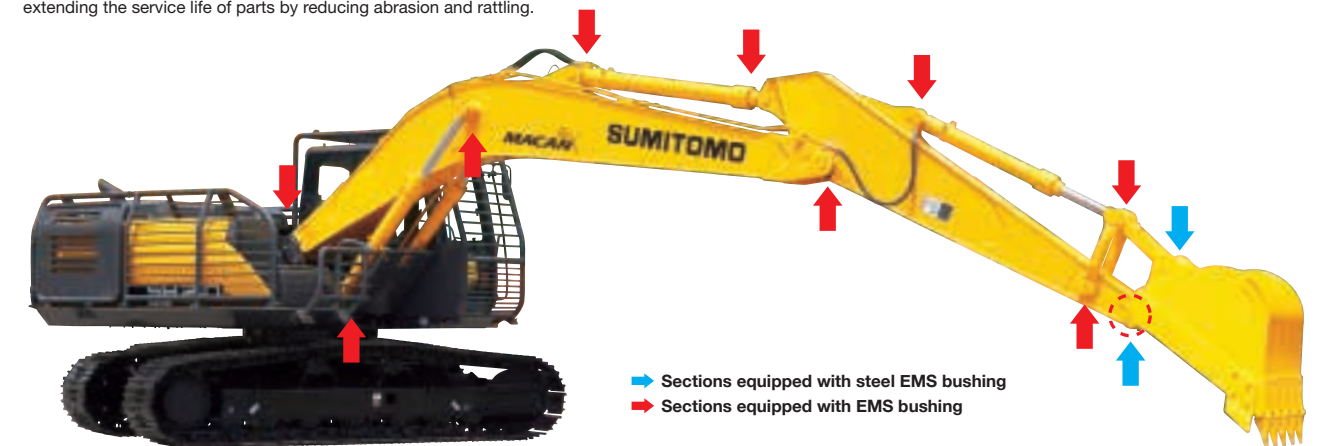
### EMS (Easy Maintenance System) as Standard

SUMITOMO's EMS keeps the pins and bushes fully lubricated at all times and prevents rattling. This system significantly extends the service life of the pins and bushes.

The lubrication interval around the bucket is 250 hours, and for the other sections is 1,000 hours, keeping the joints lubricated for a long time and extending the service life of parts by reducing abrasion and rattling.

- **Bucket greasing interval: 250 hours**
- **Greasing interval for other sections: 1,000 hours**

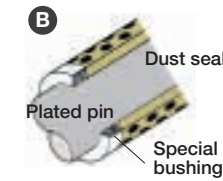
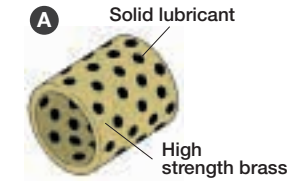
\* The greasing interval depends on the working conditions.



#### ■ EMS bushing



**A** A solid lubricant embedded in high strength brass forms a layer on the bushing surface to prevent contact between metals, maintaining an excellent lubricated state to reduce abrasion of joints.



**B** The surface of the pin is plated to increase the surface hardness and improve the wear resistance accordingly.

#### ■ Steel EMS bushing



Steel EMS is installed around the bucket

#### Precautionary use of EMS

- ① Grease is enclosed, however greasing is necessary every 1000 hours or six months depending on the level of dusting conditions.
- ② Greasing is also necessary after any components have been submerged underwater for prolonged periods.
- ③ Greasing is also recommended after use with hydraulic breakers, crushers or other high impact attachments such as Rock Saws etc.
- ④ Bucket pins should be cleaned thoroughly when removing or attaching new buckets.

### High-Performance Return Filter

The hydraulic oil change interval is 5,000 hours, and the return filter change interval is 2,000 hours. One high performance return filter keeps the same level of filtering as a nephron.



- **Hydraulic oil change: 5,000 hours**

- **Life of filter: 2,000 hours**

\* The oil and filter change interval varies by the working conditions.

### Cab Floor Mat

SUMITOMO  
UNIQUE DESIGN

The washable floor mat has been redesigned for ease of removing and cleaning.



### Refuel Pump

Refueling is easy on any type of worksite with an electric refueling pump and hose supplied as standard.



### Pre-air Cleaner

An automatic exhaust type pre air cleaner is provided as standard. The air cleaner cleaning frequency is minimised, even when operating in dusty conditions.



### Easy Access to A/C Filter

The air intake filter is located in a lockable compartment to make it easier to replace, and access to the inside cab filter has been simplified.



### Fuse Box Location

The fuse box has been located in a separate compartment behind the seat, allowing easier access.







**Performance Refined.  
Evolution Defined.**

## Safety and Operator Comfort

**A new strengthened safety cabin has been provided. The reinforced cabin greatly increases operator's safety.**

### Large High-Definition LCD Monitor

A new large high-definition full colour LCD monitor has been introduced with better visibility and a switch panel which is easy to operate. Added functionality such as ECO gauge showing parameter of energy saving, display of operation status and warning messages, provides accurate information which improves work efficiency and safety.



#### Indicators

- |                        |                               |
|------------------------|-------------------------------|
| 1 Working modes        | 9 Fuel level gauge            |
| 2 Travel speed         | 10 Engine coolant temperature |
| 3 Work lights          | 11 Fuel consumption indicator |
| 4 Engine idle modes    | 12 Hydraulic oil temperature  |
| 5 Anti-theft           | 13 Power boost                |
| 6 Attachment selection | 14 Radio mute                 |
| 7 Digital clock        | 15 Hour meter                 |
| 8 ECO gauge            |                               |

#### Switch Panel

- |                            |                                     |
|----------------------------|-------------------------------------|
| A Travel speed button      | F Hour meter / Camera toggle button |
| B Fuel consumption button  | G Window washer control             |
| C Aux. hydraulics settings | H Engine idle mode button           |
| D Computer menu            | I Worklights on/off                 |
| E Camera on/off            | J Window wiper control              |

### Operating Position of Sliding Seat and Tilting Console

In addition to the tilting console that is adjustable in four steps vertically, the increased sliding distance ensures optimum working conditions.



### Easy Access to the Upper Structure

A large step and handrail, as well as a non-slip surface, minimises the effort required to climb up or down the upper structure.



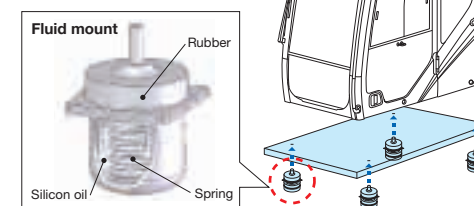
A large handrail and steps make access to the machine safer.



Non-slip plate

### Super Comfortable Cab Mounts and Pressurised Cab

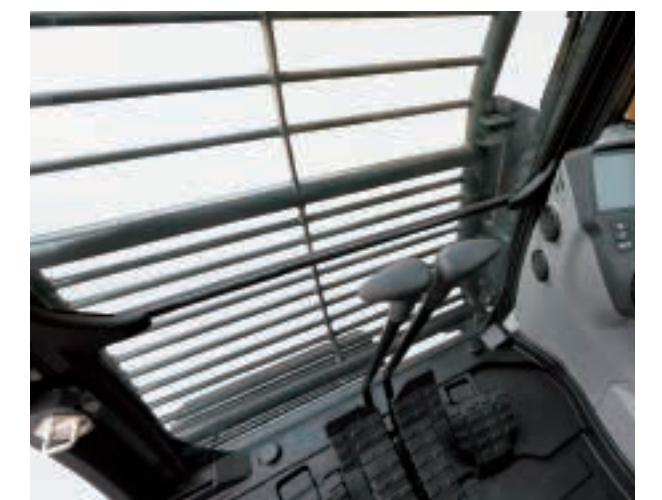
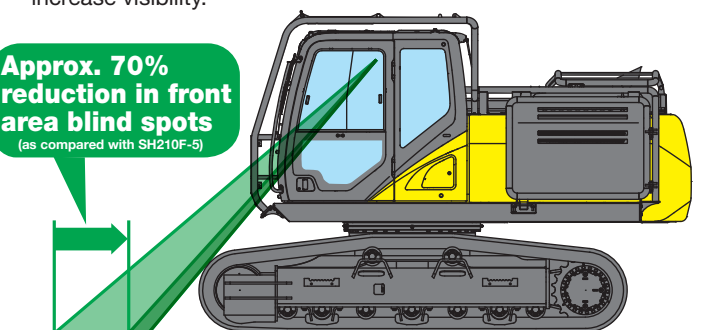
Fluid mounts that support the cab absorb shocks and vibrations effectively, improving ride comfort. The cab also features a pressurised design to prevent dust from entering inside, giving operators greater comfort.



### Better Visibility Below Cab Guard

The shape of the front guard and platform have been revised to provide much better visibility immediately below the cab. This design helps to improve safety as well as increase visibility.

**Approx. 70% reduction in front area blind spots**  
(as compared with SH210F-5)







**Performance Refined.  
Evolution Defined.**

## Safety and Operator Comfort

**The spacious cab on suspension mounts and reclining suspension seat help reduce operator fatigue and provide a relaxed environment.**

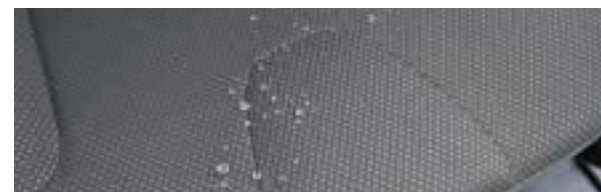
### Stylish and Spacious Cab

Wide cab space and floor space ensure more comfortable operation. In addition to the tilting console that is adjustable in four steps vertically, the increased sliding distance ensures optimum working conditions.



### Sophisticated Reclining Seat

The seat reclining system allows the operator to lay the seat flat and to rest on site without having to remove the headrest. The suspension seat eliminates vibration and fatigue.



The highly water repellant seat covering is tough on dirt and water.

### Auxiliary Operation Pedal

The auxiliary operation pedal is lighter to depress and the pedal angle is adjustable.



### Comfortable Equipment



Luggage space



Hot & cool box



Magazine rack

### Automatic Air Conditioner

Fully automatic climate control is available through the eight vents, with an 8% stronger A/C unit, and a 24% improvement in airflow. (as compared with SH210F-5)



### Radio and Speaker with USB Port and MP3 Jack

In addition to the AM/FM radio and dual speaker system with improved sound quality, auxiliary audio port is provided standard for devices such as MP3 players.



### Lever Switches

One-touch idle, horn, radio mute, or one-touch wiper buttons are installed on the operation levers in consideration of improved operability while working.



Radio mute switch (left lever)



One-touch wiper switch (right lever)



# Specifications

## SH210F-6 Technical Data

The electronic-controlled engine of SPACE 5+ and SIH:S+ with New Hydraulic System Includes: three working modes (SP, H and A), one-touch/automatic idling system, automatic power-boost, speed assistance system, power-swing system.

### Engine

SH210F-6	
Model	ISUZU GF-4HK1X
Type	Water-cooled, 4-cycle diesel, 4-cylinder in line, high pressure common rail system (electric control), turbocharger with air cooled intercooler.
Rated output	117.3 kW (159.5 PS) at 1,800 min <sup>-1</sup> (rpm)
Maximum torque	608 N·m at 1,600 min <sup>-1</sup> (rpm)
Piston displacement	5.19 ltr (5,193 cc)
Bore and stroke	115 mm x 125 mm
Starting system	24 V electric motor starting
Alternator	24 V, 50 A
Air filter	Double element

### Hydraulic pumps

Two variable displacement axial piston pumps supply power for boom/arm/bucket, swing, and travel. One gear pump for pilot controls.

SH210F-6	
Maximum oil flow	2 x 211 ltr/min
Pilot pump max. oil flow	18 ltr/min

### Hydraulic motors

For travel: Two variable displacement axial piston motors  
For swing: One fixed displacement axial piston motor

### Working circuit pressure

Boom/arm/bucket ....34.3 MPa (350 kgf/cm<sup>2</sup>)  
Boom/arm/bucket ....36.8 MPa (375 kgf/cm<sup>2</sup>) with auto power-up  
Swing circuit .....29.4 MPa (300 kgf/cm<sup>2</sup>)  
Travel circuit .....34.3 MPa (350 kgf/cm<sup>2</sup>)

### Control valve

With boom/arm holding valve  
One 4-spool valve for right track travel, bucket, boom and arm acceleration  
One 5-spool valve for left track travel, auxiliary, swing, boom acceleration and arm

### Oil filtration

Return filter ..... 6 microns  
Pilot filter ..... 8 microns  
Suction filter ..... 105 microns

### Hydraulic cylinders

SH210F-6		
Cylinder	Q'ty	Bore x rod diameter x stroke
Boom	2	120 mm x 85 mm x 1,255 mm
Arm	1	140 mm x 100 mm x 1,460 mm
Bucket	1	120 mm x 85 mm x 1,010 mm

Double-acting, bolt-up type cylinder tube-end; hardened steel bushings  
Installed in cylinder tube and rods ends.

### Cabin & controls

The cabin is mounted on four fluid mountings. Features include safety glass front, rear and side windows, adjustable upholstered suspension seat with headrest and armrest, cigarette lighter, pop-up skylight window, and intermittent wiper with washer.  
The front window slides upward for storage, and the lower front window is removable. Control levers are located in four positions with tilting control consoles. Built-in type full-colour monitor display. Membrane switch on monitor display.

### Swing

Planetary reduction powered by axial piston motor. The internal ring gear has a grease cavity for pinion. The swing bearing is a single-row shear type ball bearing. Dual stage relief valves are used for smooth swing deceleration and stops. A mechanical disc swing brake is included.

SH210F-6	
Swing speed	0~11.5 min <sup>-1</sup> (rpm)
Tail swing radius	2,750 mm
Swing torque	64 kN·m (6,526 kgf·m)

### Undercarriage

An X-style carbody is integrally welded for strength and durability. The grease cylinder track adjusters have shock absorbing springs. The undercarriage has lubricated rollers and idlers.

### Type of shoe: sealed link shoe

**Upper rollers -**  
Heat treated, mounted on steel bushings  
with leaded tin bronze casting, sealed for lifetime lubrication.

**Lower rollers -**  
Heat treated, mounted on steel bushings  
with leaded tin bronze casting, sealed for lifetime lubrication.

**Track adjustment -**  
Idler axles adjusted with grease cylinder integral with each side frame; adjustment yoke mechanism fitted with heavy duty recoil spring.

### Number of rollers and shoes on each side

SH210F-6	
Upper rollers	2
Lower rollers	7
Track shoes	46

### Travel system

Two-speed independent hydrostatic system with compact axial motors for increased performance. Hydraulic motor powered output shaft coupled to a planetary reduction unit and track sprocket. All hydraulic components mounted within the width of side frame.  
Travel speed can be selected by the switch panel on the monitor display. Hydraulically released disc parking brake is built into each motor.

SH210F-6		
Travel speed	High	5.6 km/h
	Low	3.4 km/h
Drawbar pull		188 kN (19,171 kgf)

### Lubricant & coolant capacity

SH210F-6	
Hydraulic system	240 ltr
Hydraulic oil tank	147 ltr
Fuel tank	410 ltr
Cooling system	29.8 ltr
Final drive case (per side)	5.0 ltr
Swing drive case	5.0 ltr
Engine crank case	23.1 ltr

### Auxiliary hydraulic system

SH210F-6		
Auxiliary piping type (option)	For Breaker	For Double (breaker & crusher) acting
Arm type	HD	HD
Bucket linkage type	HD	HD
Auxiliary hydraulic pump flow	211 ltr/min	422 ltr/min

### Bucket

Options and specifications may differ depending on countries and regions

Model		SH210F-6				
Bucket capacity (ISO/SAE/PCSA heaped)		0.8 m <sup>3</sup>	0.9 m <sup>3</sup>			
Bucket capacity (CECE heaped)		0.67 m <sup>3</sup>	0.78 m <sup>3</sup>			
Bucket type		HD	STD	Reinforced	Horn	Horn slope
Number of teeth		5	5			
Width	With side cutter	1,136 mm	1,230 mm	1,230 mm	1,230 mm	1,700*mm
	Without side cutter	1,036 mm	1,130 mm	1,130 mm	1,130 mm	
Weight		727 kg	665 kg	747 kg	925 kg	1,000 kg
Combination		2.94 m arm	◎	◎	◎	○

◎ Suitable for materials with density up to 1,800 kg/m<sup>3</sup> or less      ○ Suitable for materials with density up to 1,600 kg/m<sup>3</sup> or less      \* With side slope

### Weight & Ground Pressure

( ): Without body guarding

Model		SH210F-6			
Shoe type		Shoe width	Overall width	Operating weight	Ground pressure
Triple grouser shoe		600 mm	2,800 mm	21,900 kg (21,200 kg)	48.9 kPa (47.4 kPa)
		800 mm	3,000 mm	22,400 kg (21,700 kg)	37.5 kPa (36.4 kPa)

### Digging Force

Model		SH210F-6	
Arm length		2.94 m	
Bucket digging force (with auto power up)	ISO 6015	142 kN (152 kN)	
	SAE: PCSA	127 kN (136 kN)	
Arm digging force (with auto power up)	ISO 6015	103 kN (110 kN)	
	SAE: PCSA	100 kN (107 kN)	

### Working Range

SH210F-6		
Attachment	Normal type	Highlift Type
Arm length	2.94 m	
Boom length	5.70 m	
A Max. digging radius	9,900 mm	
B Max. digging depth	6,650 mm	5,520 mm
C Max. digging height	9,610 mm	10,830 mm
D Max. dumping height	6,810 mm	7,940 mm
E Max. vertical wall cut depth	5,960 mm	4,870 mm
F Min. front swing radius	3,600 mm	2,340 mm
G Rear end swing radius	2,750 mm	

