

ZAXIS110M

HITACHI

# ZAXIS 110M

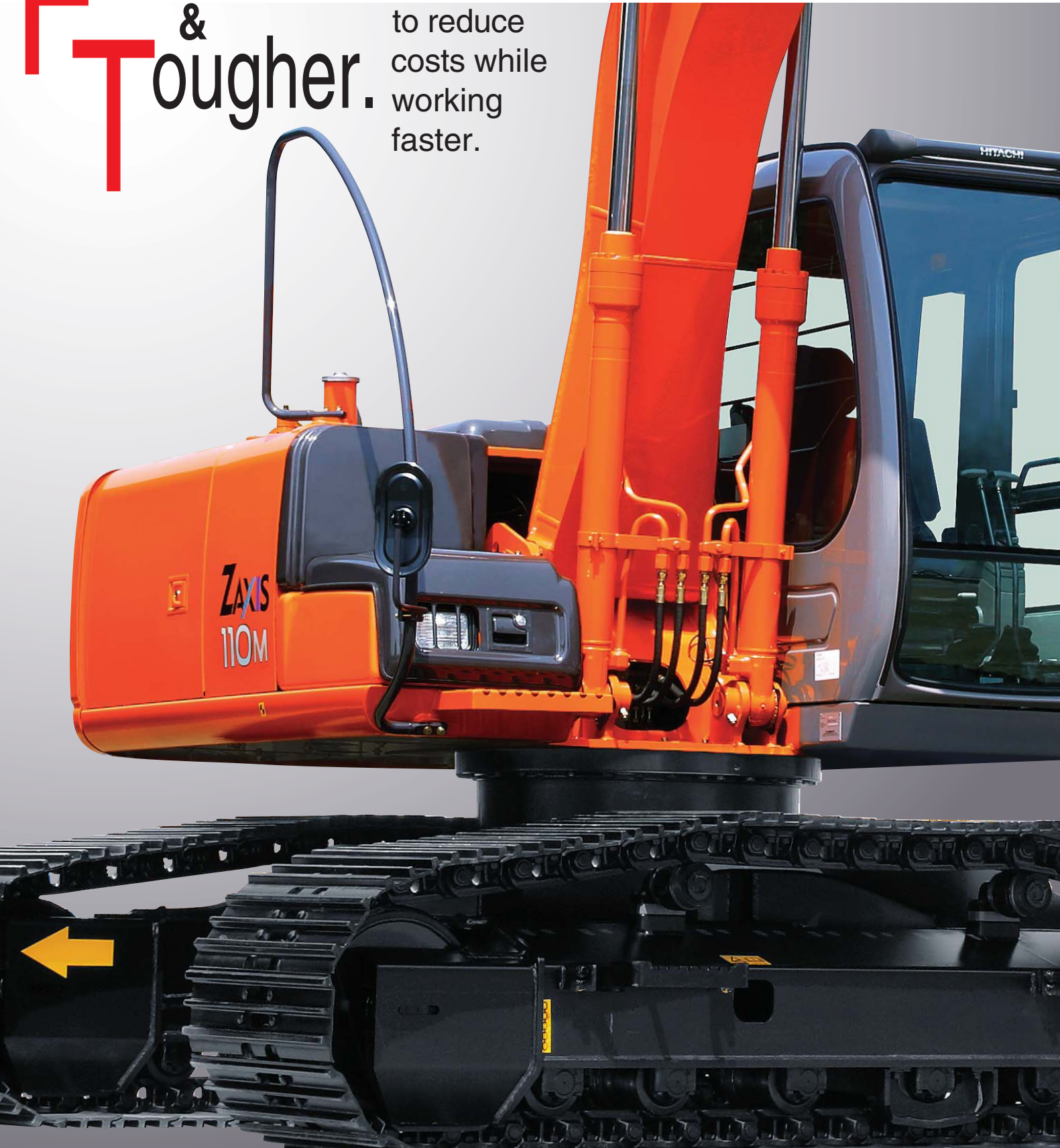
- Engine Rated Power : 63 kW (85 PS)
- Operating Weight : 12 800 — 13 700 kg
- Backhoe Bucket
  - PCSA Heaped : 0.19 — 0.59 m<sup>3</sup>
  - CECE Heaped : 0.17 — 0.50 m<sup>3</sup>



Z A X I S

**F**aster  
&  
**T**ougher.

ZAXIS uses  
advanced technology  
to reduce  
costs while  
working  
faster.



## All Excavating Operations in a Single Mode

Simply select the "Digging" mode for smooth and speedy control of front operations. No need to select from among multiple modes.



## Powerful yet Efficient Engine

The large powerful engine provides an excellent balance of power and fuel efficiency.

## Direct-Feel Control From a Refined Hydraulic System

It almost seems as if the wishes of the operator become excavating operations. The refined hydraulic system gives the operator excellent control.

## Power to Master Tough Excavating Jobs

The powerful engine and hydraulic system work together to focus maximum excavating force on the job. Zaxis dominates tough work sites.

## Dependable Travel and Swing Torque

Plenty of dependable power for travel and swing operations makes the Zaxis ready for rough terrain. Compared to the previous model, the Zaxis offers 4% more travel power and 5% more swing torque.

## Stable and Tough Undercarriage

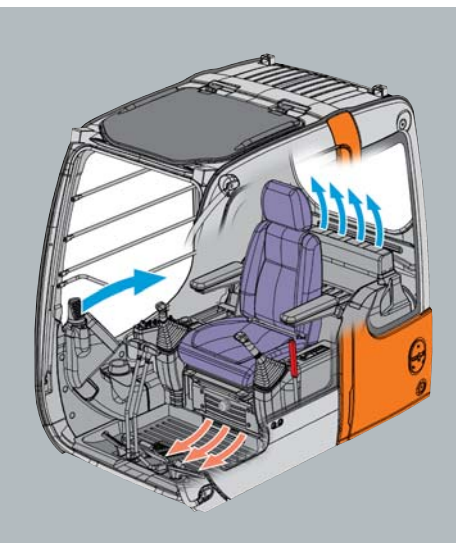
Wide track gauge, 700mm shoes and long crawler provide both low ground contact pressure, and high stability. It also allows excellent travel and operation on soft and uneven ground.

## Auto Accelerator Control Cuts Fuel Consumption

Automatic adjustment of engine speed to the amount of lever operation helps reduce unnecessary engine operation. Reducing engine operation for light loads contributes to lower fuel consumption.

### Notes :

1. Never leave the front attachment in a raised position. Make sure the front attachment is lowered to the ground before leaving the equipment unattended. (Some of the pictures in this catalog show an unmanned machine with attachments in an operating position. These were taken for demonstration purposes only and the actions shown are not recommended under normal operating conditions.)
2. Caution plates on the machine will vary according to country.



### Easy-to-Monitor Instruments

Strategically positioned instruments allow the operator to monitor the status of key areas with just a glance.

### Easy-to-Reach Switches

Switches and other essential controls are located near the operator. This helps keep operator movement to a minimum, enhancing control and helping to fight fatigue.

### Auto Control Air Conditioner

Simply set the temperature and forget about it. Ducts are positioned to promote even air flow throughout the cab.

Z A X I S

**M**inimum Effort. Operator's compartment is designed for both comfort and operating efficiency.

**M**aximum Efficiency.



Enhanced visibility on the lower right side.



Drink holder

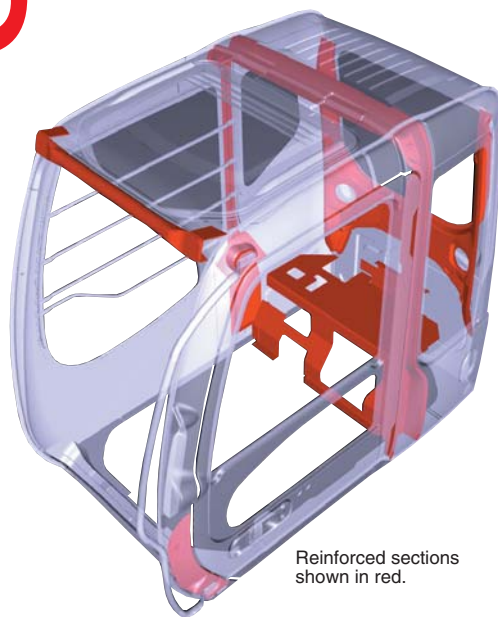
- Storage box
- Easy-lock front window latch
- Wide and comfortable arm rests



Z A X I S

# Protect & Serve.

A design that both guards the operator and contributes to efficient operation.

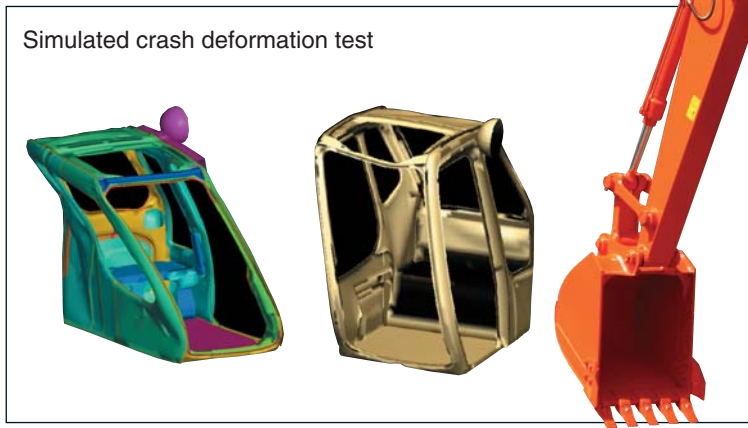


Reinforced sections shown in red.

## CRES (Center pillar Reinforced Structure)

\* The CRES cab meets OPG top guard level I (ISO).

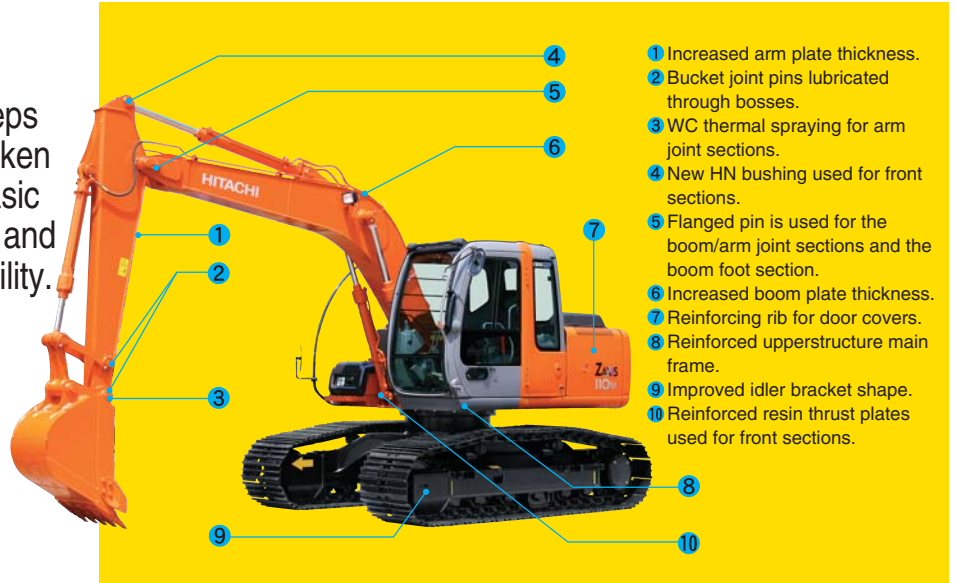
The cab is designed to help with "just in case" protection for the operator. The rigid cab design can help prevent injury to the operator in the event of an accident.



Z A X I S

# Functional & Durable.

Extensive steps have been taken to support basic performance and overall durability.



- 1 Increased arm plate thickness.
- 2 Bucket joint pins lubricated through bosses.
- 3 WC thermal spraying for arm joint sections.
- 4 New HN bushing used for front sections.
- 5 Flanged pin is used for the boom/arm joint sections and the boom foot section.
- 6 Increased boom plate thickness.
- 7 Reinforcing rib for door covers.
- 8 Reinforced upperstructure main frame.
- 9 Improved idler bracket shape.
- 10 Reinforced resin thrust plates used for front sections.



**New HN Bushing**



**WC Thermal Spraying (Tungsten Carbide)**

Components can be used for up to 1 000 hours before lubrication is needed.

(Data based on Hitachi testing.)

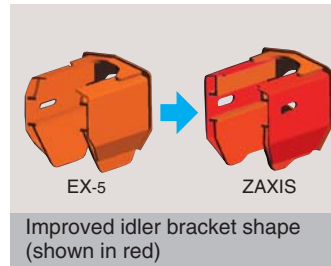


**Reinforced Resin Thrust Plates**

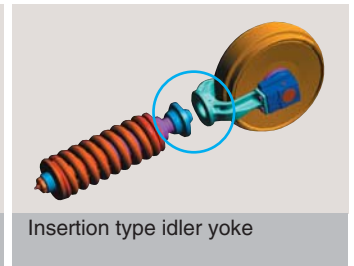
Designed to reduce noise and resist wear.

**Strengthened Swing Circle**

Provides support for strong excavating power.



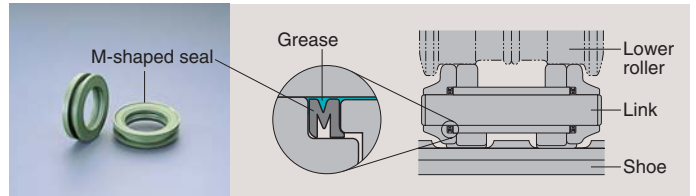
Improved idler bracket shape (shown in red)



Insertion type idler yoke

**Rigid Undercarriage**

Strong undercarriage section for increased durability. Designed for tough work sites.



**M-Shaped Track Link Seals Provide High Grease Retention**

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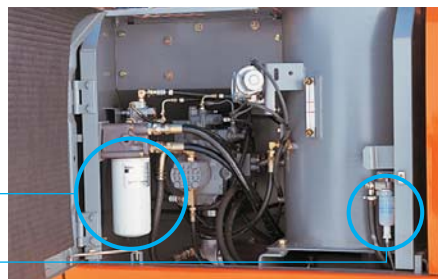
# Smart Savings.

Advanced technology help reduce maintenance cost by 30%.

Comparative information based on current Japan domestic model.

**Front and Bucket Components Only Need Lubrication Every 500 Hours**

The improved HN grooved bushings and reinforced resin thrust plates help reduce maintenance time and expense. (See the Operators Manual)

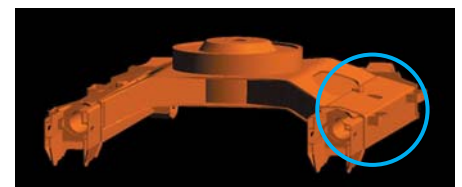


Engine oil filter  
Water separator

**Engine Oil Filter and Water Separator Positioned for Easy Checking from Ground**

**Hydraulic Oil Filter Only Needs Replacement Every 1000 Hours**

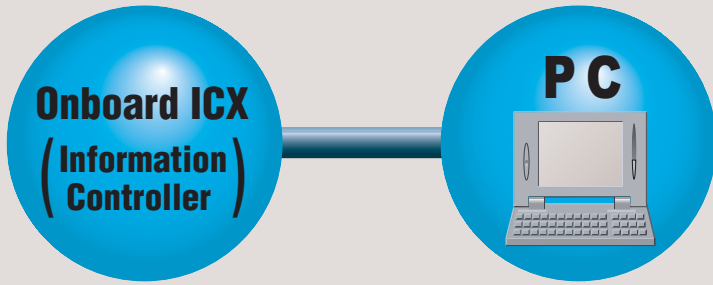
The hydraulic oil filter can be used nearly twice as long as the previous model dramatically reducing maintenance time and expense.



**Undercarriage Designed for Easy Mud Removal**

Z A X I S

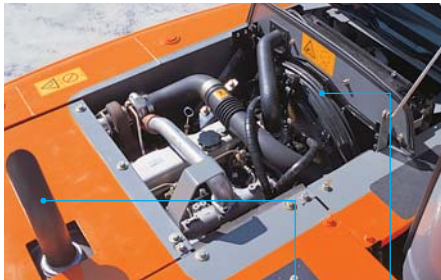
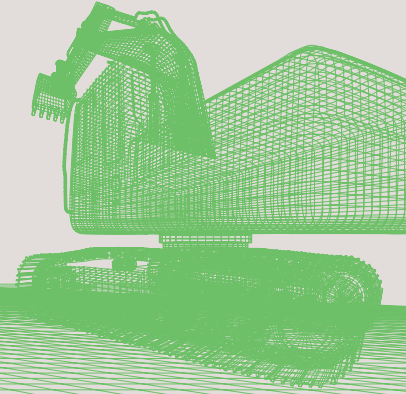
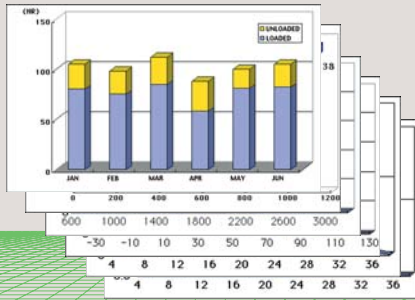
## ■ Equipment Operation Status Report



# Information Technology Support.

Providing the data for making the right decisions.

## Information Services for Equipment



### Low Noise Operation

A low-noise muffler and other such steps have been taken to reduce the amount of noise released from the engine compartment.

### Emissions Control Engine

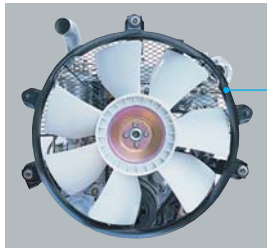
Conforms to U.S. EPA Tier 2 and EC Stage II emission regulations.

### Labeled Plastic Parts

The type of plastic used in various parts is imprinted on them to facilitate easy recycling.

### Lead-Free Wiring and Aluminium Radiator and Oil Cooler

Helps keep harmful materials from the environment.



Low noise muffler

Fan guide ring

N-type fan



Labeled plastic parts

Z A X I S

# Environmentally Friendly Design.

Helping ensure a cleaner tomorrow.





## ENGINE

Model ..... Isuzu BB-4BG1T  
 Type ..... 4-cycle water-cooled, direct injection  
 Aspiration ..... Turbocharged  
 No. of cylinders ..... 4  
 Rated power  
   DIN 6271, net ..... H/P mode : 63 kW (85 PS) at 2 150 min<sup>-1</sup> (rpm)  
   P mode : 59 kW (80 PS) at 1 950 min<sup>-1</sup> (rpm)  
   SAE J1349, net ..... H/P mode : 61 kW (83 hp) at 2 150 min<sup>-1</sup> (rpm)  
   P mode : 580 min<sup>-1</sup> (rpm)  
 Maximum torque ..... 340 N·m (35 kgf·m)  
   at 1 600 min<sup>-1</sup> (rpm)  
 Piston Displacement ..... 4.329 L

Batteries ..... 2 x 12 V / 55 AH  
 Governor ..... Mechanical speed control with stepping motor



## HYDRAULIC SYSTEM

- Work mode selector  
Digging mode / Attachment mode
- Engine speed sensing system

Main pumps ..... 2 variable displacement axial piston pumps  
   Maximum oil flow ..... 2 x 100 L/min  
 Pilot pump ..... 1 gear pump  
   Max. oil flow ..... 33 L/min.

### Hydraulic Motors

Travel ..... 2 variable displacement axial piston motors  
 Swing ..... 1 axial piston motor

### Relief Valve Settings

Implement circuit..... 34.3 MPa (350 kgf/cm<sup>2</sup>)  
 Swing circuit..... 31.4 MPa (320 kgf/cm<sup>2</sup>)  
 Travel circuit..... 34.3 MPa (350 kgf/cm<sup>2</sup>)  
 Pilot circuit ..... 3.9 MPa (40 kgf/cm<sup>2</sup>)

### Hydraulic Cylinders

High-strength piston rods and tubes. Cylinder cushion mechanisms provided in boom and arm cylinders to absorb shock at stroke ends.

### Dimensions

	Qty.	Bore	Rod diameter
Boom	2	95 mm	70 mm
Arm	1	105 mm	75 mm
Bucket	1	95 mm	65 mm

### Hydraulic Filters

Hydraulic circuits use high-quality hydraulic filters. A suction filter is incorporated in the suction line, and full-flow filters in the return line and swing/travel motor drain lines.



## CONTROLS

Pilot controls. Hitachi's original shockless valve and quick warm-up system built in the pilot circuit. Hydraulic warm-up control system for engine and hydraulic oil.

Implement levers ..... 2  
 Travel levers with pedals ..... 2



## UPPERSTRUCTURE

### Revolving Frame

Welded sturdy box construction, using heavy-gauge steel plates for ruggedness. D-section frame for resistance to deformation.

### Swing Mechanism

Axial piston motor with planetary reduction gear is bathed in oil. Swing circle is single-row, shear-type ball bearing with induction-hardened internal gear. Internal gear and pinion gear are immersed in lubricant. Swing parking brake is spring-set/hydraulic-released disc type.

Swing speed..... 13.9 min<sup>-1</sup> (rpm)

### Operator's Cab

Independent spacious cab, 1 005 mm wide by 1 675 mm high, conforming to ISO\* Standards. Reinforced glass windows on 4 sides for visibility. Openable front windows (upper and lower). Adjustable, reclining seat with armrests; movable with or without control levers.

\* International Standardization Organization



## UNDERCARRIAGE

### Tracks

Tractor-type undercarriage. Welded track frame using selected materials. Side frame welded to track frame. Lubricated track rollers, idlers, and sprockets with floating seals.

Track shoes with triple grousers made of induction-hardened rolled alloy. Flat and triangular shoes are also available. Heat-treated connecting pins with dirt seals. Hydraulic (grease) track adjusters with shock-absorbing recoil springs.

### Numbers of Rollers and Shoes on Each Side

Upper rollers.....	2
Lower rollers.....	6
Track shoes.....	42
Track guard.....	1

### Traction Device

Each track driven by 2-speed axial piston motor through planetary reduction gear for counterrotation of the tracks. Sprockets are replaceable. Parking brake is spring-set/hydraulic-released disc type. Travel shockless relief valve built in travel motor absorbs shocks when stopping travel.

Automatic transmission system: High-Low.

Travel speeds ..... High : 0 to 4.2 km/h (2.7 mph)  
   Low : 0 to 2.4 km/h (1.7 mph)

Maximum traction force..... 130 kN (13 300 kgf)  
 Gradeability ..... 35 (70%) continuous



## WEIGHTS AND GROUND PRESSURE

Equipped with 4.27 m boom, 2.26 m arm and 0.45 m<sup>3</sup>: (SAE, PCSA heaped) Japanese spec bucket.

### ZAXIS110M

Shoe type	Shoe width	Marsh type undercarriage	
		Operating weight	Ground pressure
Triple grouser	700 mm	12 800 kg	27 kPa
Single high grouser	960 mm	13 700 kg	22 kPa
Triangular	760 mm	13 700 kg	27 kPa
	900 mm	13 400 kg	23 kPa

Weights of the basic machines [including 1 800 kg, counterweight and triple grouser shoes, excluding front-end attachment, fuel, hydraulic oil, engine oil and coolant etc.] are:

ZAXIS110M..... 10 300 kg with 700 mm shoes





## SERVICE REFILL CAPACITIES

	liters
Fuel tank.....	250.0
Engine coolant.....	19.0
Engine oil.....	5.8
Swing mechanism.....	3.2
Travel final device(each side).....	3.5
Hydraulic system.....	130.0
Hydraulic tank.....	69.0



## BACKHOE ATTACHMENTS

Boom and arms are of welded, box-section design. 4.27 m boom, and 1.96 m, 2.26 m and 2.81 m\* arms are available.

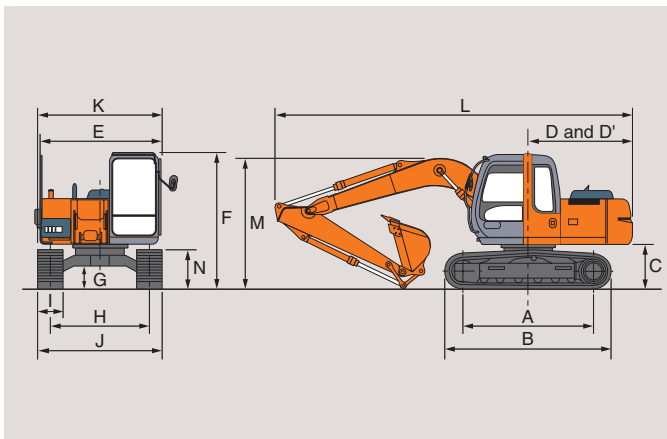
Bucket is of welded steel structure. Side clearance adjust mechanism provided on the bucket joint bracket.

### Buckets

Capacity		Width Without side cutters	Weight
SAE,PCSA heaped	CECE heaped		
0.32 m <sup>3</sup>	0.30 m <sup>3</sup>	600 mm	287 kg
0.39 m <sup>3</sup>	0.37 m <sup>3</sup>	700 mm	322 kg
0.47 m <sup>3</sup>	0.43 m <sup>3</sup>	800 mm	352 kg
0.54 m <sup>3</sup>	0.49 m <sup>3</sup>	900 mm	372 kg
0.62 m <sup>3</sup>	0.55 m <sup>3</sup>	1 000 mm	407 kg



## DIMENSIONS



Unit: mm

		ZAXIS110M		
A	Distance between tumbles	2 990		
B	Undercarriage length	3 790		
*C	Counterweight clearance	1 100		
D	Rear-end swing radius	2 130		
D'	Rear-end length	2 130		
E	Overall width of upperstructure	2 460		
F	Overall height of cab	2 950		
*G	Min. ground clearance	595		
H	Track gauge	2 040		
I	Track shoe width	G 700	T 760	H 960
J	Undercarriage width	2 740	2 800	3 000
K	Overall width	2 740	2 800	3 000
L	Overall length			
	With 1.96 m arm	7 220		
	With 2.26 m arm	7 220		
	With 2.81 m arm	7 220		
M	Overall height of boom			
	With 1.96 m arm	2 670		
	With 2.26 m arm	2 740		
	With 2.81 m arm	**2 690		
N	Track height			
	With triple grouser shoes	940		

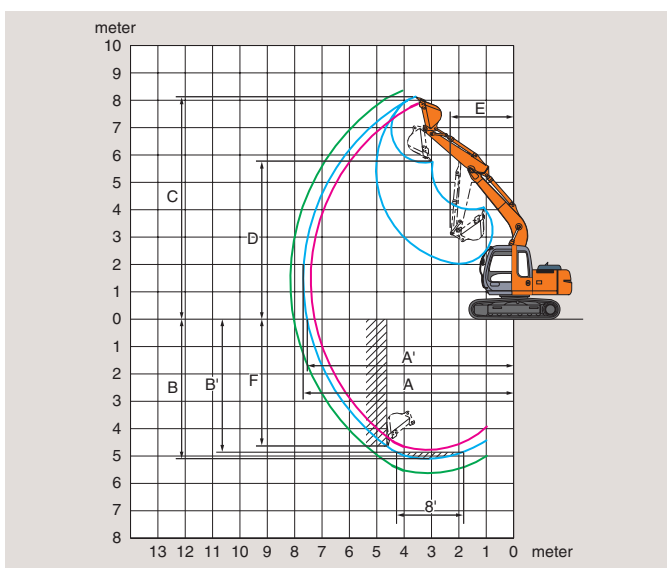
\* Excluding track shoe lug.

\*\* The dimension is shown in the transportation hole position of the arm

G : Triple grouser shoe T : Triangular shoe H : Triple high grouser shoe



## WORKING RANGES

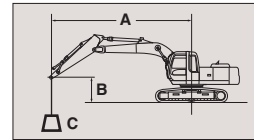


Unit: mm

		ZAXIS110M		
Arm length		1.96 m	2.26 m	2.81 m
A	Max. digging reach	7 430	7 700	8 180
A'	Max. digging reach (on ground)	7 250	7 530	8 020
B	Max. digging depth	4 580	4 880	5 430
B'	Max. digging depth (8' level)	4 320	4 650	5 220
C	Max. cutting height	8 140	8 320	8 570
D	Max. dumping height	5 730	5 910	6 170
E	Min. swing radius	2 300	2 330	2 590
F	Max. vertical wall	4 120	4 420	4 940
Bucket digging force	ISO	90 kN (9 200 kgf)		
	SAE, PCSA	78 kN (8 000 kgf)		
Arm crowd force	ISO	60 kN (6 100 kgf)	55 kN (5 600 kgf)	48 kN (4 900 kgf)
	SAE, PCSA	57 kN (5 900 kgf)	52 kN (5 300 kgf)	47 kN (4 800 kgf)

Excluding track shoe lug

# LIFTING CAPACITIES



**A: Load radius**  
**B: Load point height**  
**C: Lifting capacity**

## METRIC MEASURE

### ZAXIS110M

Rating over-front

Rating over-side or 360 degrees

Unit: kg

Conditions	Load point height	Load radius										At max. reach				
		1 m		2 m		3 m		4 m		5 m		6 m		meter		
Boom 4.27 m Arm 1.96 m Shoe 700 mm	5 m							*3 140	*3 140	*2 940	*2 940			*2 300	*2 300	5.18
	4 m					*3 800	*3 800	*3 470	*3 470	*3 230	2 920			*2 140	*2 140	5.72
	3 m					*3 050	*3 050	*4 040	3 990	*3 490	2 860	*2 330	2 160	*2 080	*2 080	6.04
	2 m					*5 200	*5 200	*4 130	3 830	*3 810	2 780	*3 050	2 130	*2 090	2 040	6.19
	1 m					*5 320	*5 320	*5 130	3 710	*4 070	2 710	*3 150	2 100	*2 160	2 020	6.17
	0 (Ground)					*6 700	5 620	*5 330	3 640	4 100	2 660			*2 310	2 090	5.98
	-1 m			*4 910	*4 910	*6 940	5 620	*5 240	3 610	4 090	2 650			*2 590	2 280	5.60
	-2 m			*8 390	*8 390	*6 250	5 670	*4 780	3 640					*2 780	2 690	5.00
-3 m					*4 960	*4 960	*3 100	*3 100					*2 820	*2 820	4.05	

Conditions	Load point height	Load radius										At max. reach				
		1 m		2 m		3 m		4 m		5 m		6 m		meter		
Boom 4.27 m Arm 2.26 m Shoe 700 mm	6 m							*2 850	*2 850					*3 050	*3 050	4.72
	5 m							*2 860	*2 860	*2 910	*2 910			*3 000	2 540	5.50
	4 m							*3 140	*3 140	*3 030	2 940	*3 000	2 190	*2 990	2 190	6.01
	3 m					*2 130	*2 130	*2 840	*2 840	*3 290	2 870	*3 070	2 170	*2 460	2 000	6.32
	2 m					*3 900	*3 900	*2 740	*2 740	*3 240	2 780	*3 110	2 130	*2 160	1 910	6.46
	1 m					*3 940	*3 940	*4 990	*3 720	*3 280	2 710	*2 980	2 090	*1 970	1 890	6.44
	0 (Ground)					*4 660	*4 660	*5 280	*3 630	*3 350	2 650	*2 650	2 060	*1 860	*1 860	6.26
	-1 m	*3 440	*3 440	*4 450	*4 450	*5 690	*5 580	*5 270	*3 590	*3 310	2 630			*1 810	*1 810	5.90
	-2 m	*5 350	*5 350	*5 920	*5 920	*6 510	*5 620	*4 940	*3 600	*2 730	2 640			*1 830	*1 830	5.33
-3 m			*6 890	*6 890	*5 430	*5 430	*2 850	*2 850					*1 860	*1 860	4.46	

Conditions	Load point height	Load radius										At max. reach				
		1 m		2 m		3 m		4 m		5 m		6 m		meter		
Boom 4.27 m Arm 2.81 m Shoe 700 mm	6 m									*2 530	*2 530			*2 650	*2 650	5.36
	5 m									*2 490	*2 490	*2 630	2 240	*2 650	2 200	6.06
	4 m							*2 510	*2 510	*2 660	*2 660	*2 640	2 230	*2 650	1 930	6.52
	3 m					*1 750	*1 750	*2 230	*2 230	*2 630	*2 630	*2 790	2 190	*2 200	1 780	6.81
	2 m					*1 660	*1 660	*2 180	*2 180	*2 560	*2 560	*2 710	2 130	*1 930	1 700	6.94
	1 m					*3 490	*3 490	*2 260	*2 260	*2 610	*2 610	*2 660	2 080	*1 760	1 680	6.92
	0 (Ground)					*3 920	*3 920	*5 010	3 620	*2 700	2 630	*2 600	2 040	*1 660	*1 660	6.75
	-1 m	*3 080	*3 080	*3 740	*3 740	*4 600	*4 600	*5 250	3 550	*2 770	2 590	*2 350	2 010	*1 610	*1 610	6.42
	-2 m	*4 310	*4 310	*4 740	*4 740	*5 310	*5 310	*5 110	3 540	*2 680	2 580			*1 600	*1 600	5.90
	-3 m	*5 280	*5 280	*5 530	*5 530	*5 780	5 580	*4 580	3 570	*1 920	*1 920			*1 640	*1 640	5.14
-4 m					*4 590	*4 590							*1 690	*1 690	3.98	

Notes: 1. Ratings are based on ISO 10567.

2. Lifting capacity of the ZAXIS Series does not exceed 75% of tipping load with the machine on firm, level ground or 87% full hydraulic capacity.

3. The load point is the center-line of the bucket pivot mounting pin on the arm.

4. \*Indicates load limited by hydraulic capacity.

## STANDARD EQUIPMENT

Standard equipment may vary by country, so please consult your Hitachi dealer for details.

### ENGINE

- H/P mode control
- E mode control
- 50 A alternator
- Dry-type air filter with evacuator valve (with air filter restriction switch for monitor)
- Cartridge-type engine oil filter
- Cartridge-type fuel filter
- Air cleaner double filters
- Radiator and oil cooler with dust protective net
- Radiator reserve tank
- Fan guard
- Isolation-mounted engine
- Auto-idle system
- Auto acceleration system

### HYDRAULIC SYSTEM

- Work mode selector
- Engine speed sensing system
- E-P control system
- Quick warm-up system for pilot circuit
- Shockless valve in pilot circuit
- Boom-arm anti-drift valve
- Control valve with main relief valve
- Extra port for control valve
- Suction filter
- Full-flow filter
- Pilot filter

### CAB

#### CREC (Center pillar Reinforced Structure) cab

- OPG top guard fitted Level I (ISO) compliant cab
- All-weather sound-suppressed steel cab
- Equipped with reinforced, tinted (bronze color) glass windows
- 4 fluid-filled elastic mounts
- Openable windows; upper and lower front, and left side windows

- Intermittent windshield retractable wipers
- Front window washer
- Adjustable reclining seat with adjustable armrests
- Footrest
- Electric double horn
- AM - FM radio with digital clock
- Auto-idle / acceleration selector
- Seat belt
- Drink holder
- Cigar lighter
- Ashtray
- Storage box
- Glove compartment
- Fire extinguisher bracket
- Floor mat
- Pilot control shut-off lever
- Engine stop knob
- Auto control air conditioner
- Transparent roof (with roll curtain)
- Suspension seat

### MONITOR SYSTEM

- Meters:
  - Hourmeter and trip-meter, engine coolant temperature gauge and fuel gauge.
- Warning lamps:
  - Alternator charge, engine oil pressure, engine overheat, air filter restriction and minimum fuel level.
- Pilot lamps:
  - Engine preheat, work light, auto-idle, auto-acceleration, digging mode and attachment mode
- Alarm buzzers:
  - Engine oil pressure and engine overheat

### LIGHTS

- 2 working lights

### UPPERSTRUCTURE

- Undercover
- 1 800 kg counterweight
- Fuel level float
- Hydraulic oil level gauge
- Tool box
- Rearview mirror (right & left side)
- Swing parking brake

### UNDERCARRIAGE

- Track undercover
- Travel parking brake
- Travel motor covers
- Track guards and hydraulic track adjuster
- Bolt-on sprocket
- Upper rollers and lower rollers
- Reinforced track links with pin seals

### FRONT ATTACHMENTS

- HN bushing
- WC thermal spraying
- Reinforced resin thrust plate
- Flanged pin
- Monolithically cast bucket link A
- Centralized lubrication system
- Dirt seal on all bucket pins

### MISCELLANEOUS

- Standard tool kit
- Lockable machine covers
- Lockable fuel filling cap
- Skid-resistant tapes, plates and handrails.
- Travel direction mark on track frame
- Onboard ICX

## OPTIONAL EQUIPMENT

Optional equipment may vary by country, so please consult your Hitachi dealer for details.

### CAB

- Front grass lower guard
- Front grass upper guard
- Overhead guard
- OPG top and front guard fitted Level II (ISO) compliant cab
- Anti-vandal cover
- Suspension seat with heater
- Air suspension seat with heater
- Rain guard
- Sun visor
- Additional fuse box
- Immobilizer key
- 12V power source

### LIGHTS

- Additional cab roof front lights
- Additional cab roof rear lights
- Rotating lamp
- Additional boom light with cover

### ATTACHMENT

- Hammer and crusher piping
- Parts for hammer
- Parts for hammer and crusher
- Parts for 2 speed selector
- Assist piping
- Additional pump (30L/min)
- Clamshell piping
- Quick coupler piping
- Reinforced arm

### OTHERS

- Hose rupture valves
- Overload warning device
- Electric fuel refilling pump
- Auto-lubrication pump
- Pre-cleaner
- Fuel double filters
- High-performance full-flow filter (with restriction indicator)
- Biodegradable oil

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*Comparative information based on current Japan domestic model.  
These specifications are subject to change without notice.  
Illustrations and photos show the standard models, and may or may not include optional  
equipment, accessories, and all standard equipment with some differences in color and features.  
Before use, go through Operator's Manual for proper operation.*