

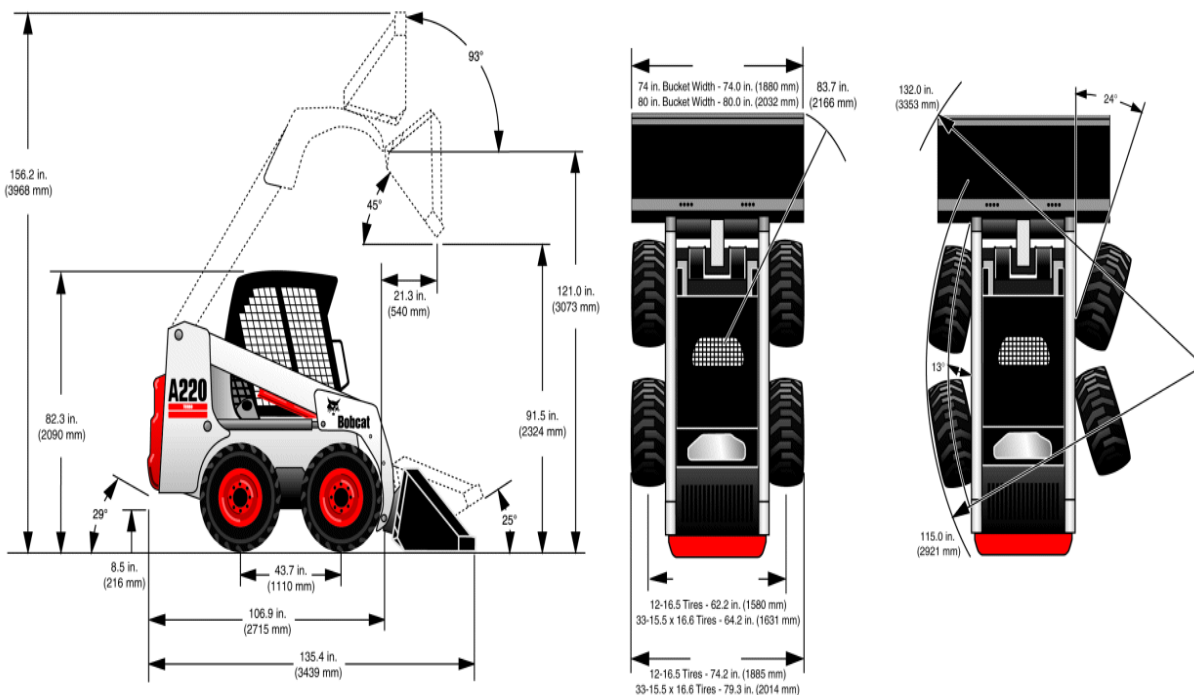


# A220/A220H All-Wheel Steer Loaders

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1/07/2003

## Dimensions



Angle of departure	29°
Carry position	240 mm
Dump angle at maximum height	45°
Dump height with standard bucket	2324 mm
Dump reach at maximum height	540 mm
Ground clearance	216 mm
Height to bucket hinge pin	3073 mm
Height with operator cab	2090 mm
Length without attachment	2715 mm
Length with standard bucket	3239 mm
Operating height	3968 mm
Rollback at ground position	25°
Rollback fully raised at maximum height	93°
Wheelbase	1110 mm
Turning radius in AWS mode without attachment	2921 mm
Turning radius in AWS mode with standard bucket	3353 mm
Turning radius in SS mode with standard bucket	2126 mm
Width over tyres, 12-16.5	1885 mm
Width over tyres, 33 x 15.5-16.5	2014 mm
Track, 12-16.5 tyres	1580 mm
Track, 33 x 15.5-16.5 tyres	1631 mm
Width over bucket, 74-inch	1880 mm

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**Machine Rating**

Lift breakout force (SAE)	17793 N
Tilt breakout force (SAE)	18460 N
Rated operating capacity (SAE J732)	998 kg
Tipping load (SAE)	1996 kg
Axle torque	28793 Nm

**Function Time**

Raise lift arms	4,1 s
Lower lift arms	3,9 s
Bucket rollback	2,6 s
Bucket dump	2,0 s
Wheel cycle time (left/right turn)	1,4 s

**Weights**

Operating weight (SAE)	3520 kg
Shipping weight	3303 kg

**Engine**

Make / Model	Deutz / BF4M1011F turbo-charged
Fuel	Diesel
Cooling	Oil
Power (SAE J1349 Net)	54 kW
Maximum governed RPM	2350
Torque at 1800RPM (SAE Net)	239 Nm
Number of cylinders	4
Displacement	2,92 l
Bore	91 mm
Stroke	112 mm
Fuel consumption	7,8 l/h (Estimated fuel consumption is based on testing by Bobcat Company in high duty-cycle digging applications.)
Lubrication	Gear pump pressure system with filter
Crankcase ventilation	Closed
Air filter	Dry replaceable cartridge with separate safety element
Ignition	Diesel-compression
Starting aid	Glow plugs

**Electrical**

Alternator	Belt driven — 90 A — open
Battery	12V — 1000 cold cranking A at -18°C — 180 min reserve capacity
Starter	12 V — gear reduction type — 2,7 kW

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**Hydraulic System**

Pump type	Engine driven, gear type
Pump capacity at 2850 RPM — A220	75,7 l/min
Pump capacity at 2850 RPM — A220H	113,5 l/min
System relief at quick couplers	206 Bar
Control valve	Three-spool, open-centre type with float detent on lift and electrically controlled auxiliary spool
Hydraulic filter	Full-flow replaceable — 3 µm synthetic media element
Fluid lines	SAE standard tubelines, hoses, and fittings

**Hydraulic Cylinders**

Lift cylinder (2)	Double-acting
Lift cylinder bore	63,5 mm
Lift cylinder rod	44,5 mm
Lift cylinder stroke	825,0 mm
Tilt cylinder (1)	Double-acting with cushioning feature on dump and rollback
Tilt cylinder bore	88,9 mm
Tilt cylinder rod	41,4 mm
Tilt cylinder stroke	461,5 mm
Steering cylinder (4)	Double-acting
Steering cylinder bore	50,8 mm
Steering cylinder rod	25,4 mm
Steering cylinder stroke	123,4 mm

**Drive System**

Transmission	Infinitely variable tandem hydrostatic piston pumps, driving two fully reversing hydrostatic motors
Final drive chains	Pre-stressed #100 HSOC endless roller chain (no master link) and sprockets in sealed chaincase with oil lubrication. (Chains do not require periodic adjustments.) Two chains per side with no idler sprocket.
Main drive	Fully hydrostatic four-wheel drive
Axle size	70,1 mm, heat treated
Wheel bolts	Eight 9/16-inch wheel bolts fixed to axle hubs

**Traction**

Standard tyres	12-16.5 — 12-ply; heavy duty
Travel speed — inching	6,4 km/h
Travel speed — low	11,3 km/h
Travel speed — high	19,9 km/h
Travel speed — maximum reverse	11,3 km/h

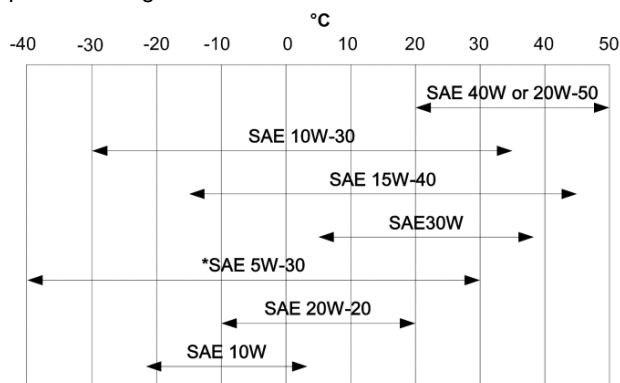
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**Fluid Capacities**

Chaincase reservoir	41,6 l
Cooling system	Engine oil
Engine oil with filter	15,1 l
Fuel tank	79,5 l
Hydraulic reservoir	17,8 l
Hydraulic / Hydrostatic system	40,5 l

**Fluid Specifications**

Engine coolant	Bobcat PG Coolant 5 L can - 6904844A 25 L container - 6904844B 209 L drum - 6904844C 1000 L tank - 6904844D
Engine oil	Oil must meet API Service Classification of CD, CE, CF4, CG4, or better. Recommended SAE viscosity number for anticipated temperature range.



\* Can be used only when available with appropriate diesel rating.

For synthetic oil use the recommendation from the oil manufacturer.

Hydraulic fluid	Bobcat Superior SH 5 L can - 6904842A 25 L container - 6904842B 209 L drum - 6904842C 1000 L tank - 6904842D Bobcat Bio Hydraulic 5 L can - 6904843A 25 L container - 6904843B 209 L drum - 6904843C 1000 L tank - 6904843D
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**Controls**

Engine speed	Hand lever and foot accelerator pedal
Starting	Key-type starter switch and shutdown. Glow plugs automatically activated by Standard or Deluxe instrument panel.
Front auxiliary (standard)	Electrical switches on right-hand joystick
Rear auxiliary (optional)	Electrical switch on left-hand joystick
Loader hydraulics tilt and lift	Right-hand joystick
Service brake	Two independent hydrostatic systems controlled by left-hand joystick
Secondary brake	One of the hydrostatic transmissions
Parking brake	Finger-operated rocker switch on centre control panel with spring applied, pressure release, multi-disk brake

<b>Controls</b>
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Vehicle steering (AWS)	Direction and speed controlled with left-hand joystick. Pattern is a C-type.
Vehicle steering (SS)	Direction and speed controlled with left-hand joystick. Pattern is an S-type.
Auxiliary pressure release	Push button on left-hand instrument panel

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**Instrumentation**

The following loader functions are monitored by a combination of gauges and warning lights in the operator's line of sight. The system alerts the operator of monitored loader malfunctions by way of audible alarm and visual warning lights.

*Standard Instrument Panel*

- Gauges
  - Engine coolant temperature
  - Fuel
  - Hour-meter
  - System voltage
- Indicators
  - BICS functions
- Warning lights
  - Air filter
  - Engine oil pressure
  - Hydrostatic charge pressure

**A220/A220H All-Wheel Steer Loaders — 1/07/2003****Serviceability**

Access is available to the following through the rear door/tailgate and rear screen:

- Air cleaner
- Alternator
- Battery
- Cooling system (engine oil and hydraulic oil coolers easily separable for cleaning)
- Engine oil and fuel filters
- Engine oil drain and dipstick
- Hydraulic oil fill (access at the side of the machine)
- Starter

Axle hubs provide protection for the axle seals

Bob-Tach™ pivots have replaceable wear bushings

Easy access to all lift arm grease points

Rod end of the tilt cylinder has a replaceable bushing

Tailgate has an optional lock for vandal-proofing

Tailgate is equipped with door-stop to hold door open while servicing

Tip-up operator cab gives access to certain hydraulic system components

**Standard Features**

- Two-speed travel
- Adjustable suspension seat
- Automatically activated glow-plugs
- Auxiliary hydraulics: variable flow/maximum flow
- Bob-Tach™ frame
- Bobcat Interlock Control System (BICS)
- Deluxe operator cab \*  
Includes interior cab foam, top and rear windows, accessory wire harness, dome light, and electrical power port
- Enclosed cab with heater
- Dual steering mode: All Wheel Steer (AWS) and Skid Steer (SS)
- Operating lights, front and rear
- Hydraulic bucket positioning kit
- Instrumentation
- Lift arm support
- Parking brake
- Rocker-switch activated glow plugs
- Seat belt with three-point fixing
- Seat bar
- Turbo-charger with approved spark arrestor
- Tyres: 12-16.5 — 4-ply
- CE certification
- Warranty: 12 months or 2000 hours

\* **Roll Over Protective Structure (ROPS) – meets requirements of SAE-J1040 and ISO 3471**

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**Options**

- Dealer Installed Accessories
  - Special applications kit
  - Catalytic purifier kit
  - Single-point lift kit
  - Back up alarm kit
  - Keyless ignition switch
  - Fresh air heater kit
  - Plumbing kit for fresh air heater
  - Bob-Tach™ frame
  - Replacement operator cab structure
  - Suspension seat
  - Water level sensor kit
  - FOPS structure \*\*

**\*\* Falling Objects Protective Structure (FOPS) – meets requirements of SAE-J1043 and ISO 3449, Level I**



**A220/A220H All-Wheel Steer Loaders — 1/07/2003****Attachments**

For specific model availability, see Bobcat Product Price List.

- Angle blade
- Angle broom
- Auger
- Backhoe
- Brushcat rotary cutter
- Buckets
- Chipper
- Combination bucket
- Concrete pump
- Cutter crusher
- Digger
- Dozer blade
- Dumping hopper
- Ejector bucket
- Farm grapple
- Grader
- Hydraulic breaker
- Industrial grapple
- Landplane
- Landscape rake
- Mixing bucket
- Pallet fork – standard
- Pallet fork – hydraulic
- Planer – high flow
- Planer – standard flow
- Rear stabiliser
- Scarifier
- Snow blower
- Sod layer
- Soil conditioner
- Spreader
- Stump grinder
- Super scraper
- Sweeper
- Three-point hitch
- Tiller
- Tree transplanter
- Trench compactor
- Trencher
- Utility frame
- Wheel saw
- Whisker broom
- Vibratory roller

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**Environmental**

Noise 1	Value
Noise 2	Value
Vibration	Value

**Safety**

Bobcat Interlock Control System (BICS), standard	Requires the operator to be seated in the loader with the seat bar in place and the engine running. After the operator presses the "Press to Operate Loader" button, the loader's hydraulic lift and tilt functions and traction drive can be operated.
Lift arm bypass control, standard	Used to lower the lift arms in the event that the lift arms cannot be lowered during normal operating conditions.
Seat belt, standard	Should always be worn when operating the loader. Three-point shoulder belt provides restraint for high range speeds.
Seat bar, standard	Secondary operator restraint, also serves as an arm rest.
Operator cab, standard	An enclosed operator cab with side screens with a minimal inside cab width of 838 mm. Meets SAE-J1040 and ISO 3471 for Roll Over Protective Structure (ROPS) and SAE-J1043 and ISO 3449 Level I * for Falling Objects Protective Structure (FOPS). Level II ** option is available.
Lift arm support, standard	Use for servicing when lift arms are raised.
Parking brake, standard	Always set brake when leaving loader.
Grab handles, standard	Should always be used when entering/exiting loader.
Safety tread, standard	Slip resistant tread on lift arms and main frame to be used when entering/exiting loader.
Attachment steps, standard	Should always be used when entering/exiting loader.
Rear window, standard	For emergency exit.
Front and rear work lights, standard	Use for indoor and low light operation.
Back-up alarm, optional	For use in areas with high traffic
Lift kits, optional	Lift kits are available so loader may be lifted into remote areas.
Special applications kit, optional	Restricts objects and material from entering cab openings.
Operator handbook, standard	Weather-resistant operator handbook attached to the inside of the cab, providing operational instructions and warnings decals with pictorials and international symbols.

\* Level I — Acceptance is intended for protection from falling bricks, small concrete blocks, and hand tools encountered in operations such as highway maintenance, landscaping, and other construction site services.

\*\* Level II — Acceptance is intended for protection from falling trees or rocks for machines involved in site clearing, overhead demolition, or forestry.