



Hydraulic Wheeled Excavator



ENGINE POWER 97 kW / 130 HP @ 2.200 rpm

> **OPERATING WEIGHT** 14.910 - 17.120 kg

BUCKET CAPACITY max. 1,13 m³



Walk-Around

The experts at Komatsu designed the PW160-8 with a lifting performance that meets the requirements for safe and productive work on any job site. Powerful and versatile, this hydraulic wheeled excavator is the perfect machine in all applications. Performance and quality. It's what you can expect from all Komatsu equipment, and the PW160-8 delivers.



• High lift capacity

PW160-8

ENGINE POWER 97 kW / 130 HP @ 2.200 rpm

OPERATING WEIGHT 14.910 - 17.120 kg

BUCKET CAPACITY max. 1,13 m³

First-class operator comfort

DE LE CO

20

0104

- Wide spacious cab
- Air-suspended, heated seat
- Automatic climate control
- Convenient storage space
- Large, widescreen TFT monitor panel



State of the art controls

- Proportional controls for attachments
- Easy operation
- Selectable working modes
- Flexible and versatile

Easy maintenance

- Simple and convenient service
- Easy radiator access
- Centralised greasing system
- Large TFT monitor
- Electric refuelling pump



Komatsu Wireless Monitoring System

Total Versatility

Ideal for a wide range of applications

Powerful and precise, the Komatsu PW160-8 is equipped to efficiently carry out any task your business requires. On big sites or small, for digging, trenching, landscaping or site preparation, the Komatsu original equipment hydraulic system always ensures maximum productivity and control.

Additional hydraulic circuit

To allow the use of many attachments, such as buckets, breakers or clamshell buckets, an additional hydraulic circuit controlled by a sliding joystick button, is standard on the PW160-8. To further increase versatility and flexibility, a second optional auxiliary line and an optional hydraulic quick-coupler actuation are also available.

A wide choice of options

With a choice of different styles of boom, arm and undercarriage attachments, you can configure the PW160-8 to match specific demands for transport, working envelope or duty. The excavator can for instance be equipped with a parallel-moving dozer blade that stabilizes the machine without damaging street surfaces. Extra hydraulic arrangements are available for every boom and arm configuration, to make sure that the PW160-8 always contributes strongly to your business.





First-Class Operator Comfort

Wide spacious cab

The wide opening cabin door and the tilting left console grant easy and safe access to the SpaceCab[™]. Inside, a well structured layout allows the operator to quickly get familiar with the user friendly controls and dials.

Automatic climate control

Climate control is integrated in the Equipment Management and Monitoring System (EMMS) and is installed on all PW160-8 excavators. When in automatic mode, the operator can simply set the air conditioning to the most convenient cabin temperature and enjoy a constant temperature throughout the work shift. The type of ventilation can also be selected – either fresh air or circulated air only.

Air-suspended, heated seat

The high comfort air-suspended seat, with a heating function, lumbar support and multiple possibilities for adjustments, ensures the operator's well being during the entire working day. The seat and the side consoles can be adjusted individually to fit each operator's preference.

Convenient storage space

The large cab offers a lot of space for personal belongings. The operator's manual and other documents can safely be stored in a special document rack. All types of tools can be arranged in a large tool box (250 litres) attached to the undercarriage. If further storage room is required, a second optional tool box can be installed.



Automatic air conditioner



Hot and cool box



Large tool box



Large, widescreen TFT monitor panel

To enable safe, accurate and smooth work, the user friendly monitor is the highly intuitive user interface for the machine's Equipment Management and Monitoring System (EMMS). Multilingual and with all essential information available at a glance, it features simple and easy-to-operate switches and multifunction keys that provide the operator with fingertip access to a wide range of functions and operating information.

E

Proportional controls

The ergonomic joysticks with proportional controls were specially redesigned and developed for working with a wheeled excavator. They have horizontal sliders for the first attachment line – and for the second optional one – and offer safe and precise operation of attachments such as ditch cleaning buckets, sorting grapples, clamshell buckets, tilt rotators and of many other hydraulic attachments that require very fine control.

Easy operation

The Komatsu PW160-8 introduces a new operational concept that puts full control of the machine right at the operator's fingertips. A rear-view camera, undercarriage attachments and the manual axle lock can all be actuated by buttons on top of the operational levers. Without removing the hand from the right joystick, the operator can switch its function from boom operation to undercarriage control – for complete and precise control over the parallel dozer blade.

Selectable working modes

The PW160-8 features several selectable working modes (Power, Economy, Lifting, Breaker etc.) that optimise performance and fuel usage. The economy mode can be fine tuned for an ideal balance between power and economy to match your work. The oil flow delivered to hydraulic attachments is adjustable directly on the classleading wide screen monitor panel.

Flexible and versatile

The PW160-8 is factory prepared for the use of any standard tilt rotator. In combination with the optional hydraulic quick-coupler actuation, it achieves a maximum of versatility in any application.











Powerful and Environmentally Friendly

Excellent travel performance

Wheeled excavators are built to move quickly on and between jobsites. To increase its mobility, the PW160-8 features a completely reworked driveline for faster travel and uphill driving speeds. For extra comfort, cruise control and a driveline-power-up function are also standard equipment.

Meets EU Stage IIIA

The Komatsu ecot3 engine technology reduces NOx and particle emissions, fuel consumption and noise level. The Komatsu SAA4D107E-1 engine is certified for EU Stage IIIA emission regulations.

Komatsu integrated hydraulic system

The PW160-8 is a highly responsive and productive machine with all major hydraulic parts designed and manufactured by Komatsu. The electronic Closed-centre Load Sensing hydraulic System (CLSS) offers complete control during individual or combined movements – without sacrificing performance or productivity.

Low consumption ecot3 engine

The Komatsu SAA4D107E-1 engine provides high torque, a better performance at low speed and low fuel consumption. This ecot3 engine features a new combustion chamber design with optimised ignition and combustion timing. The operating pressure of the new common rail system was increased for improved injection and fuel efficiency. The air-to-air intercooler reduces the temperature of the compressed air supplied by the turbo charger to the cylinders, and further improves fuel consumption.



Komatsu SAA4D107E-1



High lift capacity

Along with its class leading compact size, the PW160-8 features an unrivalled lifting performance. The combination of power, convenient dimensions and complete control makes the PW160-8 the first choice for heavy duty lifting applications or simple excavating tasks in narrow alleys, road-construction sites and for sewer-construction work.





Easy Maintenance

Simple and convenient service

The large doors and engine hood give convenient access to all daily service points. Filters are centralized and required service intervals are longer to keep machine downtime to a minimum.

Easy radiator access

Thanks to a side-by-side cooler arrangement, the aftercooler and hydraulic oil radiator can be cleaned easily and repaired individually in case of damage.

Centralised greasing system

The PW160-8 features a centralised system that facilitates the regular greasing of the complete revolving frame, boom system and of the centre joint. An optional fully automatic greasing system can handle the regular and proper greasing of the complete machine – prolonging the lifetime and increasing the resale value of the excavator.

Large TFT monitor

Simple, and with self-explanatory user guidance, the large TFT monitor displays additional functionalities, which the Komatsu service team can use to perform the complete troubleshooting and analysis of the PW160-8 – with no need for a laptop or sophisticated electronic tools.

Electric refuelling pump

Standard equipment on all PW160-8 includes an automatic shut-off fuelling pump that allows easy refuelling from a barrel.







Electric refuelling pump



Centralised service station





The easy way to higher productivity

KOMTRAX[™] is the latest in wireless monitoring technology. It delivers insightful and cost saving information about your fleet and equipment and offers you a wealth of information to facilitate peak machine performance. By creating a tightly integrated web of support it allows pro active and preventive maintenance and helps you to efficiently run a business.

Knowledge

You get quick answers to basic and critical questions about your machines – what they're doing, when they did it, where they're located, how they can be used more efficiently, and when they need to be serviced. Performance data is relayed by satellite from your machine to your computer and to your local Komatsu distributor – who's readily available for expert analysis and feedback.

Convenience

KOMTRAX[™] helps to conveniently manage your fleet on the web, wherever you are. Data is analysed and packaged specifically for easy and intuitive viewing in maps, lists, graphs and charts. You can anticipate the type of service and parts your machines could require, or troubleshoot problems before Komatsu technicians arrive on site.



Power

The detailed information that KOMTRAX[™] puts at your fingertips 24 hours a day, 7 days a week gives you the power to make better daily and long-term strategic decisions. You can anticipate problems, customize maintenance schedules, minimize downtime and keep your machines where they belong – working on the job site.



Through the web application, a variety of search parameters are available to quickly find information about specific machines based on key factors such as utilization rates, age, various notification messages, and more.

And Canada Annual Annua	Name PC21EC Type Bernin/No. E.50000 B 2012 Classifier B Second No. E.50000
Are Developed 1 to a finite of the set of th	"Deployed field datage approaches There and it is different interest, which assure because of speciation conditionalities, weating, oper
A constraints of State and A constraints of Stat	"Deployed field datage approaches There and it is different interest, which assure because of speciation conditionalities, weating, oper
a Innere Internet	
and the second sec	all the h
Anton Type Mare Mare Frank Constr. (2) 74. (2)	a 2000 and a second sec
B Matter	
Filler Million and the first of 7 Element (1992 - 1 2000 7 Element (1992 - 1 2000 m)	
P Ennin HCDD/ 1 E2008 IN P Ennin HCDD/HCCAB 4000 ID P g0 Ant	
Televise C & Cases	* X Habour

A simple chart shows the machine's fuel consumption and helps you to calculate total costs for a job site and conveniently schedule fuel deliveries.

Highest Safety Standards

Optimal job site safety

Safety features on the Komatsu PW160-8 comply with the latest industry standards and work together as a system to minimise risks to personnel in and around the machine. An audible travel alarm further promotes job site safety. Very durable anti-slip plates – with additional high friction covering – maintain long term traction performance.

Rear view camera

A standard fit camera gives an exceptionally clear view of the rear work zone on a wide-screen monitor panel. Large mirrors on both sides ensure that machine visibility meets the latest ISO standards.

Safe SpaceCab™

Specifically designed for Komatsu excavators, the Dash 8 cab has a tubular steel frame. It provides very high shock absorbency, impact resistance and durability. The seat belt keeps the operator in the safety zone of the cab in the event of a roll-over. On request, the Komatsu PW160-8 can also be fitted with an ISO 10262 Level 2 Falling Object Protective System (FOPS).

Safe and easy maintenance

Thermal guards are placed around high temperature parts of the engine. The fan belt and pulleys are well protected and in case of damage, fire risk is reduced by a pump/engine partition that prevents hydraulic oil from spraying onto the engine.









ENGINE

Model
Engine power
at rated engine speed 2.200 rpm
ISO 1439697,0 kW/130 HP
ISO 9249 (net engine power)90,0 kW/121 HP
No. of cylinders4
Bore × stroke107 × 124 mm
Displacement4,5 ltr
Batteries
Alternator
Starter motor
Air filter typeDouble element type with monitor panel
dust indicator and auto dust evacuator
CoolingSuction type cooling fan

HYDRAULIC SYSTEM

Type HydrauMind. Closed-centre system with load sensing
and pressure compensation valves
Additional circuitsDepending on the specification up to
2 additional proportional control
& quick coupler circuits can be installed
Main pump Variable displacement piston pump
supplying boom, arm, bucket, swing and travel circuits
Maximum pump flow
Relief valve settings
Implement
Travel420 bar
Swing295 bar
Pilot circuit

BRAKE SYSTEM

TypeDual circuit hydraulic braking system supplied from a separate gear pump. Service brakesPedal actuated wet multi-disc brakes integrated into the axle hubs. Parking brakeElectrically actuated wet multi-disc "spring actuation hydraulic release" brake integrated into the transmission.

ENVIRONMENT

Engine emissionsFully complies with EU Stage IIIA exhaust emission regulations
Noise levels
LwA external101 dB(A) (2000/14/EC Stage II)
LpA operator ear71 dB(A) (ISO 6396 dynamic test)
Vibration levels (EN 12096:1997)
Hand/arm $\leq 2,5 \text{ m/s}^2$ (uncertainty K = 0,495 m/s ²)
Body $\leq 0,5 \text{ m/s}^2$ (uncertainty K = 0,16 m/s ²)
Contains fluorinated greenhouse gas HFC-134a (GWP 1430).

Quantity of gas 0,9 kg, CO₂ equivalent 1,29 t.

SWING SYSTEM

iston motor driving through
y double reduction gearbox
ally actuated wet multi-disc
ntegrated into swing motor
0 - 11 rpm
41 kNm

TRANSMISSION

Type Fully automatic power shift transmission with permanent 4 wheel drive
Travel motors One variable displacement axial piston motor Maximum pressure
Travel modesAutomatic + 3 travel modes
Max. travel speeds Hi / Lo / Creep
A max. speed restriction of 20 km/h is available as an option.
Maximum drawbar pull
from the operator cab.

STEERING SYSTEM

Steering control Hydraulic steering system
supplied from a separate gear pump and
controlled through LS orbitrol & priority valves.
Minimum turning radius6.790 mm (to center of outer wheel)

SERVICE REFILL CAPACITIES

Fuel tank	
Radiator	16 ltr
Engine oil	17 ltr
Swing drive	4,5 ltr
Hydraulic tank	166 ltr
Transmission	4,85 ltr
Front differential	10,5 ltr
Rear differential	9,5 ltr
Front axle hub	2,5 ltr
Rear axle hub	2,0 ltr
Swing pinion grease bath amount	9,0 ltr

OPERATING WEIGHT (APPR.)

Undercarriage attachment type	Mono boom	Two-piece boom	
Without	14.910 kg	15.120 kg	
Rear blade	15.670 kg	15.880 kg	
Rear outrigger	15.910 kg	16.120 kg	
2 outriggers + blade	16.670 kg	16.880 kg	
4 outriggers	16.910 kg	17.120 kg	

Operating weight, including specified work equipment, 2.500 mm arm, operator, lubricant, coolant, full fuel tank and the standard equipment. Weights are without bucket.

MAX. BUCKET CAPACITY AND WEIGHT

		Mono boom	
Arm length	2,1 m	2,5 m	3,0 m
Material weight up to 1,2 t/m ³	1,13 m³ 675 kg	0,75 m³ 525 kg	0,66 m³ 495 kg
Material weight up to 1,5 t/m ³	0,94 m³ 615 kg	0,66 m ³ 495 kg	0,56 m³ 465 kg
Material weight up to 1,8 t/m ³	0,75 m³ 525 kg	0,56 m³ 465 kg	0,47 m³ 435 kg
		Two-piece boom	
Arm length	2,1 m	2,5 m	3,0 m
Material weight up to 1,2 t/m ³	1,13 m³ 675 kg	1,04 m ³ 645 kg	0,94 m³ 615 kg
Material weight up to 1,5 t/m ³	0,94 m³ 615 kg	0,85 m³ 585 kg	0,75 m³ 525 kg
Material weight up to 1,8 t/m ³	0,75 m³ 525 kg	0,75 m ³ 525 kg	0,66 m ³ 495 kg

Max. capacity and weight have been calculated according to ISO 10567:2007.

Please consult with your distributor for the correct selection of buckets and attachments to suit the application.

BUCKET AND ARM FORCE

Arm length	2,1 m	2,5 m	3,0 m
Bucket digging force	97 kN	97 kN	97 kN
Bucket digging force at PowerMax	102 kN	102 kN	102 kN
Arm crowd force	71 kN	60 kN	50 kN
Arm crowd force at PowerMax	76 kN	64 kN	53 kN

Dimensions

MONO BOOM



Driving position		
Arm length	Α	В
2.100 mm	8.290 mm	3.500 mm
2.500 mm	8.290 mm	3.500 mm
3.000 mm *	8.045 mm	3.975 mm

Transport position

С	D
8.930 mm	3.185 mm
8.345 mm	3.235 mm
8.365 mm	3.415 mm
	8.930 mm 8.345 mm

* Driving position without bucket

TWO-PIECE BOOM



Driving position							
Arm length	Α	В					
2.100 mm	5.765 mm	3.940 mm					
2.500 mm	5.790 mm	3.940 mm					
3.000 mm *	5.940 mm	3.940 mm					
Transport position							
Transport positio	n						
Transport positio	n C	D					
		D 3.175 mm					
Arm length	C						
Arm length 2.100 mm	C 8.090 mm	3.175 mm					













Working Range

MONO BOOM



A	RM LENGTH	2,1 m	2,5 m	3,0 m
Α	Max. digging height	8.730 mm	8.930 mm	9.285 mm
В	Max. dumping height	6.335 mm	6.555 mm	6.911 mm
С	Max. digging depth	4.925 mm	5.320 mm	5.600 mm
D	Max. digging depth of cut for 2,44 m level	4.077 mm	4.477 mm	4.977 mm
E	Max. digging reach	8.640 mm	9.070 mm	9.485 mm
F	Max. digging reach at ground level	8.620 mm	8.885 mm	9.315 mm
	Min. swing radius	3.205 mm	3.160 mm	3.180 mm



ARM LENC	STH	2,1 m	2,5 m	3,0 m
A Max. di	igging height	9.611 mm	9.910 mm	10.337 mm
B Max. di	umping height	7.135 mm	7.433 mm	7.860 mm
C Max. di	igging depth	4.968 mm	5.365 mm	5.861 mm
D Max. di	igging depth of cut for 2,44 m level	4.660 mm	5.062 mm	5.562 mm
E Max. di	igging reach	8.533 mm	8.905 mm	9.397 mm
F Max. di	igging reach at ground level	8.343 mm	8.715 mm	9.224 mm
Min. sw	ving radius	2.330 mm	2.423 mm	2.979 mm

TWO-PIECE BOOM

Lifting Capacity

MONO BOOM

		$\overline{\mathbf{N}}$	A		9	7,5	m	6,0	m	4,5	m	3,0	m		
Arm length		в	$\overline{\ }$	Å	G≈	Å	ີ~	Å	□~	Å	C≁	Å	G≈		
		7,5 m	kg	*2.945	*2.945					-				+-	A
		6,0 m 4,5 m	kg kg	*2.595 *2.445	*2.295 1.945			3.645 3.595	2.695 2.645	5.545	3.995				CT NORATEV R
	3	3,0 m	kġ	2.395	1.745	2.545	1.845	3.445	2.545	5.195	3.695			4	
	2,1	1,5 m	kg kg	2.345 2.395	1.695 1.745	2.495 2.445	1.795 1.745	3.345 3.245	2.395 2.295	4.845 4.695	3.395 3.245			Θ	
		- 1,5 m	kg	2.595	1.895			3.195	2.245	4.645	3.195	*7.395	5.495		
	-	- 3,0 m 7,5 m	kg kg	3.195	2.295			3.245	2.345	4.695	3.245	*7.045	5.645	Α	 Reach from swing center
		6,0 m	kg	*2.095	*2.095	*0.405	1 005	3.645	2.695					в	 Bucket hook height
	2	4,5 m 3,0 m	kg kg	*2.045 *2.095	1.845 1.645	*2.495 2.545	1.895 1.845	3.595 3.495	2.645 2.545	5.245	3.745	9.995	6.545	C	 Lifting capacities, including
	2,5	1,5 m 0,0 m	kg	*2.195 2.245	1.595 1.645	2.445 2.395	1.795 1.745	3.345 3.245	2.395 2.295	4.945 4.745	3.445 3.245	*4.895	*4.895	U	bucket linkage (120 kg) and
00		- 1,5 m	kg kg	2.245	1.745	2.395	1.740	3.195	2.295	4.645	3.195	*7.595	5.545		bucket cylinder (109 kg)
Without stabilizer		- 3,0 m 7,5 m	kg kg	2.895 *1.945	2.095 *1.945			3.195	2.295	4.695	3.245	*8.045	5.645		
		6,0 m	kg	*1.795	*1.795	*1.945	1.845	*3.395	2.695					ç	
	ε	4,5 m 3,0 m	kg kg	*1.695 *1.695	1.595 1.445	2.545 2.495	1.845 1.795	3.595 3.445	2.645 2.495	5.295	3.795			Ů	 Rating over front
	3,0	1,5 m	kg	*1.795	1.395	2.395	1.745	3.295	2.345	4.895	3.395			C>~	 Rating over side
		0,0 m - 1,5 m	kg ka	*1.945 2.145	1.395 1.495	2.345 2.295	1.695 1.645	3.145 3.095	2.245 2.145	4.645 4.545	3.195 3.095	*4.545 *6.445	*4.545 5.295	$\mathbf{\Theta}$	 Rating at maximum reach
		- 3,0 m	•	2.445	1.745	2.200	1.040	3.095	2.145	4.545	3.095	8.595	5.395		
		7,5 m	kg	*2.945	*2.945										When removing linkage or
		6,0 m	kg	*2.595	*2.595			*4.245	3.095	*5 745	4.045				cylinder, lifting capacities can
	Ξ	4,5 m 3,0 m	kg kg	*2.445 *2.445	2.245 2.045	*3.845	2.145	*5.195 *5.595	3.045 2.945	*5.745 *7.195	4.645 4.295				be increased by their respective weights.
	2,1	1,5 m	kg	*2.545	1.995	4.495	2.095	*5.895	2.795	*7.995	3.995				
		0,0 m - 1,5 m	kg kg	*2.795 *3.245	1.995 2.195	*3.945	2.045	*5.895 *5.345	2.695 2.695	*7.945 *7.145	3.845 3.795	*7.395	6.745		
		- 3,0 m		*3.395	2.695			*3.695	2.745	*5.545	3.845	*7.045	6.895		
		7,5 m 6,0 m	kg kg	*2.295 *2.095	*2.295 *2.095			*3.695	3.095						* Load is limited by hydraulic
	ε	4,5 m 3,0 m	kg kg	*2.045 *2.095	*2.045 1.945	*2.495 *3.795	2.195 2.145	*4.595 *5.395	3.045 2.945	*6.895	4.395	*10.545	7 8/15		capacity rather than tipping. Ratings are based on SAE
	2,51	1,5 m	kg	*2.195	1.895	4.495	2.095	*5.795	2.795	*7.845	4.095		7.045		Standard No. J1097. Rated loads do not exceed 87%
0-0		0,0 m - 1,5 m	kg ka	*2.445 *2.895	1.895 2.095	4.445	2.045	*5.895 *5.545	2.695 2.645	*8.045 *7.445	3.895 3.795	*4.895 *7.595	*4.895 6.745		of hydraulic lift capacity or 75% of tipping load.
		- 3,0 m	kg	*3.645	2.445			*4.345	2.695	*6.045	3.845	*8.045	6.895		or apping load.
Front or rear blade		7,5 m 6,0 m	kg kg	*1.945 *1.795	*1.945 *1.795	*1.945	*1.945	*2.845 *3.395	*2.845 3.145						
	ε	4,5 m	kg	*1.695	*1.695	*3.195	2.145	*3.745	3.045	*5.045	4.005				
	3,0 n	3,0 m	kg kg	*1.695 *1.795	1.695 1.645	*3.845 4.445	2.095 2.045	*4.845 *5.545	2.945 2.745	*5.945 *7.395	4.395 3.995				
				*1.945	1.695	4.345	1.995	*5.795	2.645	*7.895	3.795	*4.545	*4.545		
			-	*2.195 *2.695	1.795 2.095	*4.195	1.945	*5.595 *4.745	2.545 2.545	*7.595 *6.495	3.695 3.695	*6.445 *9.045	*6.445 6.645		
		7,5 m	ka	*2.945	*2.945										
		6,0 m	kg	*2.595	*2.595			*4.245	3.445	_					
	ε	4,5 m 3,0 m	-	*2.445 *2.445	*2.445 2.295	*3.845	*5.195 2.395	3.395 *5.595	*5.745 3.295	5.195 *7.195	4.845				
	2,1	1,5 m	kg	*2.545	2.195	*4.645	2.345	*5.895	3.145	*7.995	4.545				
		0,0 m		*2.795 *3.245	2.295 2.495	*3.945	2.345	*5.895 *5.345	3.045 2.995	*7.945 *7.145	4.395 4.345	*7.395	*7.395		
		- 3,0 m		*3.395	2.995			*3.695	3.095	*5.545	4.395	*7.045	*7.045		
		7,5 m 6,0 m	-	*2.295 *2.095	*2.295 *2.095			*3.695	3.445						
1	ε	4,5 m 3,0 m		*2.045 *2.095	*2.045 *2.095	*2.495 *3.795	2.445 2.395	*4.595 *5.395	3.395 3.295	*6.895	4.945	*10.545	*0.045		
	2,5 1			*2.195	2.095	*4.645	2.395	*5.795	3.145	*7.845	4.595	10.545	5.045		
0				*2.445 *2.895	2.145 2.345	*4.545	2.295	*5.895 *5.545	3.045 2.995	*7.845 *7.445	4.395 4.345	*4.895 *7.595	*4.895 *7.595		
		- 3,0 m	kg	*3.645	2.745			*4.345	3.045	*6.045	4.345	*8.045	7.995		
Rear outrigger		7,5 m 6,0 m		*1.945 *1.795	*1.945 *1.795	*1.945	*1.945	*2.845 *3.395	*2.845 3.295						
	-	4,5 m	kg	*1.695	*1.695	*3.195	2.295	*3.745	3.245						
	3,0 m	3,0 m 1,5 m		*1.695 *1.795	*1.695 1.745	*3.845 4.545	2.245 2.145	*4.845 *5.545	3.095 2.945	*5.945 *7.395	4.695 4.295				
	۳ ۱	0,0 m	kg	*1.945	1.745	4.445	2.095	*5.795	2.795	*7.895	4.045		*4.545		
			-	*2.195 *2.695	1.895 2.195	*4.195	2.045	*5.595 *4.745	2.695 2.695	*7.595 *6.495	3.945 3.945	*6.445 *9.045	*6.445 7.295		
L	1	1 3,0 11	9	2.000	2.100			5	2.000	5.100	0.0 10	5.040			

MONO BOOM

		\square	A	(•	7,5	5 m	6,0	m	4,5	5 m	3,0	m]
Arm length		в		Å	G≈	Ľ	G≈	Å	G≈	ľ	G≈	ů	G≈	
		7,5 m	kg	*2.945	*2.945									
		6,0 m	kg	*2.595	*2.595			*4.245	*4.245	+= = +=	+= = 1 =			TT ROMATEN Q
	ε	4,5 m	kg	*2.445 *2.445	*2.445 *2.445	*3.845	3.045	*5.195 *5.595	4.295 4.195	*5.745 *7.195	*5.745 6.295			
	2,1	3,0 m 1,5 m	kg kg	*2.545	*2.545	*4.645	2.995	*5.895	4.195	*7.995	5.995			В
		,	kg	*2.795	*2.795	*3.945	2.945	*5.895	3.945	*7.945	5.795			
		- 1,5 m	•	*3.245	3.195	01010	21010	*5.345	3.895	*7.145	5.745	*7.395	*7.395	
		- 3,0 m	kg	*3.395	*3.395			*3.695	*3.695	*5.545	*5.545	*7.045	*7.045	
		7,5 m	kg	*2.295	*2.295									A – Reach from swing center
		6,0 m	kg	*2.095	*2.095			*3.695	*3.695					B – Bucket hook height
6 Annual State	-	4,5 m	kg	*2.045	*2.045	*2.495	*2.495	*4.595	4.345					B Bucket nook neight
	3	3,0 m	kg	*2.095	*2.095	*3.795	3.045	*5.395	4.195	*6.895	6.395	*10.545	*10.545	C – Lifting capacities, including
	2,5	1,5 m	kg	*2.195	*2.195	*4.645	2.995	*5.795	4.045	*7.845	6.045	+4.005	+4.005	bucket linkage (120 kg) and
		,	kg	*2.445	*2.445	*4.545	2.945	*5.895	3.945	*8.045	5.845	*4.895	*4.895	bucket cylinder (109 kg)
		- 1,5 m	•	*2.895	*2.895			*5.545	3.895 3.895	*7.445	5.745	*7.595	*7.595	
Outringer a blade		- 3,0 m	<u> </u>	*3.645 *1.945	3.545 *1.945			*4.345	*2.845	*6.045	5.795	*8.045	*8.045	
Outrigger + blade		7,5 m 6,0 m	kg kg	*1.795	*1.795	*1.945	*1.945	*3.395	*3.395					
		4,5 m	kg	*1.695	*1.695	*3.195	3.095	*3.745	*3.745					🕺 – Rating over front
	Ε	,	kg	*1.695	*1.695	*3.845	2.995	*4.845	4.195	*5.945	*5.945			
	3,0	1.5 m	kq	*1.795	*1.795	*4.545	2.945	*5.545	3.995	*7.395	5.995			- Rating over side
	0	0,0 m	kg	*1.945	*1.945	*4.545	2.845	*5.795	3.845	*7.895	5.745	*4.545	*4.545	
		- 1,5 m		*2.195	*2.195	*4.195	2.845	*5.595	3.795	*7.595	5.645	*6.445	*6.445	 Rating at maximum reach
		- 3,0 m		*2.695	*2.695			*4.745	3.795	*6.495	5.645	*9.045	*9.045	
	1	7,5 m	kg	*2.945	*2.945			-						When removing linkage or
		,	kg	*2.595	*2.595			*4.245	*4.245					cylinder, lifting capacities can
		4,5 m	kg	*2.445	*2.445			*5.195	5.045	*5.745	*5.745			be increased by their respective
	<u></u> Ε	3,0 m	kg	*2.445	*2.445	*3.845	3.545	*5.595	4.895	*7.195	*7.195			weights.
	5,1	1,5 m	kg	*2.545	*2.545	*4.645	3.495	*5.895	4.745	*7.995	7.195			
		0,0 m	kg	*2.795	*2.795	*3.945	3.445	*5.895	4.645	*7.945	6.995			
		- 1,5 m		*3.245	*3.245			*5.345	4.595	*7.145	6.945	*7.395	*7.395	
		- 3,0 m	-	*3.395	*3.395			*3.695	*3.695	*5.545	*5.545	*7.045	*7.045	
		7,5 m	kg	*2.295	*2.295			+0.005	+0.005					* Load is limited by hydraulic
		,	kg	*2.095	*2.095	+0 105	+0.105	*3.695	*3.695					capacity rather than tipping.
8	ε	4,5 m	kg	*2.045	*2.045	*2.495	*2.495	*4.595	*4.595	*0.005	*0.005	*10 545	*10 545	Ratings are based on SAE
	2,5 r	,	kg	*2.095 *2.195	*2.095 *2.195	*3.795 *4.645	3.545 3.495	*5.395 *5.795	4.895 4.745	*6.895 *7.845	*6.895 7.245	*10.545	"10.545	Standard No. J1097.
	N N	1,5 m 0,0 m	kg kg	*2.445	*2.445	*4.545	3.495	*5.895	4.745	*8.045	7.045	*4.895	*4.895	Rated loads do not exceed 87%
		- 1,5 m		*2.895	*2.895	4.343	5.445	*5.545	4.595	*7.445	6.945	*7.595	*7.595	of hydraulic lift capacity or 75% of tipping load.
		- 3,0 m	•	*3.645	*3.645			*4.345	*4.345	*6.045	*6.045	*8.045	*8.045	or upping load.
Outrigger front + rear	-	7,5 m	kg	*1.945	*1.945	_		*2.845	*2.845	0.040	0.040	0.040	0.040	
		,	kg	*1.795	*1.795	*1.945	*1.945	*3.395	*3.395					
		4,5 m	kg	*1.695	*1.695	*3.195	*3.195	*3.745	*3.745					
	E	,	kg	*1.695	*1.695	*3.845	3.545	*4.845	*4.845	*5.945	*5.945			
	3,0	1,5 m	kg	*1.795	*1.795	*4.545	3.445	*5.545	4.745	*7.395	7.195			
		0,0 m	kg	*1.945	*1.945	*4.545	3.345	*5.795	4.595	*7.895	6.945	*4.545	*4.545	
		- 1,5 m	kg	*2.195	*2.195	*4.195	3.345	*5.595	4.495	*7.595	6.845	*6.445	*6.445	
		- 3,0 m	kg	*2.695	*2.695			*4.745	4.495	*6.495	*6.495	*9.045	*9.045]

Lifting Capacity

TWO-PIECE BOOM

	A		9	7,5	i m	6,0) m	4,5	5 m) m]	
Arm length	в	Å	G≈	Å	G >=	Å	C≫	Å	C≫	Å	□~		
		J	*4 105									」 1 .	Α
	7,5 m kg 6,0 m kg	*4.195 *3.565	*4.195 3.005										NOMATSU RI
ε	4,5 m kg 3,0 m kg	*3.385 3.145	2.485 2.255			4.065 3.965	2.905 2.815	6.065 5.785	4.225 3.965	*8.575	*7.415	and the second	
2	1,5 m kg	3.045	2.235			3.845	2.705	5.525	3.735				в
	0,0 m kg	3.125	2.225			3.775	2.635	5.395	3.615	*0 155	C 10F	G	
	- 1,5 m kg - 3,0 m kg	3.455	2.435			3.765	2.625	5.375	3.605	*9.155	6.105		
	7,5 m kg	*3.365	*3.365			*4.005	0.005	*4.435	4.335			A -	 Reach from swing
A state	6,0 m kg 4,5 m kg	*2.945 *2.815	2.665 2.235			*4.065 4.025	2.895 2.855	*4.975 *5.845	4.375 4.205	*5.675	*5.675	В-	 Bucket hook heig
E C	3,0 m kg	*2.825	2.035	2.905	2.065	3.895	2.745	5.745	3.925			c -	 Lifting capacities,
N	1,5 m kg	2.775 2.845	1.965 2.005	2.855	2.015	3.765 3.665	2.615 2.525	5.435 5.255	3.645 3.485	*4.715	*4.715		bucket linkage (1)
	- 1,5 m kg	3.105	2.165			3.635	2.495	5.215	3.445	*8.485	5.805		bucket cylinder (1
Without stabilizer	- 3,0 m kg 7,5 m kg	*2.805	*2.805			-		5.285 *4.175	3.505 *4.175				
	6,0 m kg	*2.525	2.405			*3.995	2.985	*4.105	*4.105			Ģ	
ε	4,5 m kg 3,0 m kg	*2.415 *2.425	2.075 1.915	2.985 2.945	2.145 2.105	4.095 3.955	2.925 2.795	*4.535 5.865	*4.315 4.035	*10.295	6 0/5	0	 Rating over front
0.0	1,5 m kg	*2.505	1.845	2.885	2.045	3.805	2.655	5.525	3.725	10.295	0.545	[2∞-	- Rating over side
	0,0 m kg	2.645	1.875	2.825	1.995	3.685	2.545	5.305	3.525	*5.055	*5.055	- 🏟	- Rating at maximu
	- 1,5 m kg - 3,0 m kg	2.845 3.325	2.005 2.315			3.635 3.655	2.495 2.515	5.215 5.245	3.445 3.475	*7.695 9.745	5.815 5.905		
							-					1	
	7,5 m kg 6,0 m kg	*4.195 *3.565	*4.195 3.435					*5.955	5.015				When removing li cylinder, lifting ca
	4,5 m kg	*3.385	2.835			*5.955	3.325	*6.835	4.865	*8.575	*8.575		be increased by t
2 1 1	3,0 m kg	*3.385 *3.545	2.575 2.495			*6.375 *6.795	3.225 3.115	*8.065 *9.065	4.605 4.365				weights.
	0,0 m kg	*3.905	2.555			*6.865	3.045	*9.215	4.235				
	- 1,5 m kg - 3,0 m kg	*4.635	2.805			*6.285	3.035	*8.485	4.225	*9.155	7.345		
	7,5 m kg	*3.365	*3.365					*4.435	*4.435				* Lood is limited I
	6,0 m kg	*2.945 *2.815	*2.945 2.565			*4.065 *5.305	3.315 3.275	*4.975 *5.845	*4.975 4.855	*5.675	*5 675		* Load is limited I capacity rather th
E	4,5 m kg 3,0 m kg	*2.825	2.345	*3.235	2.375	*6.055	3.155	*7.565	4.655	5.075	*5.675		Ratings are based Standard No. J10
5	1,5 m kg	*2.945	2.265	*4.035	2.325	*6.545	3.025	*8.695	4.265	*4 715	*4 715		Rated loads do no
00	0,0 m kg - 1,5 m kg	*3.215 *3.755	2.315 2.515			*6.755 *6.395	2.935 2.905	*9.085 *8.605	4.105 4.065	*4.715 *8.485	*4.715 7.085		of hydraulic lift ca of tipping load.
Front or roor blodo	- 3,0 m kg	+0.055	+0.055					*7.115	4.125				
Front or rear blade	7,5 m kg 6,0 m kg	*2.855 *2.575	*2.855 *2.575			*4.055	3.485	*4.235 *4.165	*4.235 *4.165				
	4,5 m kg	*2.475	2.465	*3.115	2.545	*4.605	3.435	*4.595	*4.595				
E O	3,0 m kg	*2.475 *2.565	2.285 2.225	*4.165 *4.875	2.515 2.455	*5.815 *6.515	3.315 3.185	*7.195 *8.545	4.785 4.495	*10.455	8.395		
က်	0,0 m kg		2.255	*5.025		*6.875	3.085	*9.225	4.305	*5.105	*5.105		
	- 1,5 m kg - 3,0 m kg		2.415 2.795			*6.745 *5.775	3.035 3.045	*9.055 *7.945	4.225 4.245	*7.745 *11.065	7.295		
						0.110	0.040	7.545	7.240	11.000	1.010	1	
	7,5 m kg 6,0 m kg		*4.195 *3.565					*5.955	*5.955				
	4,5 m kg	*3.385	*3.385			*5.955	4.735	*6.835	*6.835	*8.575	*8.575		
2 1 2	3,0 m kg	*3.385 *3.545	*3.385 3.515			*6.375 *6.795	4.605 4.455	*8.065 *9.065	6.715 6.375				
No. 10	0,0 m kg	*3.905	3.605			*6.865	4.365	*9.215	6.205				
	- 1,5 m kg - 3,0 m kg	*4.635	3.995			*6.285	4.345	*8.485	6.185	*9.155	*9.155		
	7,5 m kg	*3.365	*3.365					*4.435	*4.435				
	6,0 m kg		*2.945			*4.065	*4.065	*4.975	*4.975	*5 075	*5.075		
E	4,5 m kg 3,0 m kg		*2.815 *2.825	*3.235	*3.235	*5.305 *6.055	4.675 4.515	*5.845 *7.565	*5.845 6.655	*5.675	*5.675		
25	1,5 m kg	*2.945	*2.945	*4.035	3.275	*6.545	4.335	*8.695	6.255				
	0,0 m kg -1,5 m kg		*3.215 3.565			*6.755 *6.395	4.215 4.175	*9.085 *8.605	6.025 5.975	*4./15	*4.715 *8.485		
	- 3,0 m kg							*7.115	6.055				
Rear outrigger	7,5 m kg 6,0 m kg	*2.855 *2.575	*2.855 *2.575			*4.055	*4.055	*4.235 *4.165	*4.235 *4.165				
	4,5 m kg	*2.475	*2.475	*3.115	*3.115	*4.605	*4.605	*4.595	*4.595				
	3,0 m kg		*2.475 *2.565	*4.165 *4.875	*3.525 3.445	*5.815 *6.515	4.725	*7.195 *8.545	6.955 6.565	*10.455	*10.455		
n	1,5 m kg 0,0 m kg		*2.565	*4.875	3.445 3.385	*6.875	4.555 4.405	*9.225	6.295	*5.105	*5.105		
	-1,5 m kg	*3.125	*3.125			*6.745	4.335	*9.055	6.195	*7.745	*7.745		
	- 3,0 m kg	*3.885	*3.885			*5.775	4.365	*7.945	6.215	^11.065	*11.065	J	

linkage or capacities can their respective

d by hydraulic than tipping. ed on SAE 1097. not exceed 87% capacity or 75%

TWO-PIECE BOOM

				0	7,5	5 m	6,0	m	4,5	5 m	3,0	m
Arm length		в		G	Å	G	Å	G≈	Å	G	Å	□~

		7,5 m kų							*5.055	*5.055		
		6,0 m kç					*5.055	4 505	*5.955	*5.955	*0 575	*0 575
	ε	4,5 m kg					*5.955	4.595	*6.835	*6.835	*8.575	*8.575
		3,0 m kç					*6.375	4.495	*8.065	6.635		
	2,1	1,5 m kų					*6.795	4.375	*9.065	6.365		
		0,0 m kų					*6.865	4.295	*9.215	6.225	*0 1 5 5	*0 155
		- 1,5 m k		5 3.925			*6.285	4.285	*8.485	6.215	*9.155	*9.155
		- 3,0 m k		*0.005					*4 405	*4 405		
and the second s		7,5 m k					*4.005	*4.005	*4.435	*4.435		
		6,0m ko 4,5m ko					*4.065 *5.305	*4.065 4.555	*4.975 *5.845	*4.975 *5.845	*5.675	*5.075
8	ε				*0.005	*0.005					0.070	*5.675
	2,5 I	3,0 m kų			*3.235 *4.035	*3.235 3.235	*6.055 *6.545	4.425 4.285	*7.565 *8.695	6.595 6.275		
	ณ์	1,5 m k			4.035	3.230	*6.755	4.200	*9.085	6.095	*4.715	*4.715
		0,0 m kų	,				*6.395	4.105	*8.605		*8.485	*8.485
		-1,5 m k		5 *3.535			0.395	4.100	*7.115	6.045 6.115	0.400	0.400
Outringen a blade		-3,0 m ku 7,5 m ku		5 *2.805					*4.175	*4.175		
Outrigger + blade							*3.995	*3.995	*4.175	*4.175		
		6,0 m k			*3.055	*3.055	*4.545	*4.545	*4.535	*4.535		
	ε	4,5 m ko 3,0 m ko			*4.105	3.335	*5.755	4.545	4.535	4.535 6.725	*10.205	*10.295
	3,0 r				*4.815	3.265	*6.375	4.405	*8.385	6.375	10.295	10.295
	ŕ	1,5 m k			*4.965		*6.725	4.335	*9.045	6.145	*5.055	*5.055
		0,0 m ku -1,5 m ku			4.900	3.205	*6.605	4.215	*8.875	6.055	*7.695	*7.695
		- 3,0 m ko					*5.635	4.155	*7.775	6.085		*10.845
		<u> - 3,0 III K</u>	3.02	5.705			5.055	4.105	1.115	0.005	10.045	10.045
		7,5 m kg	*4.19	5 *4.195								
		6,0 m kų	*3.565	5 *3.565					*5.955	*5.955		
		4,5 m kg	*3.385	5 *3.385			*5.955	*5.955	*6.835	*6.835	*8.575	*8.575
	Е	3,0 m kų	*3.385	5 *3.385			*6.375	*6.375	*8.065	*8.065		
	2,1	1,5 m ko	*3.545	5 *3.545			*6.795	6.385	*9.065	*9.065		
		0,0 m kų	*3.905	5 *3.905			*6.865	6.305	*9.215	*9.215		
		-1,5 m kợ	*4.63	5 *4.635			*6.285	*6.285	*8.485	*8.485	*9.155	*9.155
		- 3,0 m k										
		7,5 m k							*4.435	*4.435		
		6,0 m ko					*4.065	*4.065	*4.975	*4.975		
5	_	4,5 m kç					*5.305	*5.305	*5.845	*5.845	*5.675	*5.675
	Е	3,0 m ko			*3.235	*3.235	*6.055	*6.055	*7.565	*7.565		
	2,5	1,5 m ko			*4.035	*4.035	*6.545	6.305	*8.695	*8.695		
0000		0,0 m ko	3.215	5 *3.215			*6.755	6.195	*9.085	*9.085	*4.715	*4.715
		-1,5 m k	3.75	5 *3.755			*6.395	6.155	*8.605	*8.605	*8.485	*8.485
		-3,0 m k							*7.115	*7.115		
Outrigger front + rear		7,5 m k							*4.175	*4.175		
		6,0 m kç					*3.995	*3.995	*4.105	*4.105		
	~	4,5 m kg			*3.055	*3.055	*4.545	*4.545	*4.535	*4.535		
	E	3,0 m kų			*4.105	*4.105	*4.645	*5.755	*7.065	*7.065	*10.295	*10.295
	3,0	1,5 m ko			*4.815	4.645	*6.375	6.355	*8.385	*8.385		
		0,0 m k			*4.965	4.585	*6.725	6.225	*9.045	*9.045	*5.055	*5.055
		-1,5 m kę					*6.605	6.155	*8.875	*8.875	*7.695	*7.695
		- 3,0 m ko	*3.825	5 *3.825			*5.635	*5.635	*7.775	*7.775	*10.845	*10 845



A - Reach from swing center

- B Bucket hook height
- C Lifting capacities, including bucket linkage (120 kg) and bucket cylinder (109 kg)

- Rating over front

- Rating at maximum reach

When removing linkage or cylinder, lifting capacities can be increased by their respective weights.

* Load is limited by hydraulic capacity rather than tipping. Ratings are based on SAE Standard No. J1097. Rated loads do not exceed 87% of hydraulic lift capacity or 75% of tipping load.

Hydraulic Wheeled Excavator **PW160-8**

Standard and Optional Equipment

ENGINE

Komatsu SAA4D107E-1 turbocharged common rail direct injection diesel engine EU Stage IIIA compliant	•
Suction type cooling fan	•
Automatic engine warm-up system	•
Engine overheat prevention system	•
Fuel control dial	•
Auto-deceleration function	•
Engine ignition can be password secured on request	•
Batteries 2×12 V/120 Ah	•
Engine room lamp	0
Engine pre-heater (diesel fueled), available with command call	0

HYDRAULIC SYSTEM

Electronic closed-centre load sensing (E-CLSS) hydraulic system (HydrauMind)	•
Pump and engine mutual control (PEMC) system	٠
5-Working mode selection system; Power mode, economy mode, breaker-mode, lifting mode and attachment mode	•
PowerMax function	٠
Adjustable PPC wrist control levers for arm, boom, bucket and swing, with sliding proportional control for attachments and 5 auxiliary buttons, with FNR switch	•
1. additional hydraulic circuit (HCU-B)	٠
2. additional hydraulic circuit (HCU-D)	0
Prepared for hydraulic quick-coupler	0

SERVICE AND MAINTENANCE

Automatic fuel line de-aeration	٠
Double element type air cleaner with dust indicator	•
and auto dust evacuator	
KOMTRAX [™] – Komatsu wireless monitoring	•
system	
Multi-function video compatible colour monitor with	ı
Equipment Management and Monitoring System	٠
(EMMS) and efficiency guidance	
Toolkit	٠
Centralised greasing system	٠
Automatic greasing system	0

Your Komatsu partner:

CABIN

CABIN	
SpaceCab [™] ; Highly pressurised and tightly sealed hyper viscous mounted cab with tinted safety glass windows, large roof window with sun shade, pull-up type front window with locking device, removable lower window, front window wiper with intermittent feature, sun roller blind, cigarette lighter, ashtray, luggage shelf, floor mat	•
Heated air suspension seat with lumbar support, height adjustable arm rests and retractable seat belt	•
Automatic climate control system	٠
12 Volt power supply	•
Beverage holder and magazine rack	•
Hot and cool box	٠
CD radio	0
Adjustable, suspended seat	0
Lower wiper	0
Rain visor (not with OPG)	0

SAFETY EQUIPMENT

SAFETT EQUIP/MENT	
Rear view camera system	•
Electric horn	•
Overload warning device	•
Lockable fuel cap and covers	•
Audible travel alarm	•
Large handrails, rear-view mirrors	•
Battery main switch	•
Boom safety valves	٠
Arm safety valve	•
Adjust cylinder safety valve	•
OPG Level II front guard (FOPS)	0
OPG Level II top guard (FOPS)	0
Back-up alarm (white noise version)	0
Side view camera system	0
Super tone horn (no road approval)	0

WORK EQUIPMENT

-	
Mono boom	0
Two-piece boom	0
2,1 m; 2,5 m; 3,0 m arms	0
Clamshell grip bar	0

UNDERCARRIAGE

Parallel blade (front and/or rear) with cylinder protection	0
2 or 4 outriggers with cylinder protection, individually adjustable	0
Four sets of tyre and rim (twin tyre) 10.00-20 14 PR	0
Four sets of tyre and rim (single tyre) 18.00-19.5	0
Nokian twin tyres 10-20	0
Fenders	0

DRIVES AND BRAKES

Fully automatic 3-speed transmission driving through front and rear planetary axles	•
Oscillating front axle (10°) with automatic and manual cylinder locking	•
Cruise control	٠
20 or 25 km/h speed limitation	0
Transmission guard	0

LIGHTING SYSTEM

Working lights: 2 revolving frame, 1 counterweight (rear), 1 boom (LH)	•
Additional RH boom lamp	0
Xenon working lights	0
Beacon + rear facing cab lamp	0
1 or 2 additional beacons on counterweight	0
Additional large capacity cab roof lights (4)	0

OTHER EQUIPMENT

Standard counterweight	•
Electric refuelling pump with automatic shut off	•
function	
Standard colour scheme and decals	•
Parts book and operator manual	•
Single chassis tool box (250 ltr)	•
Additional chassis tool box (250 ltr)	0
Biodegradable oil for hydraulic system	0
Customised paint	0

Further equipment on request

• standard equipment

optional equipment



Komatsu Europe International NV

Mechelsesteenweg 586 B-1800 VILVOORDE (BELGIUM) Tel. +32-2-255 24 11 Fax +32-2-252 19 81 www.komatsu.eu

VESS003605 01/2017

Materials and specifications are subject to change without notice. **KOMATSU** is a trademark of Komatsu Ltd. Japan.