DOOSAN

Construction Equipment

# DX220AF

| | |
|---|---|
| Engine Power | SAE J1349 net 110 kW (148 HP) @ 1,900 rpm |
| Operational Weight | 22,000 kg |
| Bucket / SAE | 0.81 ~ 0.92 $m^3$ |

# Key points


The Doosan DX220AF excavator is ready to provide optimum value to you and reaches new levels of forestry machine.



**RELIABILITY**

- For superior durability, reinforced structure and high quality welding are featured -ensuring long life and high uptime in the forestry applications
  - Heavy duty Boom & Arm
  - Enhanced travel motor with bolt head guard
  - Reinforced undercarriage with newly designed rollers, idler bracket, track guard, under cover and track links
  - Heavy duty under cover of main frame and track frame
  - Cabin protector and upper body protector

**PERFORMANCE & STABILITY**

- Doosan's DB58TIS mechanical engine, equipped with the new e-EPOS™ (Electronic Power Optimizing System) technology, delivers excellent work capability
- Working in forestry applications is more stable with the DX220AF thanks to its long and large crawler
  - Track height : 982mm
  - Track length : 4,445mm

**HANDLING & COMFORT**

- More space, better visibility and comfort of the newly designed cab ensure the operator can work in the best possible conditions
  - New cab with low noise and vibration levels
  - Improved all-round visibility
  - Air conditioning with climate control
  - 3 working modes for maximum efficiency
  - Colour LCD monitor panel

# Reliability

DOOSAN uses computer-assisted design techniques, highly durable materials and structures then test these under extreme conditions. Durability of materials and longevity of structures are our first priorities.

## Roller

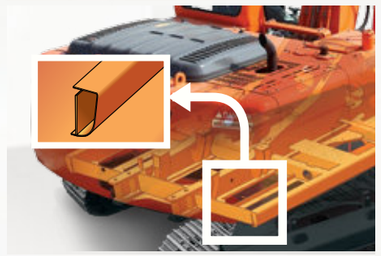
## Reinforced track idler bracket

## Large & strong track guards

## Travel motor cover


## Cabin protector

## D-Type Frame



## Upper body protector

## X-chassis


## Under cover

① TRACK HEIGHT

**982mm**

② TRACK LENGTH

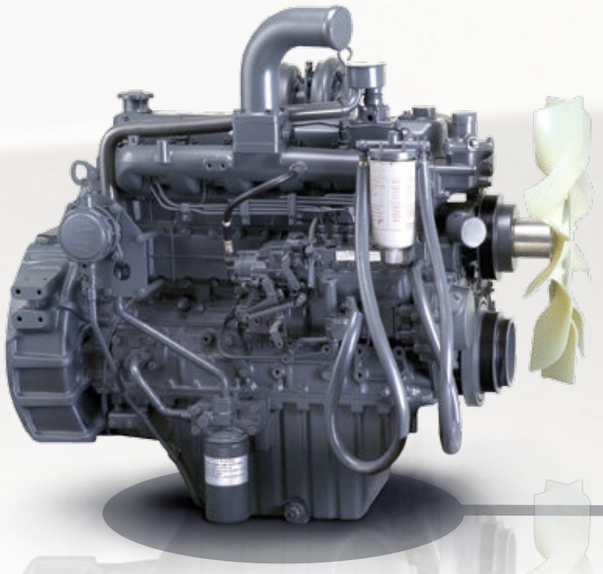
**4,445mm**

* Protector guard, grapple are dealer installed option.

# Performance

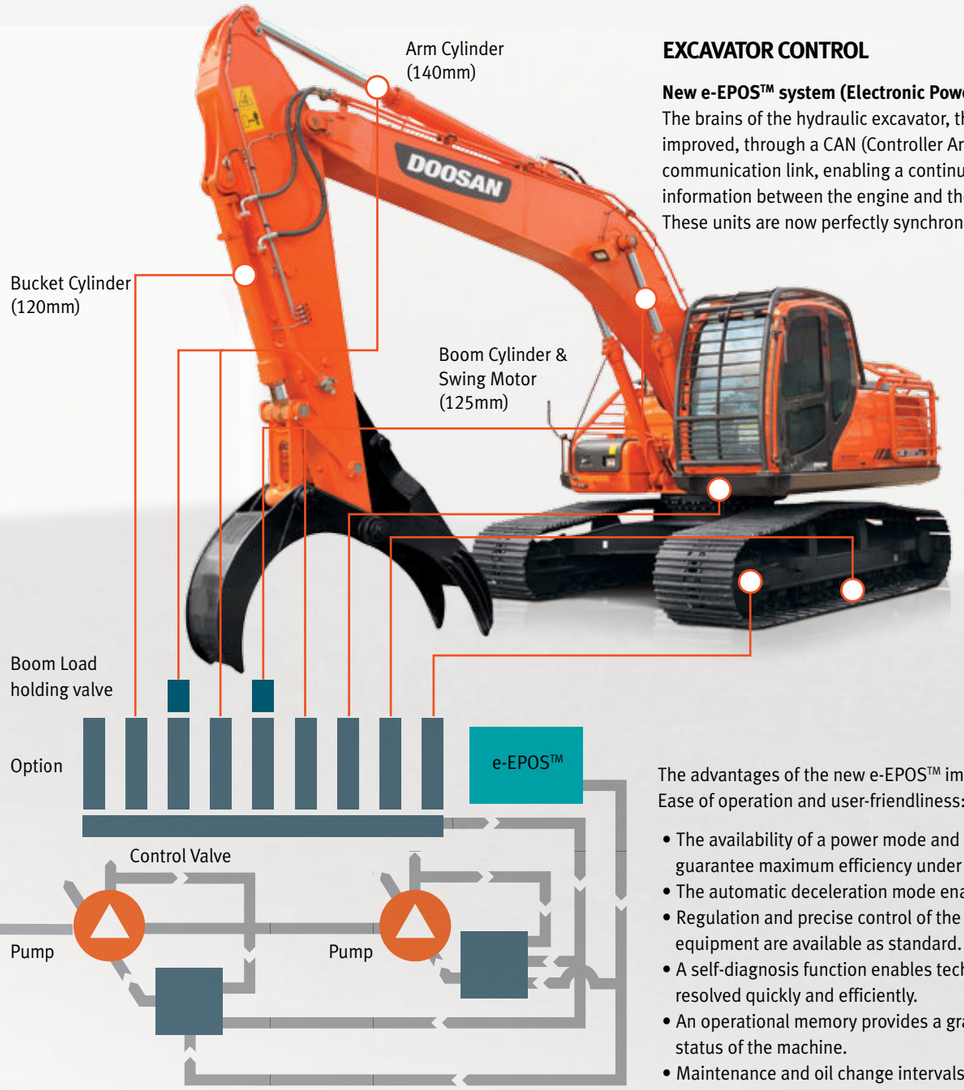
**DOOSAN DB58TIS ENGINE**
At the heart of the hydraulic excavator is the improved DOOSAN DB58TIS engine. It is combined with the new e-EPOS™ electronic control system, for optimum power and fuel saving.

- Better performance by improved engine
- Energy efficiency reduces fuel consumption



Doosan DX220AF engine

| | |
|---|---|
| Make and Model | DOOSAN DB58TIS - 6 cylinders |
| Rated Horse Power | 115 kW(157 PS, 154 HP) @1,900 rpm (SAE J1995)<br>110 kW( 150 PS,148 HP) @1,900 rpm (SAE J1349) |
| Torque | 61.5 kgf.m (603 Nm) @ 1,400 rpm |
| Alternator | 24 V / 4.5 kW |

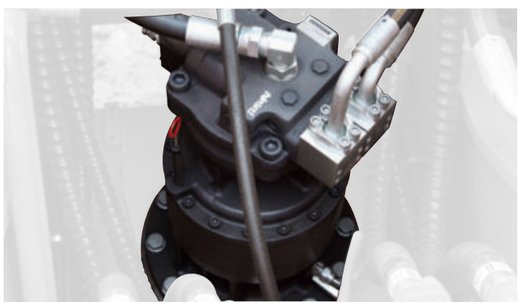



**EXCAVATOR CONTROL**

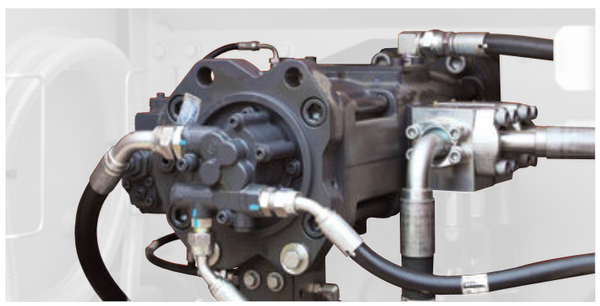
**New e-EPOS™ system (Electronic Power Optimizing System)**
The brains of the hydraulic excavator, the e-EPOS™, have been improved, through a CAN (Controller Area Network) communication link, enabling a continuous exchange of information between the engine and the hydraulic system. These units are now perfectly synchronized.

The advantages of the new e-EPOS™ impacts at several levels, Ease of operation and user-friendliness:

- The availability of a power mode and standard mode guarantee maximum efficiency under all conditions.
- The automatic deceleration mode enables fuel saving.
- Regulation and precise control of the flow rate required by the equipment are available as standard.
- A self-diagnosis function enables technical problems to be resolved quickly and efficiently.
- An operational memory provides a graphic display of the status of the machine.
- Maintenance and oil change intervals can be displayed.



**SWING DRIVE**
Shocks during rotation are minimized, while increased torque is available to ensure rapid cycles.



**HYDRAULIC PUMP**
The main pump has a capacity of 2x206.5 ℓ /min
Reducing cycle time while a high capacity gear pump improves pilot line efficiency.

**TRAVEL DEVICE**
For prevent insert soil into travel motor, DX220AF apply new travel motor

**NEW OPTION BUCKET AND GRAPPLE**
Newly provide HD option bucket & grapple for forestry

# Maintenance & Safety

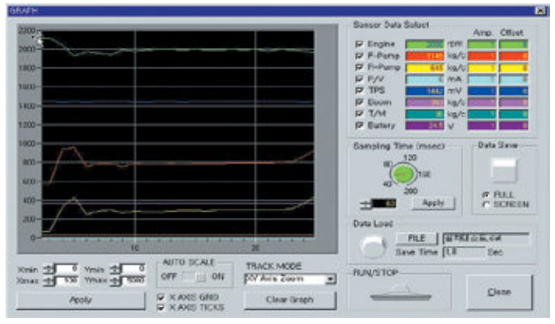
Short maintenance operations at long intervals increase the availability of the equipment on site. DOOSAN has developed the DX220AF with a view to high profitability for the user .



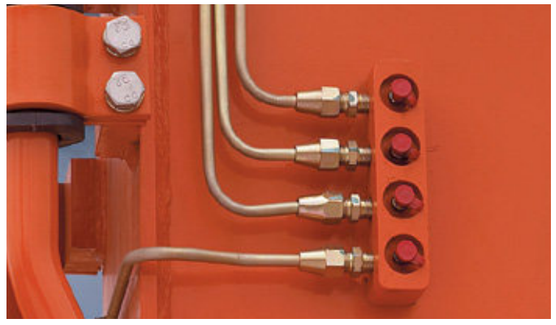
**EASY MAINTENANCE**
Access to the various radiators is very easy, making cleaning easier. Access to the various parts of the engine is from the top and via side panels.

**ENGINE OIL FILTER**
The engine oil filter offers a high level of filtration allowing the oil change interval to be increased to 500 hours. It is easy to access and is positioned to avoid contaminating the surrounding environment.

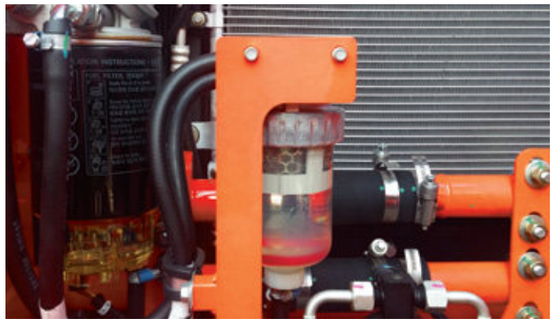

**AIR CLEANER**
The large capacity forced air cleaner removes over 99% of airborne particles, reducing the risk of engine contamination and making the cleaning and cartridge change intervals greater.




**PC MONITORING (DMS)**
A PC monitoring function enables connection to the e-EPOS™ system, allowing various parameters to be checked during maintenance, such as pump pressures, engine rotation speed, etc. and these can be stored and printed for subsequent analysis.



**CENTRALIZED GREASE INLETS FOR EASY MAINTENANCE**
The arm grease inlets are grouped for easy access.

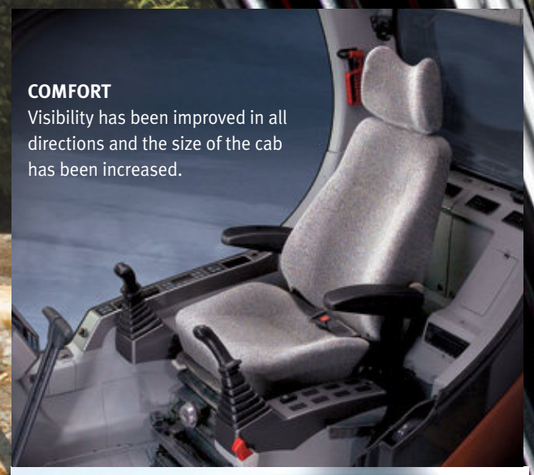


**WATER SEPARATOR**
High efficiency and large capacity water separator protect the engine by removing most moisture from the fuel (additional water separator as standard).

**CONVENIENT FUSE BOX**
The fuse box is conveniently located in a section of the storage compartment behind the operator's seat providing a clean environment and easy access.

# Handling & Comfort

More space, better visibility, air conditioning with climate control, very comfortable seat. These are the elements that ensure the operator can work in the best possible conditions.
Furthermore, a new, user-friendly colour 7" TFT LCD monitor panel gives full access to machine settings and maintenance data allowing you to work safely and confidently with an accurate overview of all conditions.



**COMFORT**
Visibility has been improved in all directions and the size of the cab has been increased.

**CHOICE OF OPERATING MODES**

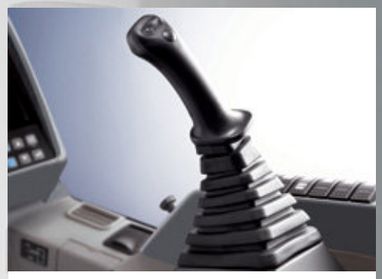

Working mode

- Power : uses 100% engine power for heavy work
- Standard : uses 85% engine power for all work
- Economy : uses 70% engine power for light work

**Comfortable 2-stage sliding seat**

**Control stand (Telescopic Function)**

**CONTROL PANEL**
Correct positioning with clear controls makes the operator's task easier.



**CONTROL LEVER**
Levelling operations and the movement of lifted loads in particular are made easier and safer. The control levers have additional electrical buttons for controlling other additional equipment (for example, grapples, crushers, breakers, etc.)

**AIR CONDITIONING**
The high performance air conditioning provides an air flow which is adjusted and electronically controlled for the conditions. Five operating modes enable even the most demanding operator to be satisfied.

# Technical Specification

## Engine

**MODEL**
DOOSAN DB58TIS
2 valves per cylinder, vertical injectors, water cooled, turbo charged with air to air intercooler. Meets Tier 2 emission regulation.

**TYPE**
WATER-COOLED, 4-CYCLE DIRECT

**NUMBER OF CYLINDERS**
6

**NOMINAL FLYWHEEL POWER**
GROSS POWER : 115 kW(157 PS, 154 HP) @1,900 rpm (SAE J1995)
NET POWER : 110 kW( 150 PS,148 HP) @1,900 rpm (SAE J1349)

**MAX TORQUE**
61.5 kgf.m (603 Nm) @ 1,400 rpm

**PISTON DISPLACEMENT**
5,785 cc (353 cu.in)

**BORE & STROKE**
102 mm X 118 mm

**STARTER**
24 V / 4.5 kW

**BATTERIES**
2 X 12 V / 100 Ah

**AIR CLEANER**
Double element with auto dust evacuation.

## Hydraulic System

The heart of the system is the e-EPOS™ (Electronic Power Optimizing System). It allows the efficiency of the system to be optimized for all working conditions and minimizes fuel consumption.

- The hydraulic system enables independent or combined operations.
- Two travel speeds offer either increased torque or high speed tracking.
- Cross-sensing pump system for fuel savings.
- Auto deceleration system.
- Two operating modes, two power modes.
- Button control of flow in auxiliary equipment circuits.
- Computer-aided pump power control.

**MAIN PUMPS**
2 variable displacement axial piston pumps
Max flow: 2 X 206.5 ℓ /min

**PILOT PUMP**
Gear Pump - Max Flow Rate : 28.5 Liter/min
Displacement : 15 cc/rev
Relief valve Pressure : 40 kgf/cm²

**MAXIMUM SYSTEM PRESSURE**
Boom/arm/Bucket: Normal mode: 330 kgf/cm²(324 bar)
Power mode: 350 kgf/cm²(343 bar)
Travel: 330 kgf/cm²(324 bar)
Swing: 270 kgf/cm²(264 bar)

## Weight

| SHOE WIDTH (mm) | GROUND PRESSURE (kgf/cm²) | MACHINE WEIGHT (ton) |
|---|---|---|
| 800G | 0.35 | 22,000 kg (48,501 lb) |

## Digging force (ISO)

| | | Boom : 5,700 mm Arm : 2,900 mm Bucket : 0.92 m³ - CW : 3.8 t |
|---|---|---|
| BUCKET(normal / press. Up) | t | 14.3 / 15.2 |
| | kN | 142 / 151 |
| ARM(normal / press. Up) | t | 10.2 / 10.8 |
| | kN | 102 / 108 |

## Hydraulic Cylinders

The piston rods and cylinder bodies are made of high-strength steel.
A shock absorbing mechanism is fitted in all cylinders to ensure shock-free operation and extend piston life.

| CYLINDERS | QUANTITY | BORE X ROD DIAMETER X STROKE |
|---|---|---|
| Boom | 2 | 125 X 85 X 1,260 mm |
| Arm | 1 | 140 X 100 X 1,450 mm |
| Bucket | 1 | 120 X 80 X 1,060 mm |

## Undercarriage

Chassis are of very robust construction, all welded structures are designed to limit stresses. High-quality material used for durability. Lateral chassis welded and rigidly attached to the undercarriage. Track rollers lubricated for life, idlers and sprockets fitted with floating seals. Tracks shoes made of induction-hardened alloy with double grouser. Heat-treated connecting pins. Hydraulic track adjuster with shock-absorbing tension mechanism.

**NUMBER OF ROLLERS AND TRACK SHOES PER SIDE**

| | |
|---|---|
| Upper rollers | 2 ea |
| Lower rollers | 8 ea |
| Track shoes | 49 ea |
| Track length | 4,445 mm |

## Environment

Noise levels comply with environmental regulations (dynamic values).

**SOUND LEVEL GUARANTEE**
103 dB(A) (2000/14/EC)

**CAB SOUND LEVEL**
73 dB(A) (ISO 6396)

## Swing Mechanism

- An axial piston motor with two-stage planetary reduction gear is used for the swing.
- Increased swing torque reduces swing time.
- Internal induction-hardened gear.
- Internal gear and pinion immersed in lubricant bath.
- The swing brake for parking is activated by spring and released hydraulically.

| | |
|---|---|
| **TYPE** | AXIAL PISTON |
| **SWING SPEED** | 11.3 rpm |
| **MAX SWING TORQUE** | 6,460 kgf.m |

## Drive

Each track is driven by an independent axial piston motor through a planetary reduction gearbox. Two levers with control pedals guarantee smooth travel with counter-rotation on demand.

| | |
|---|---|
| **TRAVEL SPEED (FAST/SLOW)** | 3.0 / 5.5 km/hr |
| **MAXIMUM TRACTION FORCE** | 21.8 / 11.5 ton |
| **MAXIMUM GRADE** | 70% |

## Refill Capacities

**FUEL TANK**
400 ℓ (105.7 US gal, 88 lmp gal)

**COOLING SYSTEM (RADIATOR CAPACITY)**
24 ℓ (6.3 US gal, 5.3 lmp gal)

**ENGINE OIL**
28 ℓ (7.1 US GAL, 5.9 LMP GAL)

**SWING DEVICE**
5 ℓ (1.32 US gal, 1.1 lmp gal)

**TRAVEL DEVICE**
3.3 ℓ (0.87 US gal, 0.73 lmp gal)

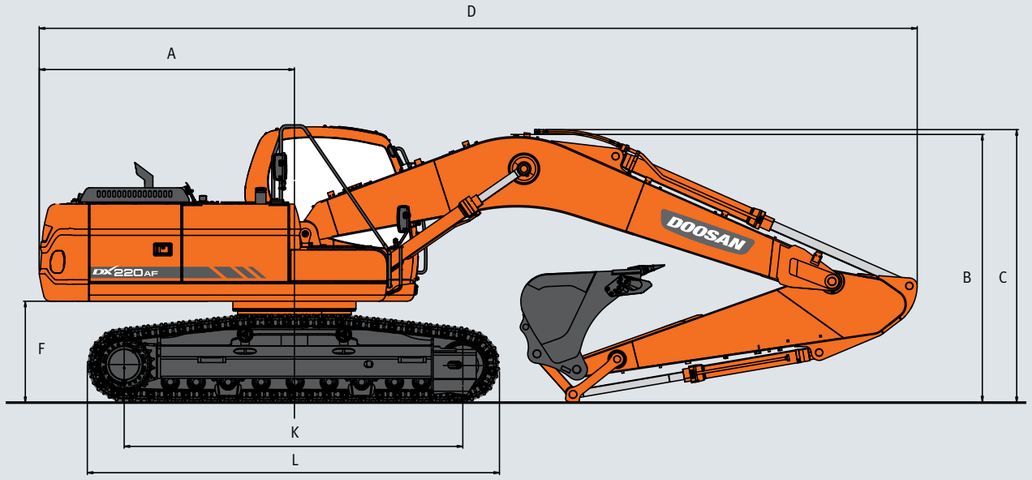
**OIL TANK**
195 ℓ (63.4 US GAL, 52.8 LMP GAL)

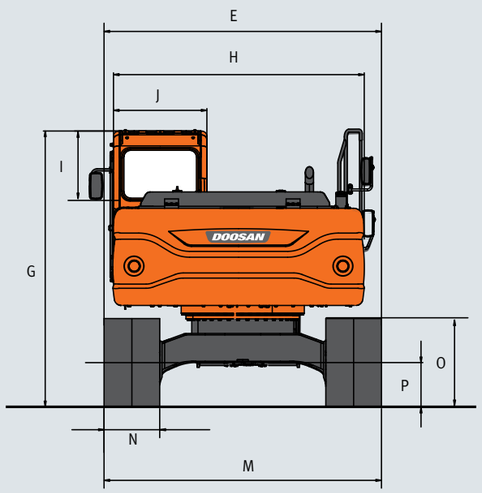
## Bucket

| Bucket Type | Capacity (m³) | | Width (mm) | | C/W (ton) | 3.8 |
|---|---|---|---|---|---|---|
| | | | | | SHOE (mm) | 800 |
| | SAE/PCSA | CECE | W/O Cutter | With Cutter | Weight (kg) | 5.7 m Boom |
| | | | | | | 2.9 m Arm |
| GP | 0.81 | 0.72 | 1,064 | 1,126 | 654 | A |
| | 0.92 | 0.81 | 1,230 | 1,305 | 707 | B |
| H class | 0.73 | 0.67 | 916 | 982 | 732 | A |
| | 0.9 | 0.8 | 1,064 | 1,130 | 804 | C |
| Maximum load pin-on(payload+bucket) | | | | | | 2,402 |

Based on ISO 10567 and SAE J296, arm length without quick change clamp
A : Suitable for materials with density of 2,100 kg/m³ (3,500 lb/yd³) or less
B : Suitable for materials with density of 1,800 kg/m³ (3,000 lb/yd³) or less
C : Suitable for materials with density of 1,500 kg/m³ (2,500 lb/yd³) or less
D : Suitable for materials with density of 1,200 kg/m³ (2,000 lb/yd³) or less
- : Not recommended

# Dimensions

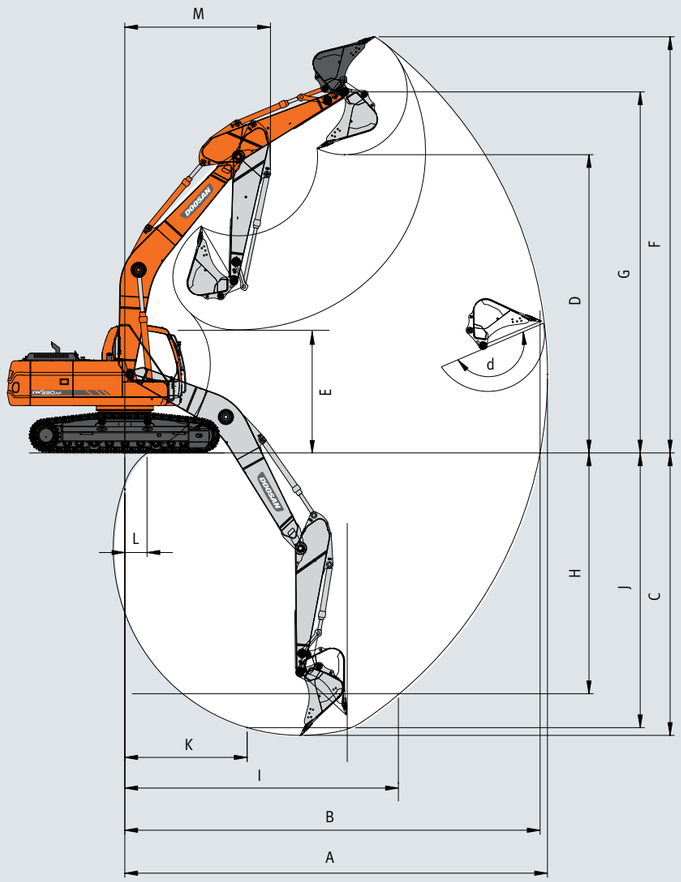



## Dimensions

| | | | |
|---|---|---|---|
| **BOOM TYPE (ONE PIECE)** | **(mm)** | | **5,700** |
| **ARM TYPE** | **(mm)** | | **2,900** |
| BUCKET TYPE (PCSA) | ($m^3$) | | 0.92 |
| TAIL SWING RADIUS | (mm) | A | 2,750 |
| SHIPPING HEIGHT (BOOM) | (mm) | B | 2,940 |
| SHIPPING HEIGHT (HOSE) | (mm) | C | 3,005 |
| SHIPPING LENGTH | (mm) | D | 9,485 |
| SHIPPING WIDTH | Forestry Track (mm) | E | 3,190 |
| C/WEIGHT CLEARANCE | (mm) | F | 1,055 |
| HEIGHT OVER CAB. | (mm) | G | 2,975 |
| HOUSE WIDTH | (mm) | H | 2,710 |
| CAB. HEIGHT ABOVE HOUSE | (mm) | I | 845 |
| CAB. WIDTH | (mm) | J | 960 |
| TUMBLER DISTANCE | Forestry Track (mm) | K | 3,650 |
| TRACK LENGTH | Forestry Track (mm) | L | 4,445 |
| UNDERCARRIAGE WIDTH | Forestry Track (mm) | M | 3,190 |
| SHOE WIDTH | Forestry Track (mm) | N | 800 |
| TRACK HEIGHT | Forestry Track (mm) | O | 982 |
| CAR BODY CLEARANCE | (mm) | P | 480 |

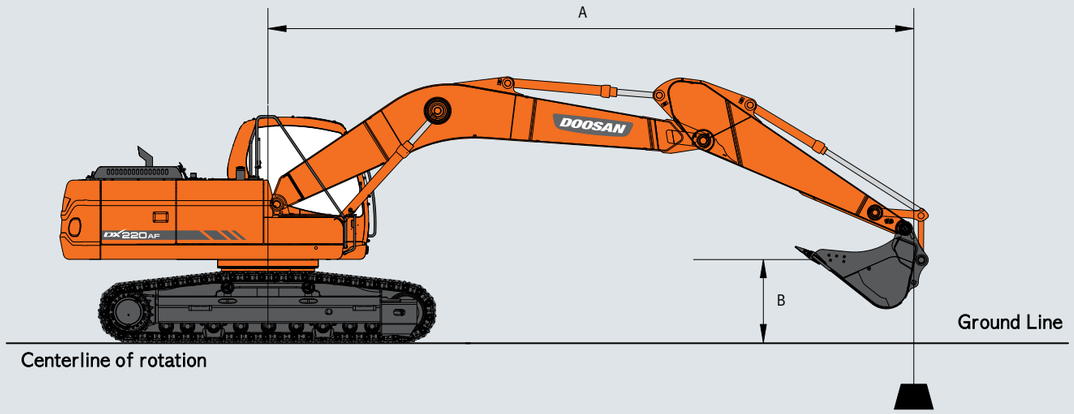
# Working Ranges




## Working Ranges

| | | | |
|---|---|---|---|
| **BOOM TYPE (ONE PIECE)** | **(mm)** | | **5,700** |
| **ARM TYPE** | **(mm)** | | **2,900** |
| BUCKET TYPE (PCSA) | ($m^3$) | | 0.92 |
| MAX. DIGGING REACH | (mm) | A | 9,900 |
| MAX. DIGGING REACH (GROUND) | (mm) | B | 9,730 |
| MAX. DIGGING DEPTH | (mm) | C | 6,620 |
| MAX. LOADING HEIGHT | (mm) | D | 6,990 |
| MIN. LOADING HEIGHT | (mm) | E | 2,555 |
| MAX. DIGGING HEIGHT | (mm) | F | 9,750 |
| MAX. BUCKET PIN HEIGHT | (mm) | G | 8,450 |
| MAX. VERTICAL WALL DEPTH | (mm) | H | 5,640 |
| MAX. RADIUS VERTICAL | (mm) | I | 6,410 |
| MAX. DEPTH TO 8' LINE | (mm) | J | 6,430 |
| MIN. RADIUS 8' LINE | (mm) | K | 2,865 |
| MIN. DIGGING REACH | (mm) | L | 519 |
| MIN. SWING RADIUS | (mm) | M | 3,410 |
| BUCKET ANGLE | (deg) | d | 166 |

# Lifting Capacity




## Boom : 5.7 m Arm : 2.9 m SHOE : 800 mm LC TRACK

Unit : 1,000kg

| A(m) / B(m) | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | Max. Reach | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | A(m) |
| 8 | | | | | | | | | | | | | | | *3.19 | *3.19 | @5.95 |
| 7 | | | | | | | | | | | | | | | *3.00 | *3.00 | @6.86 |
| 6 | | | | | | | | | *4.50 | *4.50 | *4.08 | 3.39 | | | *2.92 | *2.92 | @7.51 |
| 5 | | | | | | | | | *4.81 | 4.39 | *4.61 | 3.33 | | | *2.92 | 2.56 | @7.99 |
| 4 | | | | | | | *5.88 | 5.73 | *5.28 | 4.23 | *4.89 | 3.23 | *4.03 | 2.51 | *2.98 | 2.32 | @8.32 |
| 3 | | | *11.80 | *11.80 | *8.44 | 7.7 | *6.80 | 5.41 | *5.85 | 4.03 | *5.23 | 3.11 | 4.38 | 2.44 | *3.10 | 2.16 | @8.52 |
| 2 | | | *9.12 | *9.12 | *9.98 | 7.14 | *7.72 | 5.09 | *6.42 | 3.84 | 5.36 | 2.99 | 4.3 | 2.37 | *3.28 | 2.07 | @8.60 |
| 1 | | | *7.74 | *7.74 | *11.08 | 6.74 | *8.47 | 4.83 | 6.71 | 3.67 | 5.24 | 2.87 | 4.22 | 2.3 | *3.56 | 2.04 | @8.56 |
| 0(GROUND) | *5.22 | *5.22 | *8.82 | *8.82 | *11.63 | 6.5 | 8.85 | 4.65 | 6.56 | 3.54 | 5.14 | 2.79 | 4.16 | 2.25 | 3.85 | 2.07 | @8.40 |
| 1 | *7.64 | *7.64 | *10.77 | 10.35 | *11.70 | 6.4 | 8.73 | 4.55 | 6.47 | 3.46 | 5.08 | 2.73 | 4.13 | 2.22 | 4.04 | 2.17 | @8.11 |
| 2 | *10.02 | *10.02 | *13.31 | 10.42 | *11.37 | 6.4 | 8.69 | 4.52 | 6.44 | 3.43 | 5.06 | 2.72 | | | 4.4 | 2.36 | @7.68 |
| 3 | *12.68 | *12.68 | *13.69 | 10.56 | *10.64 | 6.46 | *8.53 | 4.54 | 6.46 | 3.45 | 5.1 | 2.75 | | | 5 | 2.7 | @7.09 |
| 4 | *15.88 | *15.88 | *11.94 | 10.78 | *9.44 | 6.59 | *7.59 | 4.64 | *6.06 | 3.54 | | | | | *5.64 | 3.32 | @6.27 |
| 5 | | | *9.38 | *9.38 | *7.49 | 6.81 | *5.84 | 4.83 | | | | | | | *5.60 | 4.64 | @5.14 |

1. Ratings are based on SAE J1097
2. Load point is the end of arm.
3. * Rated loads are based on hydraulic capacity.
4. Rated loads do not exceed 87% of hydraulic capacity or 75% of tipping capacity.

: Rating Over Front
: Rating Over Side or 360 degree

# A Solid Promise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Materials and Specifications in the catalogue are subject to change without notice.

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