KOMATSU

D51EX-22

The image may contain optional equipment.

Crawler dozer

Horsepower
130 hp (97 kW) @ 2,200 rpm

Operating weight
D51EX-22: 14,000 kg

Walk-around

Total visibility
- Super-slant nose.
- Cab-forward design.
- Integrated ROPS/FOPS.

Improved productivity
- Highest power of its class.
- Hydraulically-driven and electronically-controlled fan.
- Rocking track frame.
- High-capacity PAT blade.

Easy and comfortable operation
- Electronically-controlled hydrostatic transmission (HST).
- Palm Command Control System (PCCS).
- New dampener system for the cab.
- Large and noiseless pressurized cab with A/C.
- Hydrostatic Steering System (HSS).

Improved durability
- Undercarriage with new design.
- Reinforced tracks.
- Steel casting frame.
- Strong modular design.
- C-frame.
- Two carrier rollers each side.

Easy maintenance
- Self-diagnostic monitor panel.
- Reversible swing-up, rear-mounted, hydraulically-driven radiator.
- Access to ground level for daily maintenance inspections.
- KOMTRAX - Satellite Monitoring System.

Horsepower
130 hp (97 kW) @ 2,200 rpm

Operating weight
D51EX-22: 14,000 kg

The image may contain optional equipment.

Excellent
blade visibility!

Unmatched blade visibility

The D51EX-22 crawler dozer has a super-slant nose design. This cutting edge design developed by Komatsu provides the best blade view for an excellent machine control, improving efficiency and productivity. This dozer is the first with this feature.

Comfortable and easy **operation features**

Proportional Pressure Control (PPC)

The PPC valve regulates the joystick that controls the blade. Together with a highly reliable hydraulic system from Komatsu, a fully precise control can be achieved effortlessly.

Hydrostatic transmission (HST) with electronic control

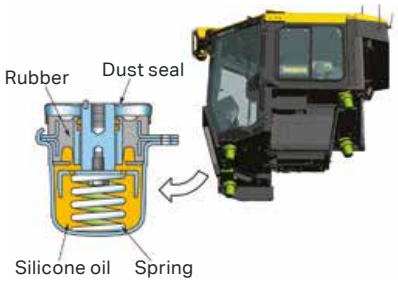
The D51 has a hydrostatic transmission (HST) designed by Komatsu, which allows the operator to select a quick gear shift or a variable speed. The HST system has two-way closed circuits with two variable displacement piston pumps and two variable capacity travel motors. The fully electronic control allows to shift gears automatically, which provides a smooth control of the machine. The speed of the engine is regulated by an electronic fuel control dial.

Hydrostatic Steering System (HSS)

This system removes the use of clutches and brakes, allowing smooth turns and higher power on direction changes.

Comfortable travelling with dampening system of the cab

The D51 dozer uses dampening system in the cab, providing excellent vibration and shock absorption levels that conventional systems cannot match. The dampener assembly, full of silicone oil, isolates the cab from the machine's body to eliminate vibration and obtain a quiet and comfortable environment.

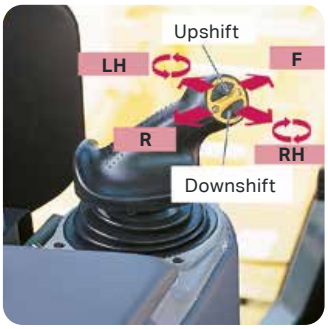


Hydraulic system with Closed-center Load Sensing System (CLSS)

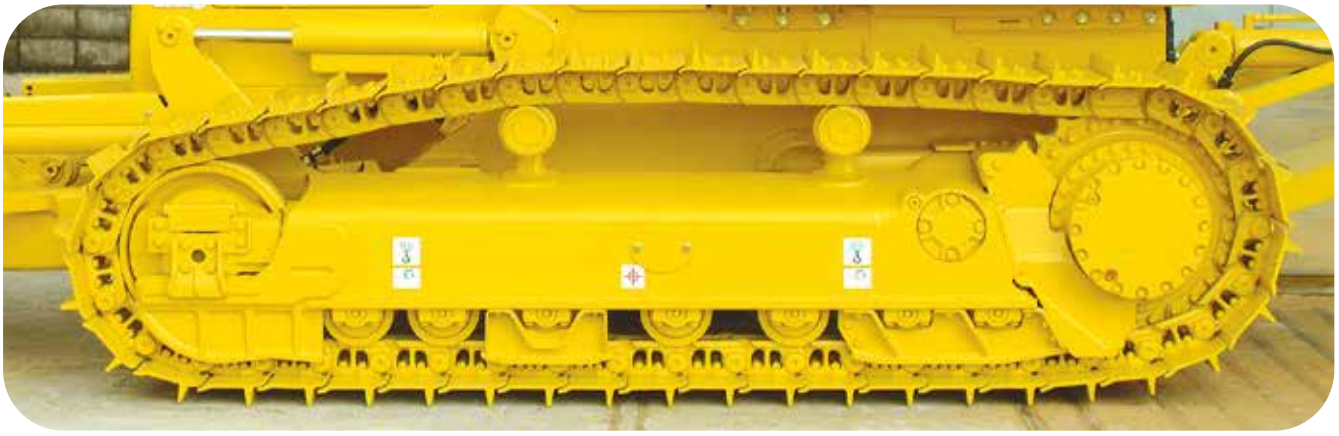
With CLSS, the stroke of the blade control lever is directly proportional to the speed of the blade, regardless of the applied load and the travel speed, which allows for an unmatched control.

Palm Command Control System (PCCS)

The low-effort PCCS joystick controls all the steering movements, including the travel speed and track counter-rotation.



Durability **features**



Heavy-duty reinforced undercarriage

The large links and bushes, together with the sprocket's wide teeth, extends the undercarriage's life. The two carrier rollers maintain the tension and alignment of the track.

Monocoque track frame

The monocoque track frame is thicker in the box section and lower weld parts, improving its strength and rigidity.

Idler self-adjustable support

The self-adjusting idler support provides constant and even tension on the idler guide plates. This reduces noise levels and vibrations and increases the undercarriage's life.

Main frame

The simple and highly rigid design of the structure of the frame, together with steel cast and thicker plates, achieve a higher level of reliability and durability.

Modular design

One of the main purposes behind the creation of the D51EX-22 dozer was to have a long-lasting machine. By lowering the component's complexity and using a strong modular design, Komatsu achieved a better service capacity and durability.

Single-unit nose

Its high rigidity and simplified structure with thicker plates reduces vibration and noise levels.

Frame

Steel casting reduces the amount of weld points, providing resistance and rigidity to the frame.

Productivity **features**

The new ecologic engine from Komatsu has a design that complies with the PROCONVE-MAR-I emission standard and Japan's "ecot-3"; which results in ecology and economy combined with Komatsu's technology to have a high-performance engine without sacrificing power or productivity.

Electronically controlled engine with an efficient fuel consumption

The SAA6D107E-1 Komatsu engine delivers a net power of 130 hp (97 kW) @ 2,200 rpm. Komatsu's engine power, with D51EX-22 innovations, allows a highly efficient fuel consumption, becoming an obvious option for leveling and earthmoving operations. The engine is turbocharged and has direct fuel injection and is air-to-air aftercooled to maximize power with better fuel consumption, while complying with emission standards. The engine is mounted on the main frame, according to ISO standards, to reduce noise and vibration.

Hydraulically driven reversible fan

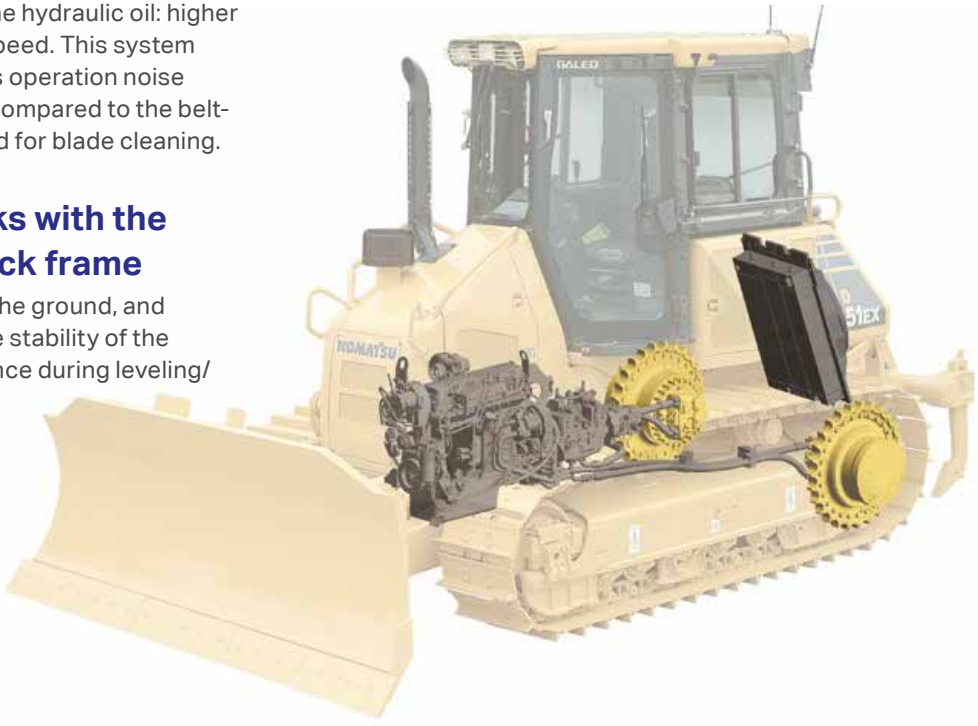
The direction and speed of the fan are electronically controlled. The rotation speed is linked to the temperature of the engine and the hydraulic oil: higher temperature means higher fan speed. This system improves fuel efficiency, reduces operation noise levels and needs a lower power compared to the belt-driven fan. It can also be reversed for blade cleaning.

Wider contact of tracks with the ground and rocker track frame

The wide contact of tracks with the ground, and a rocker track frame increase the stability of the machine, as well as its performance during leveling/ flaking work.

Hydrostatic transmission (HST) control

The HST controller monitors the engine power, as well as the relation between the load and the travel/work equipment. It also controls the pump flow and travel motors for optimum speed and drawbar pull. The power of both tracks on turns and counter-rotation make the D51 an extremely easy-to-drive machine.



Maintenance **features**

Hydraulically driven reversible swing-up fan

The D51EX-22 model uses a swing-up fan with a gas strut-assisted locking lift system to provide easy access to the radiator, oil cooler and air cooler. The swing-up feature makes access to the coolers cores easier. It also has a “cleaning” mode, where it rotates in reverse to clean all foreign objects stuck in the cooling areas.

New self-diagnostic monitor

The monitor system delivers key information about the machine, indicates the status of operating conditions, and notifies the operator about abnormalities through indicators and a buzzer. It also displays fault codes for the troubleshooting process to reduce the machine’s downtime, and informs about fluid change and filter replacement intervals.

Daily checks

All daily checks can be efficiently carried out at ground level.

Remote greasing point

These points make easier the lubrication of frame bearings, the equalizer bar center shaft, and angle cylinder bearings.

Segmented sprockets

This design reduces maintenance time compared to single-part sprockets. Each of the nine bolt-on segments can be replaced without disassembling the track.

Maintenance-free parking brake

There is an adjustment-free wet parking brake that is spring-applied and hydraulically released in every final drive.

Specifications

Engine

Model	Komatsu SAA6D107E-1*.
Type	4-cycle, water-cooled, direct injection.
Aspiration	Turbocharged, air to air aftercooled.
Number of cylinders	6.
Bore x stroke	107 mm x 124 mm.
Piston displacement	6.7 L.
Governor	All-speed, electronic.
Horsepower:	
SAE J1995	Gross 133 hp.
ISO 9249 / SAE J1349	Net 130 hp.
Rated rpm	2,200 rpm.
Fan drive type	Hydraulic (reversible).
Lubrication system:	
Method	Gear pump, forced lubrication.
Filter	Full flow.

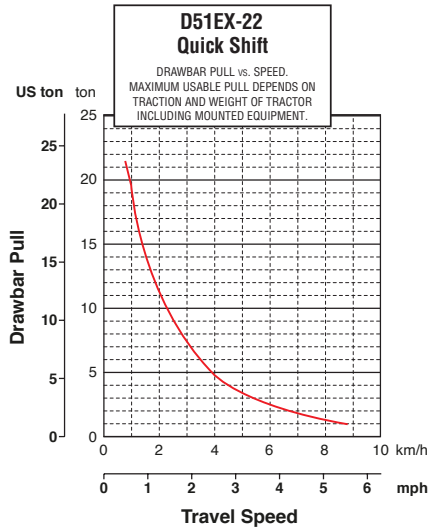
*PROCONVE-MAR-I emissions certified.

Hydrostatic transmission

The two-way hydrostatic transmission delivers several gear shifts from 0 to 9 km/h. Variable-capacity travel motors allow the operator to select the optimum speed to meet the specific requirements of each job. It also has a block lever for the travel control and a neutral switch.

Travel speed (quick shift mode)	Forward	Reverse
1st	0–3.4 km/h	0–4.1 km/h
2nd	0–5.6 km/h	0–6.5 km/h
3rd	0–9.0 km/h	0–9.0 km/h

Travel speed (variable mode)	Forward	Reverse
	0–9.0 km/h	0–9.0 km/h



Final drive

There is a two-stage planetary gear included in axial piston travel motors. Its compact mounting added to the track reduces debris damage. The bolt-on segments of the sprocket make its replacement easier.

Steering system

The Palm Command Control System (PCCS) joystick controls all steering movements. When the joystick is pushed forward, the machine will travel forward, and when pushed backwards, it will travel in reverse. When pushed slightly to the left or right, the machine will make a turn in that direction, while when pushed fully to the left or right, the counter-rotation will be activated. The hydrostatic transmission (HST) overrides the use of steering clutches and brakes, which achieves smoother and quicker turns. The fully electronic control allows the operator to have a smooth control of the machine. The PCCS uses gear shift buttons to increase or reduce speed.

Minimum turning radius	2.39 m.

As measured by track marks on the ground during a pivot turn.

Undercarriage

Suspension	Oscillating equalizer bar and pivot shaft.
Track roller frame	Monocoque, large cross-section, highly durable construction.
Rollers and idlers	Wet track rollers.

Wet tracks. Dust seals block the entry of abrasive material inside bush and pin assemblies to increase the durability of the undercarriage. The track's tension can be easily adjusted with a grease pump.

	D51EX-22
Track rollers (each side)	7
Shoe type (standard)	Single grouser
Number of shoes (each side)	44
Grouser height	54 mm
Shoe width (standard)	510 mm
Ground contact area	28,000 cm^2
Ground pressure (with blade and ROPS cab)	46.1 kPa 0.47 kgf/cm^2
Ground pressure (with blade, ROPS cab and ripper)	49.0 kPa 0.50 kgf/cm^2
Track gauge	1,790 mm
Length of track on ground	2,745 mm

Service refill capacites

Cooling system	35 L.
Fuel tank	270 L.
Engine oil	20 L.
Hydraulic tank	63 L.
Final drive (each side)	5,5 L.

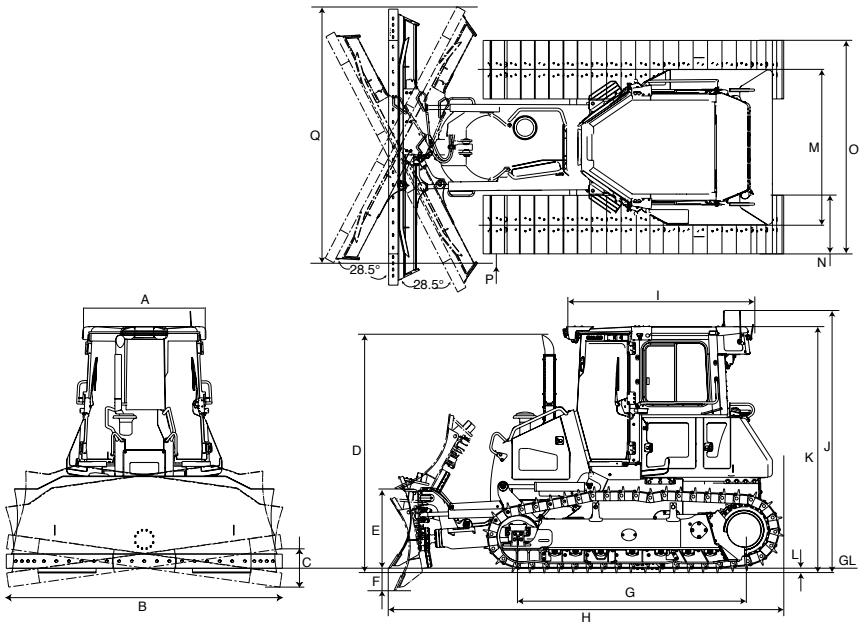
Operating weight (approx.)

Including PAT blade, ROPS cab, operator, ripper, standard equipment, rated capacity of lubricant, coolant, and full fuel tank	14,000 kg.

Durability

Dimensions

	D51EX-22
A	1,280 mm
B	3,350 mm
C	550 mm
D	2,885 mm
E	1,107 mm
F	461 mm
G	2,745 mm
H	4,800 mm
I	2,245 mm
J	2,997 mm
K	3,177 mm
L	54 mm
M	1,790 mm
N	510 mm
O	2,300 mm
P	161 mm
Q	2,990 mm



Ground clearance	385 mm.

Hydraulic system

The Closed-center Load Sensing System (CLSS) is designed for a precise and delicate control, even on simultaneous operations.

Hydraulic control unit

All spool type valves are externally mounted beside the hydraulic tank. The piston hydraulic pump has a capacity (discharge flow) of 100 L/min with rated speed.

Relief valve setting	27.4 MPa 280 kg/cm^2.
Hydraulic cylinders	Double-acting, piston.

	Number of cylinders	Bore
Blade lift	2	90 mm
Blade tilt	1	100 mm
Blade angle	2	90 mm

Hydraulic oil capacity (refill)

Power angle tilt blade (PAT)	63 L.

Control valves

3-spool control valves for the PAT blade:

Positions:	
Blade lift	Raise, hold, lower, and float.
Blade tilt	Right, hold, and left.
Blade angle	Right, hold, and left.

Additional control valve required for ripper (optional):

Positions:	
Ripper lift	Raise, hold and lower.

Blade

High-tensile strength steel is used in the frame to give structural support to the blade and improve durability.

	Overall length with blade	Blade capacity	Blade width x height	Maximum lift above ground	Maximum drop below ground	Maximum tilt adjustment	Blade angle
Standard PAT blade for D51EX-22	4,800 mm	2.9 m^3 (SAE) y 3.8 m^3 (*LH2)	3,350 mm x 1,110 mm	1,107 mm	461 mm	550 mm	28.5°

Standard equipment for base crawler dozer

Engine and related parts

Air filter, 2-element, with service indicator on the monitor.

Decelerator pedal.

Komatsu SAA6D107E-1, 130 hp net power, direct injection, turbocharged, air-to-air aftercooled, PROCONVE-MAR-I compliant.

Curved exhaust pipe.

Hydraulically driven electronically controlled reversible fan (on demand).

Fuel pre-filter (10 micron) and fuel filter (2 micron).

Intake pipe rotatory pre-filter.

Water separator.

Electric system

Alternator 60 A (24 V).

Back-up alarm.

Two high-capacity batteries (170 A).

Starter motor 5.5 kW.

Power train and controls

Break pedal.

Track counter-rotation.

Electronically controlled hydrostatic transmission (HST) with speed regulation and variable speed adjustment.

Electronically controlled control command system (PCCS) for travel.

Reverse speed presets.

Hydrostatic steering system (HSS).

Undercarriage

Idler cushions

Track frame

Track roller guards, center, and end sections

Bolt-on segmented sprockets

Track shoe assembly with sealed link assembly and HD wet single shoe grousers, 510 mm.

Guards and covers

Upper and lower guards for the oil pan.

Engine hood and side covers.

Sprocket internal guard.

Operator environment

ROPS/FOPS closed cab with A/C.

12 A (12 V) supply power.

Fabric seat with suspension.

Cigarette lighter, 24 V.

Cup holder and lunch box holder.

Self-diagnostic electronic monitor panel.

High mount footrest.

Horn.

Pre-installed radio.

Rear-view mirror.

Retractable seat belt, 76 mm.

Blade

PAT blade inside arms, 3,350 mm and a capacity of 3.8 m^3 (LH^2) and 2.9 m^3 (SAE).

Hydraulic controls and components

Proportional Pressure Control (PPC) for accumulator.

Hydraulic system for PAT blade.

Hydraulic parts for PAT blade.

Palm control command system (PCCS) with Proportional Pressure Control (PPC) for blade.

Vandalism protection

Locks for charge port caps and covers.

Other standard equipment

Grease pump support.

Standard hook.

KOMTRAX system.

Lighting system (3 front, 2 back lights).

Stickers and plates in English.

Hood handle.

ROPS cab is standard for all machines. FOPS cab is level 2. ROPS/FOPS comply with all OSHA/MSHA standards and regulations criteria.

Optional equipment

Rear and hydraulic components

Multishank ripper:

- Weight: 840 kg.
- Maximum driving depth: 430 mm.
- Maximum lift above ground: 380 mm.

MR Plus.

Ask your Komatsu distributor about other optional equipment.

Satellite monitoring system

KOMTRAX Plus

Komtrax Plus is a revolutionary tracking system designed to save time and money. Nowadays, the equipment can be tracked anytime and anywhere. This valuable data, received via the Komtrax website, can be used to optimize planning of the movements and performance of the equipment.

Features

Location

Komtrax uses a satellite positioning network to inform the location of the equipment.

Geofence

In partnership with their Komatsu Distributor, owners can create virtual fences (Geo) to receive alerts when the equipment enters or leaves the designated range for operations.

Service meter reading

Daily report of the equipment's working hours, which allows planning maintenance and replacement of components.

Komtrax operation maps

In the operation maps you can check the times of the day when the equipment is in operation and if the workers are performing their duties in the stipulated times.

Fuel measurement level

Shows the amount of fuel at the end of the working day.

Water temperature daily record

Constant record of the increase of engine water temperature with a daily report at the end of the da.

Cautions

If a light turns on in the cab of the equipment, it indicates that a problem occurs. From the website of the application you can check the reason for the problem, the time it occurred and a record number will be generated.

Abnormality codes

Abnormality codes are transmitted to the Komatsu Distributor for troubleshooting before technicians arrive at the workplace. An email notification is also sent with the code of what happened.

Notice of maintenance replacement

The system generates alerts to inform that the equipment requires replacement of elements like filters and oil.

Equipment key hours

Detailed information on key equipment hours such as excavation, travel, unloading and elevation. This can help to monitor and compare equipment performance, in addition to working hours and idle times.

Loading frequency

Information on the load factor of the equipment to know if it is performing in a light, medium or heavy work.

Anti-theft engine lock

Komtrax has a system to lock and unlock the motor of the equipment, which will allow the operation only on preset days, hours and areas.

Fuel consumption

On new Komatsu equipment, you can get the actual status of the fuel gallons consumed, besides an average of the fuel spent per hour during the period of operation.

Monthly and annual data reports

Komtrax generates summaries of all critical system data to help with analysis of fleet utilization, equipment scheduling, future equipment purchases, labor costs, etc.

Check with your Komatsu distributor for the information available for your model and service availability in your country.