

**ZAXIS-3 series**

**HITACHI**

# **ZAXIS** **16/18**



## **HYDRAULIC EXCAVATOR**

- Model Code: ZX16-3 / ZX18-3
- Engine Rated Power: 10.7 kW (14.3 HP)
- Operating Weight: 1 600 - 1 770 kg / 1 770 - 1 930 kg
- Backhoe Bucket: 0.044 m<sup>3</sup>





## The New ZX16-3 and ZX18-3, Full of Fresh Ideas for Diverse Job Needs

The Hitachi new ZX16-3 and ZX18-3, are redesigned for more job needs, with a host of improvements and performance enhancements. Easy trailer transport, retractable undercarriage (ZX18-3), strengthened structures, and much more.

### Boosted Productivity

(Page 4)

- Three-pump hydraulic system for smooth combined operation.
- Low-noise engine for less environmental impact.
- Retractable undercarriage and blade for efficient job in tight space. (ZX18-3)

### Higher Durability (Page 5)

- The boom cylinder guard is angled for added strength, protecting the boom cylinder from damage.
- Reinforced rubber shoes for stable travel.



Notes: Some of the pictures in this brochure 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.



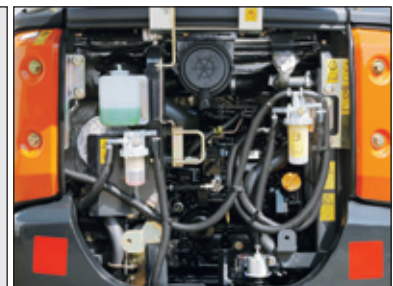
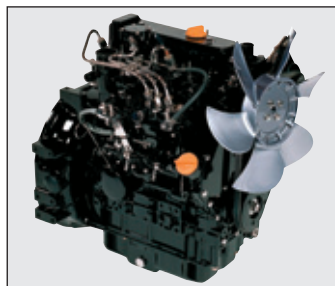
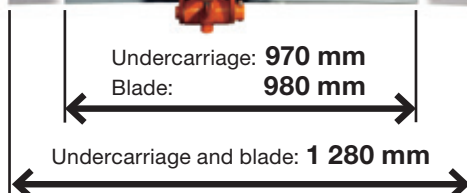


# Get More Production

The three-pump hydraulic system makes combined operations smooth. The new low-noise engine reduces environmental impact. The Hitachi minis go greener than previous model with plenty of power.



ZX18-3



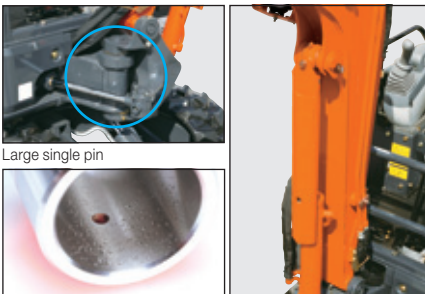
The new engine boosts power and speed with less noise. The proven three-pump hydraulic system helps make combined operations smooth. The ZX18-3 has the retractable undercarriage in the range of 970 to 1 280 mm: retracted for job efficiency in tight space, and extended for higher stability.



# Structures Getting Tougher

The front attachment and rubber shoes are strengthened for higher durability.

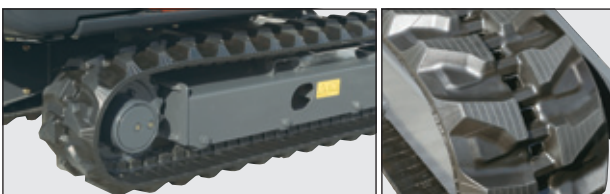
## Reinforced Front Attachment



The vertical pin of the swing post employs a large single pin for reducing backlash. Job-proven HN bushings are utilized at all pin joints in the front attachment and blade, extending lubricating intervals up to 500 hours.

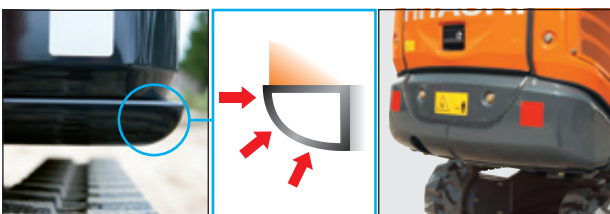
The boom cylinder guard is angled and ribbed to protect the boom cylinder from damage.

## Reinforced Rubber Shoes



The new tread pattern provides greater durability. It uses short-pitch rubber crawler that is excellent in reducing the vibration caused by traveling.

## Reinforced Upperstructure



The job-proven D-section frame skirt is utilized to protect the frame skirt from damage.

The main frame is integrated with the counterweight for protection against damage.



# Proven Operator Comfort

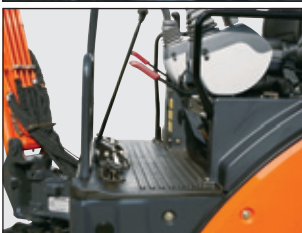
Hitachi knows what the operator wants most. Solutions are comfort-designed fabric-covered seat, hydraulic control levers for low-effort control, and much more.



Blade lever with two-speed travel switch



Damper



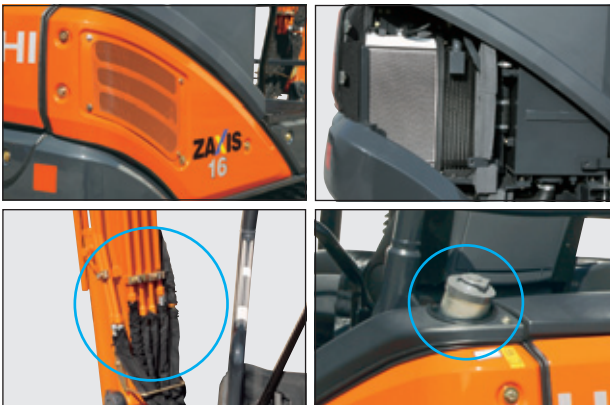
The spacious cab, conforming to the EU standards, has a fabric-covered seat. The suspension seat is equipped as standard for long continuous operation with less fatigue. Wrist rests, blade lever with two-speed travel switch are also provided. What's more, the heater, easy-to-read monitor, and damper at front window enhance pleasant cab ride. The walk-through type canopy allows easy access from either side.



# Simple Maintenance and Safety Features

Hitachi design expertise eases pre-start check, shortens cleaning time, and simplifies daily servicing.

## Simplified Maintenance

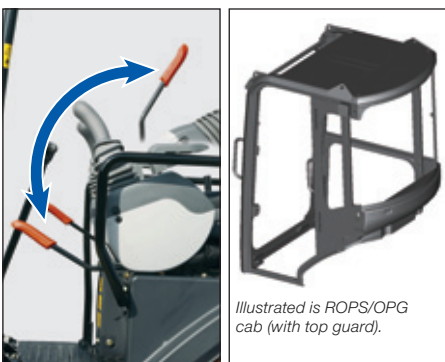


Split-type hydraulic hoses

Large fuel inlet

The large engine cover opens at a touch. The dustproof net, built in the frame, protects the radiator and oil cooler from plugging with debris. A steel cover is easily repairable, keeping repair costs down. The radiator and oil cooler are arranged side by side for easy cleaning. The split-type hydraulic hoses can be disconnected at the base and boom back for quick replacement. The large-capacity fuel tank allows long-hour operation, with a large fuel inlet for quick refilling.

## Safety Features



Illustrated is ROPS/OPG cab (with top guard).

When shifting the pilot-control shut-off lever upward, front action, swing and travel can be locked to avoid misoperation due to unintentional lever handling. The neutral engine start system allows the engine to start only when the pilot-control shut-off lever is in the lock position.

What's more, the swing and travel parking brakes are equipped standard for easy operation on slope.

The world-class cab, conforming to the ROPS, TOPS and OPG top guard (level 1) standards, is utilized for operator protection.

*ROPS: Roll-Over Protection Structure  
TOPS: Tip-Over Protection Structure  
OPG: Operator Protective Guards*

# SPECIFICATIONS

## ZX16-3 / ZX18-3

### ENGINE

Model .....	Yanmar 3TNV70
Type .....	4-cycle water-cooled, injection
No. of cylinders .....	3
Rated power	
ISO 9249, net .....	10.7 kW (14.3 HP) at 2 400 min <sup>-1</sup> (rpm)
EEC 80/1269, net ...	10.7 kW (14.3 HP) at 2 400 min <sup>-1</sup> (rpm)
SAE J1349, net .....	10.7 kW (14.3 HP) at 2 400 min <sup>-1</sup> (rpm)
Maximum torque .....	49.7 N·m (5.1 kgf·m) at 1 800 min <sup>-1</sup> (rpm)
Piston displacement ...	0.854 L
Bore and stroke .....	70 mm x 74 mm
Electric system	
Voltage .....	12 V
Batteries .....	36 Ah
Alternator .....	40 A
Starter motor .....	1.4 kW

### HYDRAULIC SYSTEM

Main pumps .....	2 variable displacement axial piston pumps 1 gear pump
Maximum oil flow ...	2 x 19.2 L/min 1 x 12.5 L/min
Pilot pump .....	1 gear pump
Maximum oil flow ...	6.5 L/min
Auxiliary	
Maximum oil flow ...	31.7 L/min

### Hydraulic Motors

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

### Relief Valve Settings

Implement circuit .....	20.6 MPa (210 kgf/cm <sup>2</sup> )
Swing circuit .....	11.3 MPa (115 kgf/cm <sup>2</sup> )
Travel circuit .....	20.6 MPa (210 kgf/cm <sup>2</sup> )
Pilot circuit .....	3.9 MPa (40 kgf/cm <sup>2</sup> )
Auxiliary circuit .....	20.6 MPa (210 kgf/cm <sup>2</sup> )

### Hydraulic Cylinders

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

### Dimensions (ZX16-3)

	Quantity	Bore	Rod diameter	Stroke
Boom (canopy)	1	60 mm	35 mm	435 mm
Boom (cab)	1	60 mm	35 mm	423 mm
Arm	1	60 mm	35 mm	406 mm
Bucket	1	55 mm	30 mm	311 mm
Blade	1	65 mm	35 mm	94 mm
Boom swing	1	60 mm	30 mm	329 mm

### Dimensions (ZX18-3)

	Quantity	Bore	Rod diameter	Stroke
Boom (canopy)	1	60 mm	35 mm	435 mm
Boom (cab)	1	60 mm	35 mm	423 mm
Arm	1	60 mm	35 mm	406 mm
Bucket	1	55 mm	30 mm	311 mm
Blade	1	65 mm	35 mm	94 mm
Boom swing	1	60 mm	30 mm	329 mm
Span	1	50 mm	30 mm	312 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.

### CONTROLS

Hydraulic pilot control levers for boom, arm, bucket, swing and travel. Mechanical linkage control levers for boom swing, blade and hydraulic PTO.

### NOISE LEVEL

Noise level (LwA) (2000 / 14 / EC) .....	93 dB (A)
Noise level (LpA) (ISO 6396) .....	78 dB (A)

### UPPERSTRUCTURE

#### Revolving Frame

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

#### Swing Device

High-torque, orbit motor. Swing circle is single-row, shear-type ball bearing with induction-hardened internal gear. Internal gear and pinion are immersed in lubricant.

Swing speed .....	8.9 min <sup>-1</sup> (rpm)
Swing torque .....	2.61 kN·m (260 kgf·m)

#### Operator's Cab

Independent spacious cab, 1 010 mm wide by 1 596 mm high, conforming to ISO\* Standards. Reinforced glass windows on 4 sides for visibility. Front windows (upper and lower) can be opened. Reclining seat.

\* International Standardization Organization

### UNDERCARRIAGE

#### Tracks

Tractor-type undercarriage. Welded track frame using selected materials. Side frame welded to track frame. The ZX18-3 has the retractable undercarriage.

#### Numbers of Rollers and Shoes on Each Side

Lower rollers .....	3
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#### Travel 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 speeds .....	High: 0 to 4.2 km/h Low: 0 to 2.4 km/h
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Maximum traction force .....	5.6 kN (570 kgf)
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Gradeability	58% (30 degree) continuous
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## WEIGHTS AND GROUND PRESSURE

### ZX16-3

Equipped with 1.82 m boom, 1.13 m arm and 0.044 m<sup>3</sup> bucket  
(ISO heaped) rubber shoes 230 mm.

Cab type	Operating weight	Ground pressure
3-Pillars canopy	1 600 kg	27.6 kPa (0.28 kgf/cm <sup>2</sup> )
2-Pillars canopy	1 600 kg	27.6 kPa (0.28 kgf/cm <sup>2</sup> )
Cab	1 770 kg	30.5 kPa (0.31 kgf/cm <sup>2</sup> )

### ZX18-3

Equipped with 1.82 m boom, 1.13 m arm and 0.044 m<sup>3</sup> bucket  
(ISO heaped) rubber shoes 230 mm.

Cab type	Operating weight	Ground pressure
3-Pillars canopy	1 770 kg	28.2 kPa (0.29 kgf/cm <sup>2</sup> )
2-Pillars canopy	1 770 kg	28.2 kPa (0.29 kgf/cm <sup>2</sup> )
Cab	1 930 kg	30.8 kPa (0.31 kgf/cm <sup>2</sup> )

## SERVICE REFILL CAPACITIES

Fuel tank .....	22.0 L
Engine coolant .....	3.0 L
Engine oil .....	3.1 L
Travel device (each side) .....	0.25 L
Hydraulic system .....	30.0 L
Hydraulic oil tank .....	15.5 L

## BACKHOE ATTACHMENTS

Boom and arms are of welded, box-section design. 1.82 m boom,  
0.93 m and 1.13 m arms are available.

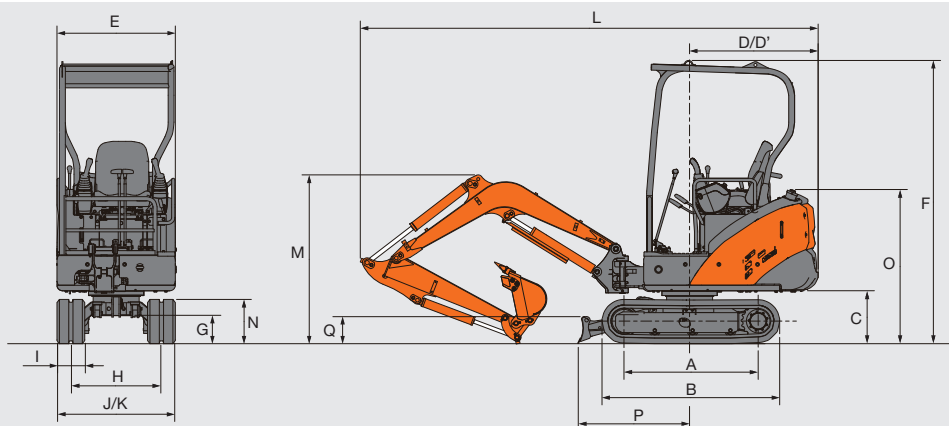
### Bucket

Capacity ISO heaped	Width without side cutters	Weight
0.044 m <sup>3</sup>	400 mm	38.6 kg

# SPECIFICATIONS

## ZX16-3 / ZX18-3

### DIMENSIONS



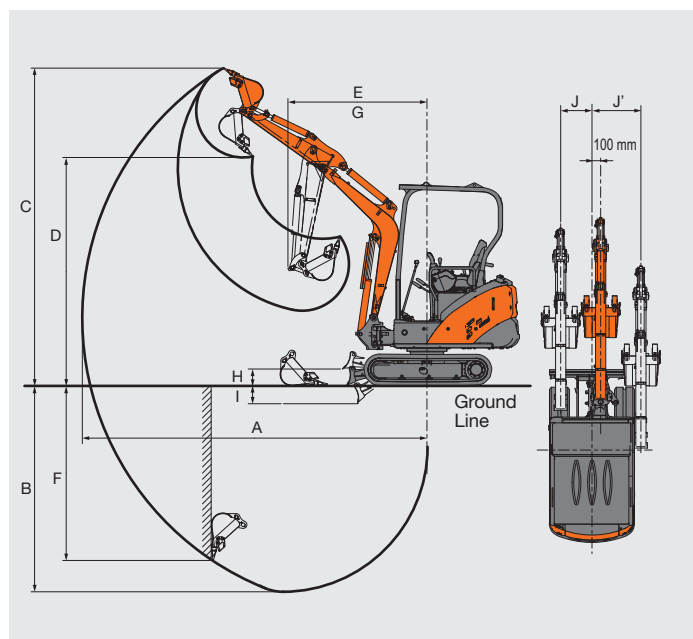
Unit: mm

Model code	ZX16-3 / ZX18-3					
	0.93 m arm			1.13 m arm		
	3-pillars canopy	2-pillars canopy	cab	3-pillars canopy	2-pillars canopy	cab
A Distance between tumblers	1 110 / 1 210			1 110 / 1 210		
B Undercarriage length	1 470 / 1 570			1 470 / 1 570		
* C Counterweight clearance	420			420		
D Rear-end swing radius	1 060			1 060		
D' Rear-end length	1 060			1 060		
E Overall width of upperstructure	980		1 040	980		1 040
F Overall height of cab	2 340		2 380	2 340		2 380
* G Min. ground clearance	235 / 165			235 / 165		
H Track gauge	750 / 740 - 1 050			750 / 740 - 1 050		
I Track shoe width	230			230		
J Undercarriage width	980 / 970 - 1 280			980 / 970 - 1 280		
K Overall width	980		1 040	980		1 040
L Overall length	3 750			3 790		
M Overall height of boom	1 230			1 400		
N Track height	370			370		
O Engine cover height	1 270			1 270		
P Horizontal distance to blade	875 / 1 110			875 / 1 110		
Q Blade height	225			225		

This illustration shows the ZX16-3 equipment with 1.13 m arm, 0.044 m³ bucket and 230 mm rubber shoes. \*Excluding track shoe lug.

### WORKING RANGES

Unit: mm



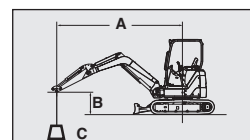
Model code	ZX16-3 / ZX18-3					
	0.93 m arm			1.13 m arm		
	3-pillars canopy	2-pillars canopy	cab	3-pillars canopy	2-pillars canopy	cab
A Max. digging reach	3 790			3 970		
B Max. digging depth	2 160			2 370		
C Max. cutting height	3 560			3 660		
D Max. dumping height	2 530			2 630		
E Min. swing radius	1 500			1 590		
F Max. vertical wall	1 820			2 010		
G Working radius at Min. swing radius (Max. boom-swing angle)	1 230			1 310		
H Blade bottom highest position above ground	195 / 245			195 / 245		
I Blade bottom lowest position above ground	205 / 225			205 / 225		
J/J' Offset distance	360 / 565			360 / 565		
Bucket digging force SAE: PCSA	12.6 (1 280)			12.6 (1 280)		
Bucket digging force ISO kN (kgf)	16.0 (1 630)			16.0 (1 630)		
Arm crowd force SAE: PCSA	9.5 (970)			8.5 (870)		
Arm crowd force ISO kN (kgf)	10.3 (1 050)			9.1 (930)		

This illustration shows the ZX16-3 equipment with 1.13 m arm, 0.044 m³ bucket and 230 mm rubber shoes.



# LIFTING CAPACITIES

- 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. An asterisk mark (\*) indicates load limited by hydraulic capacity.



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

## ZX16-3

### Canopy version Blade on Ground, 0.93 m Arm



Rating over-side or 360 degrees



Rating over-front

Unit: kg

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m			382	*438			212	512	2.96
	1.0 m			348	*693	201	*436	179	437	3.25
	0 (Ground)			326	*801	193	*454	183	455	3.13
	-1.0 m	944	*1 318	328	*625			240	621	2.55

### Cab version Blade on Ground, 0.93 m Arm

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m									
	1.0 m			376	*693	218	*436	195	472	3.25
	0 (Ground)			355	*801	211	*454	200	492	3.13
	-1.0 m	1 021	*1 318	357	*625			261	671	2.55

### Canopy version Blade on Ground, 1.13 m Arm

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m					208	*362	191	462	3.16
	1.0 m			350	*631	199	*413	164	401	3.42
	0 (Ground)			322	*796	189	*453	166	415	3.32
	-1.0 m	923	*1 133	320	*680			209	536	2.79

### Cab version Blade on Ground, 1.13 m Arm

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m					225	*362	208	498	3.16
	1.0 m			378	*631	216	*413	179	434	3.42
	0 (Ground)			351	*796	207	*453	182	449	3.32
	-1.0 m	999	*1 133	349	*680			228	580	2.79

## ZX18-3

### Canopy version Blade on Ground, 0.93 m Arm



Rating over-side or 360 degrees



Rating over-front

Unit: kg

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m			405	*438			227	872	2.96
	1.0 m			371	*693	216	*436	193	736	3.25
	0 (Ground)			350	*801	208	*454	198	775	3.13
	-1.0 m	997	*1 318	352	*625			258	1 112	2.55

### Cab version Blade on Ground, 0.93 m Arm

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m									
	1.0 m			399	*693	233	*436	209	789	3.25
	0 (Ground)			377	*801	225	*454	214	830	3.13
	-1.0 m	1 071	*1 318	380	*625			279	1 190	2.55

### Canopy version Blade on Ground, 1.13 m Arm

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m					223	*362	205	779	3.16
	1.0 m			373	*631	214	*413	177	673	3.42
	0 (Ground)			346	*796	204	*453	180	702	3.32
	-1.0 m	976	*1 133	344	*680			225	940	2.79

### Cab version Blade on Ground, 1.13 m Arm

Conditions	Load point height	Load radius						At max. reach		
		1.0 m		2.0 m		3.0 m				
										meter
Rubber shoes 230 mm	2.0 m					240	*362	221	833	3.16
	1.0 m			401	*631	231	*413	191	721	3.42
	0 (Ground)			373	*796	221	*453	195	752	3.32
	-1.0 m	1 049	*1 133	372	*680			243	1 007	2.79

# EQUIPMENT

## STANDARD EQUIPMENT

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

### ENGINE

- Water-separator for engine fuel
- Radiator reserve tank
- Electrical fuel feed pump
- Cartridge-type engine oil filter
- Fuel filter

### HYDRAULIC SYSTEM

- Hydraulic pilot type control levers
- Pilot control shut-off lever with neutral engine start system
- Swing parking brake
- Travel parking brake
- Suction filter
- Full-flow filter
- Pilot filter

### 3-PILLARS CANOPY

- ROPS/OPG canopy
- Reclining seat
- Suspension seat
- Seat belt
- Wrist rests
- Spare power supply

### UPPER STRUCTURE

- Tool box

### UNDERCARRIAGE

- 230 mm rubber shoes
- Retractable undercarriage (ZX18-3)

### FRONT ATTACHMENTS

- HN bushing
- 1.13 m arm
- Extra piping

## OPTIONAL EQUIPMENT

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

### CAB

- ROPS/OPG cab
- Heater
- AM/FM radio
- Window washer
- Defroster
- Reclining seat
- Suspension seat
- Seat belt
- Wrist rests
- Spare power supply
- Wiper

### 2-PILLARS CANOPY

- TOPS canopy
- Reclining seat
- Suspension seat
- Seat belt
- Wrist rests
- Spare power supply

### UPPER STRUCTURE

- Air cleaner double-elements
- Theft deterrent system

### FRONT ATTACHMENTS

- 0.93 m arm

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, read and understand the Operator's Manual for proper operation.