

ZAXIS series

TATA HITACHI

Reliable solutions

ZAXIS 650H

■ **Engine Rated Power** : 295 kW (400 PS)

■ **Operating Weight**

Backhoe : 58 340 kg

Shovel : 60 500 kg

■ **Bucket Capacity**

SAE, PCSA Heaped : 3.8 m³

Backhoe : 3.3 m³ - 3.8 m³

Shovel : 3.0 m³ - 4.0 m³



The Zaxis logo is located in the top left corner, featuring the word "Zaxis" in white text on a red, angled background.

Zaxis

The background of the entire page is a photograph of an orange Tata Hitachi excavator. The excavator's arm is extended, and its bucket is filled with a large amount of brown earth and rocks. The bucket is positioned over the open bed of a white dump truck. The scene is set in a construction or mining area with a hazy, overcast sky in the background. The excavator's arm has "TATA HITACHI" written on it in black letters on a white background.

TATA HITACHI

Futuristic Performance



High Productivity

A truly high performance machine

- 295 kW (400 PS) powerful engine.
- H/P mode newly used in this model.
- Backhoe 3.8 m³ [Standard bucket] / 3.3 m³ [Heavy duty version] Shovel Bucket sizes of 3 / 3.3 / 3.5m³ Available.
- Less fuel consumption during light-load operation from auto acceleration system.

Lower Running Costs

Stronger Structural component design

- Durable bucket joint.
- Reinforced side steps.

Lower Maintenance Costs

Reduced maintenance time and expense

- Convenient maintenance doors are provided in the engine cover for quick and easy inspections.
- Auto-grease lubricator and electric grease gun.(Optional)

Rugged pressurized cab with integrated headguard:

- Low noise and vibration in cab.
- Boom mode selector helps to control shock and vibration.
- Auto-control air conditioner.



Improved Productivity & Faster Work Completion



Large Displacement Engine Creates Power for High Productivity

● Engine rated power:

295 kW (400 PS)

● Engine displacement:

15.68 L

Excavating Power for Tough Job Site

A powerful engine and efficient hydraulic system team up to boost maximum excavating power. It has the power to take on tough job site.

● Bucket:

306 kN (32 900 kgf)

● Arm:

250 kN (27 600 kgf)

Work Modes for Increased Performance

The four work modes have been enhanced over prior models.

- ① General purpose mode
- ② Trench digging mode
- ③ Attachment mode
- ④ Precision mode



ZAXIS uses
advanced technology
to reduce costs
while working faster.



Large Bucket Capacity Boosts Productivity

The ZAXIS650H has a bucket capacity that contributes to its productivity. It has been designed to resist wear. The rock bucket has lateral-type wear plates that are easy to replace.

Backhoe bucket

- General Purpose

3.8m³

- Heavy Duty

3.3m³

Travel Power and Speed You Can Depend on

- Travel power :

415kN (42 300kgf)

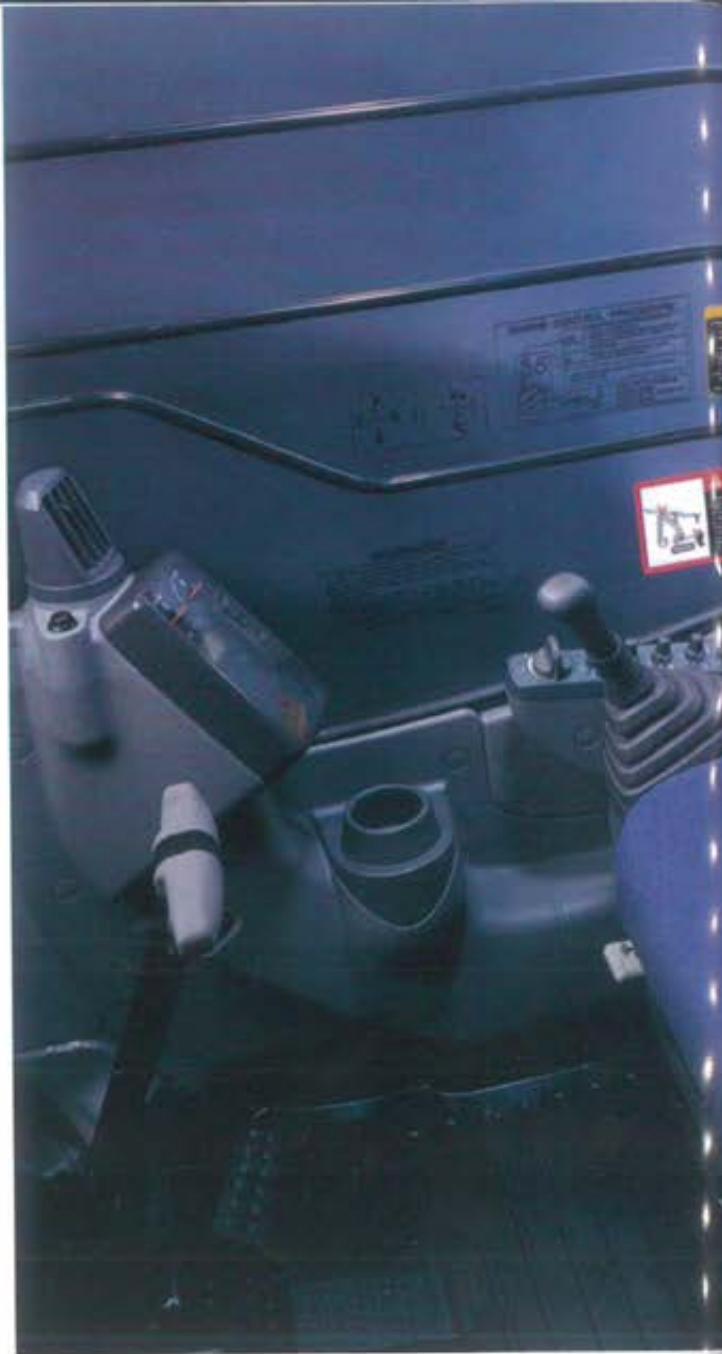
- Travel speed :

0 - 5.0 km/h

Minimum Effort
Maximum Efficiency

The operator's compartment is designed for both comfort and operating efficiency.

FOPS Cab



An ISO-standard FOPS large-size cab is used. It has an integrated overhead guard to help provide protection from falling objects. An optional guard is available for the front windshield to make the cab OPG level II(ISO) compliant.

*FOPS: Falling Object Protective Structure
 OPG: Operator Protective Guard*

Upper/lower cab front guard (Option)



Auto Control Air Conditioner

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

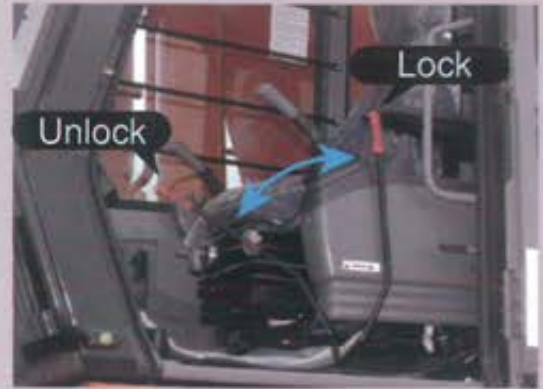
** Illustration shows a sample of the air flow during bi-level control.*



One-glance Monitor Panel



Well-positioned Switches



Pilot-control shut-off lever



Emergency evacuation hammer

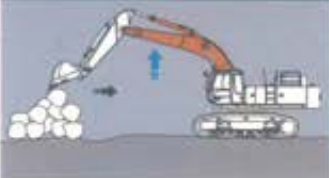
Boom Mode Selector
Helps to reduce shaking and jerking of body
during scraping operations.

The amount the body can be lifted or pulled by the front of machine can be **ON** or **OFF** selected. This helps to provide for more comfortable operation and contributes to longer component service life.



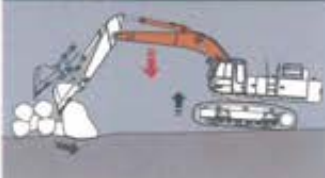
ON Comfortable mode

There is little lifting or pulling of the body so there is less vibration and shock.



OFF Powerful mode

Much lifting and pulling of the body so there is more vibration and shock.



Functional & Durable

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

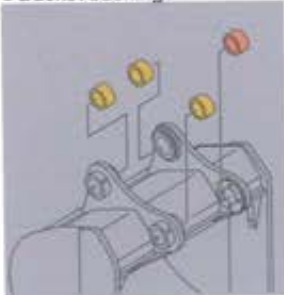
Lower running costs

Durable Bucket Joint

A new design is adopted to bucket joints. Bucket pins are solid and large, and lubricated through bosses for more durability. The use of bucket bushes reduces pin wear.



● Bucket bushings



● Boss lubrication to bucket pins



Reinforced Side Steps



Rugged Undercarriage for Withstanding Tough Jobs

A reshaped box design with X-beams helps disperse stress.

This design boosts the overall rigidity of the entire undercarriage.

Travel Device Resists Damage

A compact travel device reduces the potential for damage.



Smart Savings

Advanced technology helps reduce maintenance.

Engine Maintenance Doors

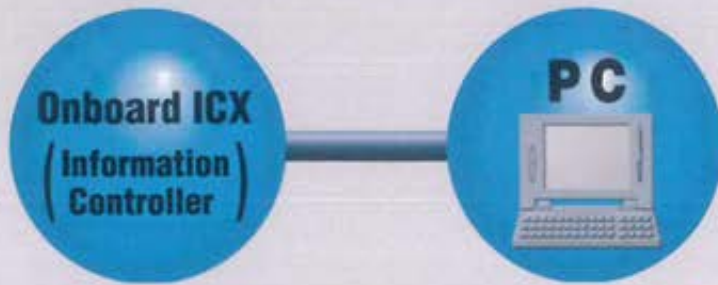
This small maintenance doors are added to the full engine cover. Just open the small maintenance door for easy, quick inspection and maintenance. No need to open the entire engine cover.



Handy Utility Space

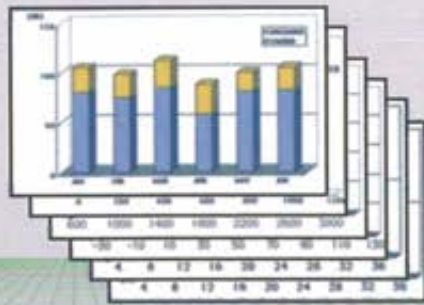


■ Equipment Operation Status Report



Information Services for Equipment

- Operation record
- Error record
- Alarm record
- Frequency distribution
Radiator coolant /hydraulic temperature etc.
and others.



Z A X I S Information Technology Support

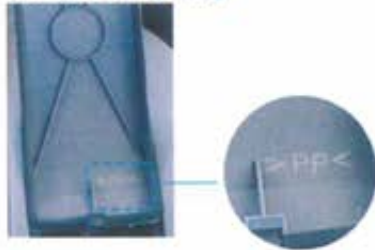
Providing the data
for making
the right decisions.



Emissions Control Engine

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

Labeled Plastic Parts Facilitate Efficient Recycling



- Anti slip pads
- Reinforced arm
- Dual type track guard
- Bigger bucket

Notes :
The photo shows a cover opened at the time of the inspection.
Be sure to close a cover at the time of the operation.

Z A X I S

Environmentally Friendly Design

Helping ensure
a cleaner
tomorrow.





ENGINE

Model	Isuzu BB-6WG1X
Type	4-cycle water-cooled, direct injection
Aspiration	Turbocharged
No. of cylinders	6
Rated power	
DIN 6271, net	295 kW (400 PS) at 1 800 min ⁻¹ (rpm)
SAE J1349, net	295 kW (395 HP) at 1 800 min ⁻¹ (rpm)
Maximum torque	1 540 Nm (157 kgf m) at 1 500 min ⁻¹ (rpm)
Piston Displacement	15.681 L
Bore and stroke	147 mm x 154 mm
Batteries	2 x 12 V, 170 AH
Governor	Mechanical speed control by stepping motor



HYDRAULIC SYSTEM

- Work mode selector
General purpose mode / Trench digging mode
/ Attachment mode
/ Precision mode
 - Engine speed sensing system
- | | |
|------------------------|--|
| Main pumps | 2 variable displacement axial piston pumps |
| Maximum oil flow | 2 x 434 L/min |
| Pilot pump | 1 gear pump |
| Maximum oil flow | 30 L/min |

Hydraulic Motors

Travel	2 axial piston motors with parking brake
Swing	2 axial piston motors

Relief Valve Settings

Implement circuit	30.9 MPa
Swing circuit	29.4 MPa
Travel circuit	34.3 MPa
Pilot circuit	3.9 MPa

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 hydraulic oil.

Implement levers	2
Travel levers with pedals	2



WEIGHTS AND GROUND PRESSURE

Backhoe

Equipped with 6.6 m Boom, 2.9 m Arm and 3.8 m³ (SAE, PCSA heaped) General Purpose Bucket

Shoe type	Shoe width	Operating weight	Ground pressure
Triple grouser	600 mm	58 340 kg	1.03 kg/cm ²

Shovel

Equipped with Loading Shovel Attachment and 3.5 m³ (SAE, PCSA heaped) Bottom Dump Bucket

Shoe type	Shoe width	Operating weight	Ground pressure
Triple grouser	600 mm	60 500 kg	1.09 kg/cm 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 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 cushion valve built in swing motor absorbs shocks when stopping swing.

Swing speed	7.0 min ⁻¹ (rpm)
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Operator's Cab

Independent, spacious cab, 1 005 mm wide by 1 820 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 and monitor panel.

* International Standard Organisation



UNDERCARRIAGE

Tracks

Tractor-type undercarriage. Welded track frame, using carefully selected materials for tough jobs. Side frame bolted to track frame. Lubricated track rollers, idlers, and sprockets with floating seals. Track shoes with triple grouser made of induction-hardened rolled alloy. Heat-treated connecting pins with dirt seals. Hydraulic (grease) tra3.83.8ck adjusters with shock-absorbing recoil springs.

Upper rollers	3
Lower rollers	8
Track shoes	48
Track guard	2
H-track center guard (dual type)	1
Ground Pressure.....	1.04kgf/cm ²

Traction Device

Each track driven by axial piston motor through reduction gears for counter-rotation 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, ensuring smooth stops.

Travel speeds	High: 0 to 5.0 km/h
	Low: 0 to 3.5 km/h
Maximum traction force	415kN (42 300 kgf)
Gradeability	35° (70%) continuous



SERVICE REFILL CAPACITIES

	liters
Fuel tank	740
Engine coolant	98
Engine oil	55
Pump drive	7
Swing mechanism (each side)	10.5
Travel final device (each side)	14
Hydraulic system	618
Hydraulic tank	310

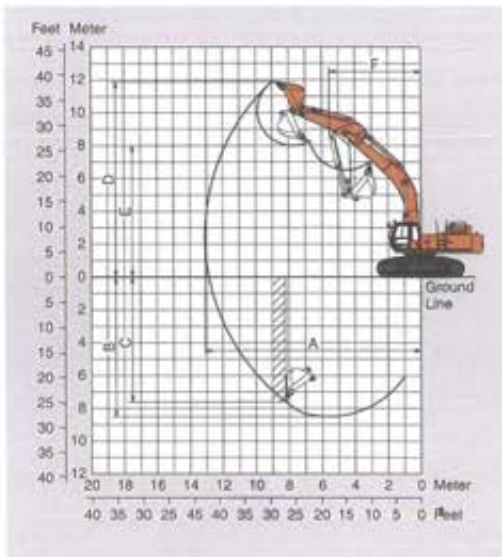


BACKHOE ATTACHMENT

Boom and arms of all-welded, box-section design. Bucket is all welded, high-strength steel structure. Side clearance adjust mechanism provided on the bucket joint bracket.



WORKING RANGES



ZAXIS650H

Unit: mm

	ZAXIS650H	Unit: mm
	Boom Length	6600
	Arm Length	2900
A	Max. Digging Reach	11540
B	Max. Digging depth	7080
C	Max. Vertical Wall depth	5140
D	Max. Cutting height	10770
E	Max. Dumping height	6980
F	Max. Swingradius	4930
	Digging Bucket	31400
	Digging Arm	26300
	Power Boost Bucket	32900
	Power Boost Arm	27600

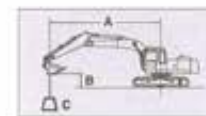
Buckets

Capacity	Width		No. of teeth	Weight	ZAXIS650H
	SAE, PCSA heaped	Without side cutters			With side cutters
3.8 m ³	1 970	2 110 mm	5	2 760 kg	●
3.3 m ³	1 690	1 744 mm	5	2 980 kg	●

● Suitable for materials with density of 1 800 kg/m³

● Heavy-duty service

Lifting Capacities



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

ZAXIS650H

Unit: 1 000 kg

Conditions	Load point height	Load radius												At max. reach		
		4 m		5 m		6 m		7 m		8m		9m		meter		
BE-Boom 6.6 m	7 m									*9.6	*9.6			*6.1	*6.1	10.1
	6 m							*10.2	*10.2	*9.7	*9.7			*6.1	*6.1	
BE-Arm 2.9 m	4 m					*13.9	*13.9	*12.0	*12.0	*10.8	*10.8	8.9	*9.9	*6.6	*6.6	10.5
	2 m					*14.9	*14.9	*12.9	*12.9	11.1	*11.5	8.9	*10.7	6.1	*6.4	
Bucket PCSA : 3.8 m ³	0 (Ground)					16.7	*17.2	13.1	*14.1	10.4	*12.1	8.5	*10.7	5.9	*7.0	10.9
						16.7	*18.4	13.1	*15.1	10.4	*13.0	8.5	*11.5	5.9	*7.4	
Shoes 600 mm						15.8	*18.7	12.3	*15.4	9.9	*13.0	8.1	*11.2	6.3	*8.0	10.5
	-2 m					15.8	*20.0	12.3	*16.5	9.9	13.8	8.1	11.3	6.3	*8.5	
		*25.0	*25.0	21.4	*21.7	15.6	*18.0	12.1	*15.1	9.7	*12.7	8.1	*10.6	7.6	*8.8	
		*26.4	*26.4	21.4	*23.1	15.6	*19.3	12.1	*16.2	9.7	13.6	8.1	11.3	7.6	*9.5	
	-4 m	*20.5	*20.5	*17.8	*17.8	*15.0	*15.0	12.4	*12.5							
		*21.9	*21.9	*19.0	*19.0	15.9	*16.1	12.5	*13.4							
	-5 m	*16.4	*16.4	*14.4	*14.4	*12.1	*12.1									
		*17.7	*17.7	*15.5	*15.5	*13.0	*13.0									

1. Ratings are based on SAE J1097.
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 a hook (not standard equipment) located on the back of the bucket.
4. *Indicates load limited by hydraulic capacity.
5. Figures in shaded area are with heavy - lifting system.

**Base machine for a wide
range of jobs.**



LOADER ATTACHMENT



Auto-Leveling Crowd Mechanism

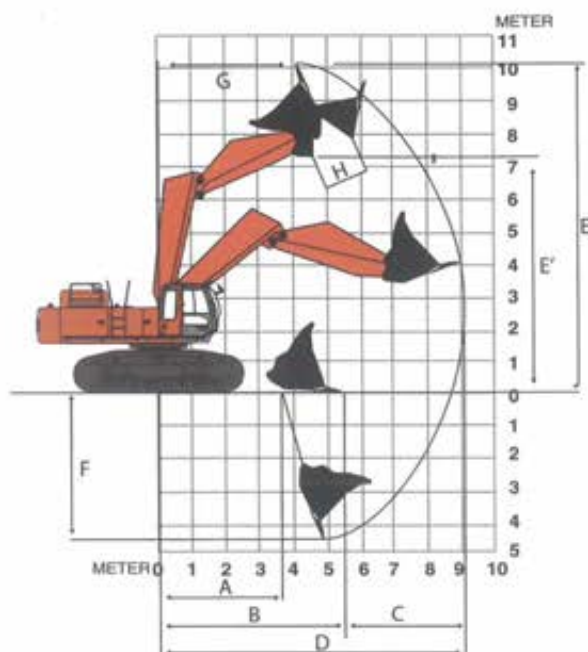


Auto Bucket level raise system

Patented Auto Level Crowd Mechanism

TATA Hitachi's unique patented auto level crowd mechanism on the ZX650H shovel version gives exceptional job efficiency, loading capability and operating ease. The level crowding operations are greatly simplified with just one control lever needed, the result is dramatically shorter cycle time and greatly increased productivity. This design also enables the crowd force to become strongest around the maximum reach point where the force is most required.

The parallel link mechanism keeps the bucket digging angle constant, and level cylinder circuit maintains the bucket height constant. Due to this feature the need for additional clean-up equipment is also eliminated as it ensures a level mine floor contributing to increased tyre life of the haul equipment. It also facilitates Auto-Bucket level raise avoiding spillage of the material apart from contributing greatly to the increased productivity. Patents registered in USA, Germany and Japan.



Working Ranges

		ZAXIS650H
A	min. Digging reach	3 794
B	min. Level crowding distance	5 487
C	Level crowding distance	3 302
D	max. Digging reach	9 216
E	max. Cutting height	10 147
E'	max. Dumping height	7 388
F	max. Digging depth	4 602
G	Working Radius at max. Dumping Height	4 768
H	max. Bucket Opening Width	1 420

All dimension are in mm

Arm Crowding Force (kgf)*	38 140
Bucket Breakout Force (kgf)*	38 600

* As per ISO standards.

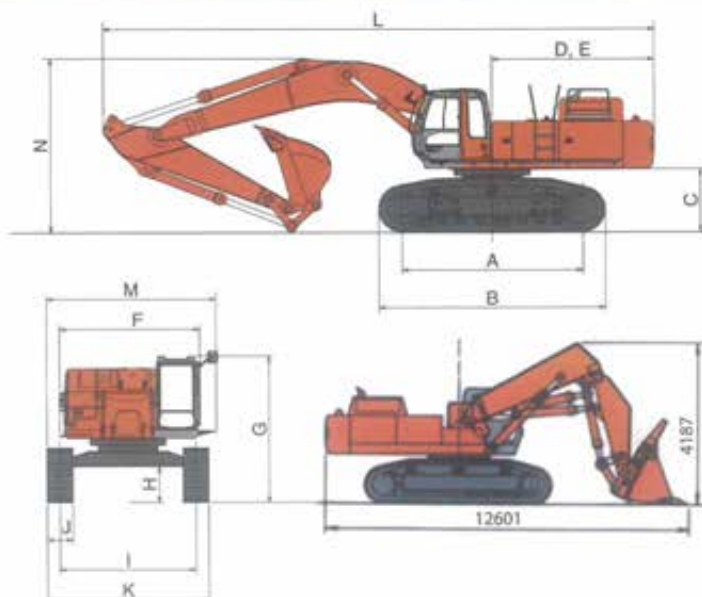
Buckets

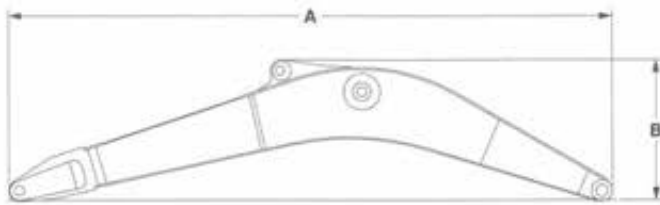
Type	Bottom Dump	Bottom Dump	Bottom Dump	Bottom Dump
Capacity	3.0 m ³	3.3 m ³	3.5 m ³	4.0 m ³
Width	1832 mm	1910 mm	2032 mm	2160 mm
Weight	4840 kg	4880 kg	4955 kg	4953 kg
No. of tooth points	6	6	6	6

DIMENSIONS

Unit: mm

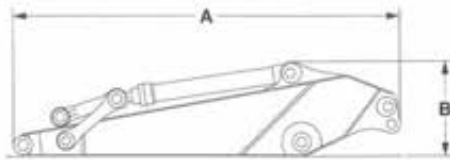
	ZAXIS650H	
A	Distance between tumblers	4 250
B	Undercarriage length	5 330
C	Counterweight clearance	1 450
D	Rear-end swing radius	3 800
E	Rear-end length	3 800
F	Overall width of upperstructure	3 310
G	Overall height of cab	3 500
H	Min. ground clearance	810
I	Track gauge	3 200
J	Track shoe width	600
K	Undercarriage width	3 800
L	Overall length	13 030
M	Overall width	3 990
N	Overall height of boom	4 270





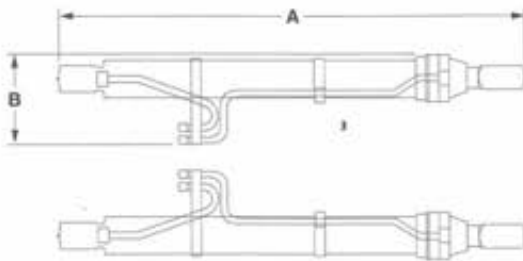
Backhoe Boom

	A	B	Overall width	Weight
6.6 m	6 880 mm	2 320 mm	1 180 mm	5 250 kg



Backhoe Arm

	A	B	Overall width	Weight
2.9 m	4 290 mm	1 440 mm	790 mm	3 210 kg



Boom cylinders

520 kg × 2

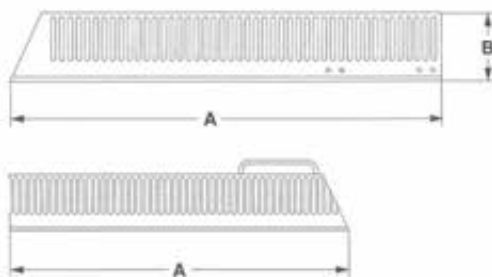
	A	B	Overall height
	2 660 mm	520 mm	360 mm



Hose of boom cylinders

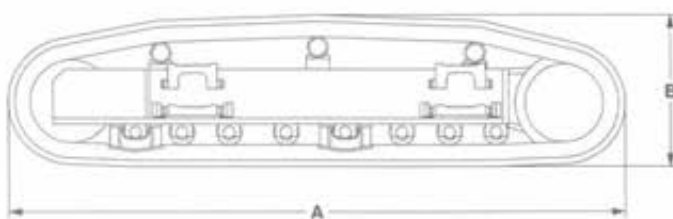
6 kg × 4

	A	B
	1 120 mm	41 mm



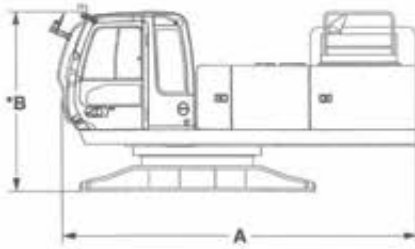
Left sidewalk

	A	B	Overall width	Weight
Front	1 920 mm	430 mm	130 mm	40 kg
Reverse	2 410 mm	340 mm	130 mm	40 kg



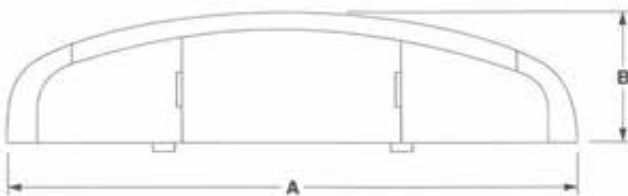
Side frame

	Shoe width	A	B	Overall width	Weight
ZAXIS650H	600 mm	5 330 mm	1 310 mm	720 mm	7 900 kg



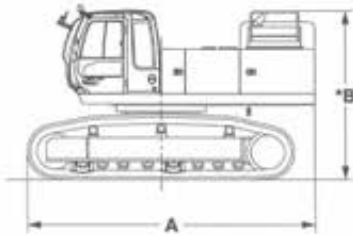
Upperstructure

	A	B	Overall width	Weight
ZAXIS650H	5 000 mm	2 650 mm	3 290 mm	18 600 kg



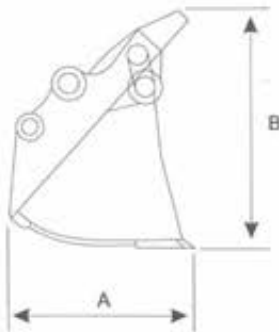
Counterweight

A	B	Overall height	Weight
3 210 mm	790 mm	1 250 mm	10 500 kg



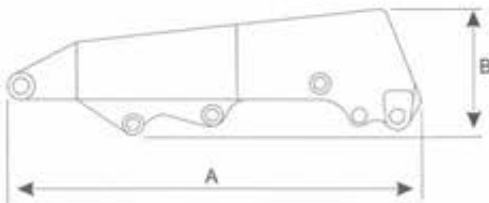
Basic machine (without counterweight)

	Shoe width	A	B	Overall width	Weight
ZAXIS650H	600 mm	5 730 mm	3 500 mm	3 300 mm	34 300 kg



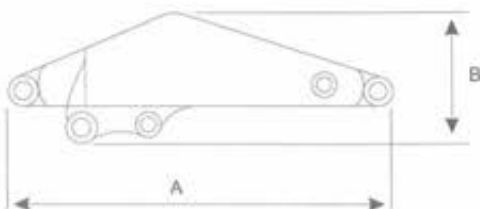
Shovel Bucket

A	B	Overall width	Weight
1 616 mm	2 090 mm	2 010 mm	4 724 kg



Shovel Boom

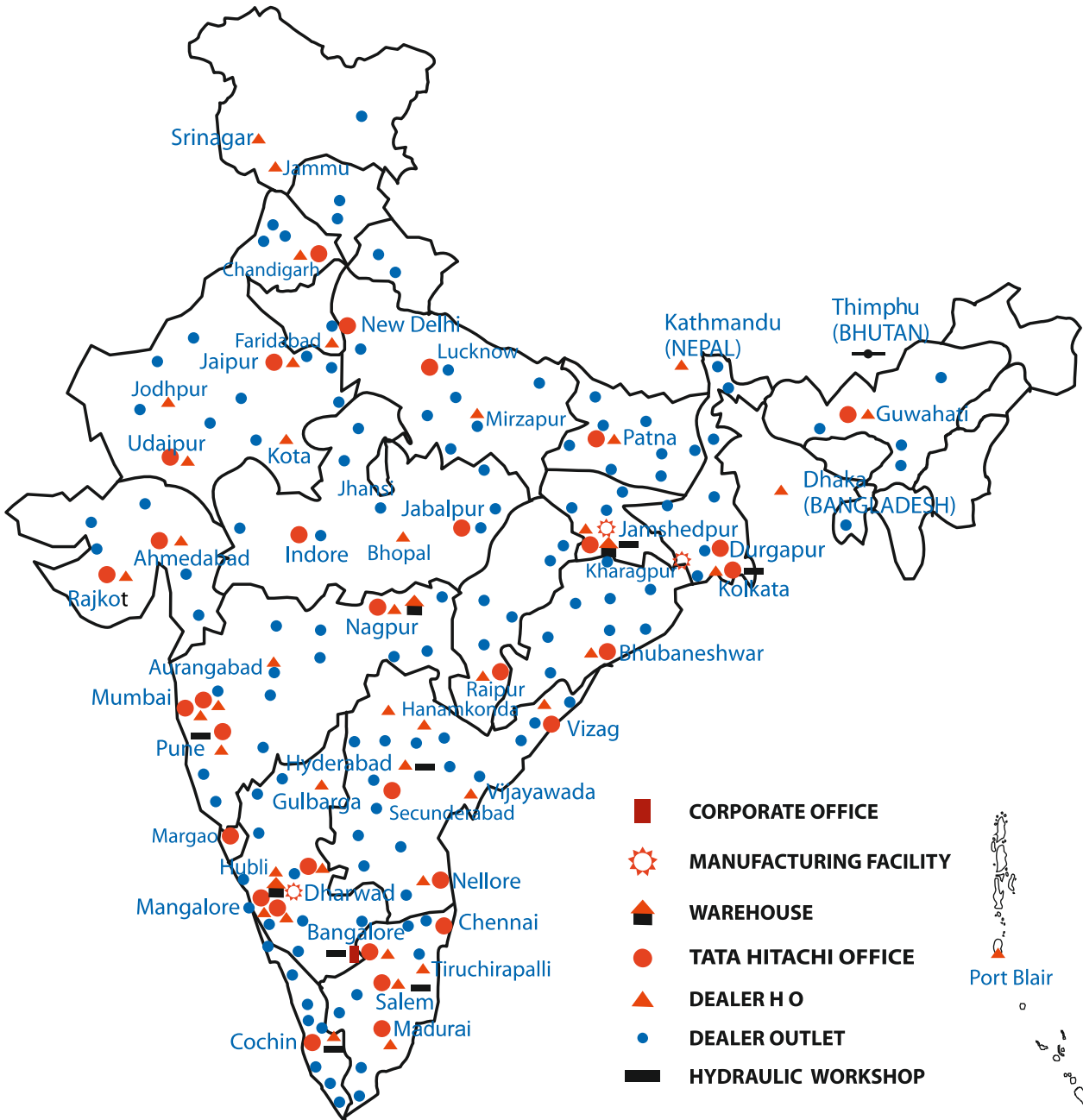
A	B	Overall width	Weight
4 710 mm	1 441 mm	1 218 mm	3 461 kg



Shovel Arm

A	B	Overall width	Weight
3 579 mm	1 222 mm	966 mm	2 123 kg

Our Wide Network



TATA HITACHI

Reliable solutions

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