

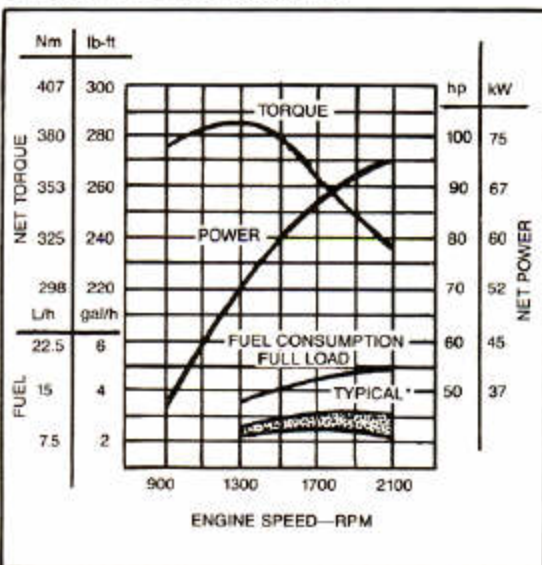


590D EXCAVATOR



Model shown may include options

ENGINE PERFORMANCE



*Depending on operating variables

FEATURES

95 SAE net hp (71 kW) John Deere turbocharged diesel engine

33,180 lb. (15,050 kg) maximum operating weight

21 ft. 6 in. (6.55 m) maximum digging depth

30 ft. 2 in. (9.19 m) maximum reach at ground level

High-efficiency variable-flow hydraulic system with fuel-saving, mode control features

Automatic engine idling system

Large cab for improved operator comfort and visibility

Complete instrumentation/warning system continuously monitors vital machine functions

Two-lever, low-effort, all hydraulic pilot control of boom, arm, bucket, and 360-degree continuous swing

Straight propelling, even while swinging or working front-attachment functions

Excavator track-type undercarriage with sealed track chain

Hydraulic track adjustment

Heavy-duty planetary gear reduction with automatically engaged multiple wet-disk brakes

Vandal protection—lockable service doors

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Gering, Nebr. 69341

5900 EXCAVATOR SPECIFICATIONS

Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with PCSA and SAE Standards. Except where otherwise noted, these specifications are based on a unit with 28-in. (700 mm) triple grouser shoes, 10 ft. 2 in. (3.1 m) arm and 41-in. (1045 mm) 3/4 cu. yd. (6 m³) bucket, full fuel tank and 175-lb. (80 kg) operator.

Rated Power @ 2100 rpm	SAE	DIN 6270B
Net	95 hp (71 kW)	71 kW
Gross	100 hp (75 kW)	

Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 6270B using No. 2-D fuel @ 35 API gravity. No derating is required up to 10,000 feet (3050 m) altitude. Gross power is without cooling fan.

Engine: John Deere 4-276T

Type	4-stroke cycle, turbocharged diesel
Bore and stroke	4.19 x 5.00 in. (106.5 x 127 mm)
No. of cylinders	4
Displacement	276 cu. in. (4.524 L)
Compression ratio	17.2 to 1
Maximum net torque @ 1300	284 lb-ft (385 Nm) (39.3 kg-m)
Lubrication	Pressure system w/full flow filter
Cooling fan	Suction
Air cleaner restriction indicator and safety element	Dry
Electrical system	24-volt w/alternator
Batteries (two 12-volt)	Reserve capacity: 180 minutes

Hydraulic System: Open center

Two variable-displacement axial-piston pumps and two control valves (5- and 4-spool) provide independent and combined operation of all functions. The 5-spool control valve has one spool for an auxiliary attachment function.

Main pumps	2 variable-displacement axial-piston
Pressure setting	5050 psi (34 800 kPa) (355 kg/cm ²)
Max. oil flow	2 x 41.7 gpm (2 x 158 L/min)
Pilot pump	Gear
Pressure setting	570 psi (3930 kPa) (40 kg/cm ²)
Max. oil flow	5.7 gpm (21 L/min)

System relief valves operating pressure:	
Travel	5050 psi (34 800 kPa) (355 kg/cm ²)
Front end	4050 psi (27 920 kPa) (285 kg/cm ²)

Circuit relief valves:	
Boom	4270 psi (29 440 kPa) (300 kg/cm ²)
Arm	4270 psi (29 440 kPa) (300 kg/cm ²)
Bucket	4270 psi (29 440 kPa) (300 kg/cm ²)

Cross-over relief valves:	
Travel	5120 psi (34 820 kPa) (360 kg/cm ²)
Swing	3555 psi (24 510 kPa) (250 kg/cm ²)

Oil filtration:
One suction filter
One 10-micron full-flow return filter w/bypass

Cylinders:	Bore	Rod Diameter	Stroke
Boom (2)	4.53 in. (115 mm)	3.15 in. (80 mm)	46.85 in. (1190 mm)
Arm (1)	4.72 in. (120 mm)	3.35 in. (85 mm)	52.95 in. (1345 mm)
Bucket (1)	4.53 in. (115 mm)	3.15 in. (80 mm)	36.22 in. (920 mm)

Arm cylinder has built-in hydraulic cushion at each end of stroke. Bucket and boom cylinders have hydraulic cushion on rod end. All cylinder rods are ground, heat-treated, chrome-plated and polished.

Swing Mechanism:

Swing speed	0-13.5 rpm
Swing brake	Automatic, hydraulic lock
Turntable bearing	Single-row, shear-type ball bearing with induction-hardened, lubricated internal gear and pinion. 500-hour lubrication interval.

Undercarriage:

Excavator track-type undercarriage with heavy-duty frame and all-welded, stress-relieved structure. Side frames welded to track frame. Permanently lubricated track rollers, idlers and sprockets with floating seals.

Propel motors (one for each track)

Axial-piston hydraulic motors with planetary drives. Multiple-disk brakes automatically release while propelling and apply when stationary. Independent drive to each track permits counterrotation.

Tracks:

Track chain	Sealed
Track adjustment	Hydraulic with shock absorbing recoil springs

Track Rollers and Shoes (each side):

Two upper rollers, seven lower rollers. Forty-five track shoes. Track shoes induction-hardened rolled alloy. Heat-treated connecting pins.

Track Shoes:		Average Ground Contact	Average Ground Pressure
Width	Shoes		
20 in. (500 mm) (standard)	Triple grousers	4836 sq. in. (31 200 cm ²)	6.68 psi (46.0 kPa) (0.47 kg/cm ²)
28 in. (700 mm) (optional)	Triple grousers	6770 sq. in. (43 680 cm ²)	4.90 psi (33.8 kPa) (0.34 kg/cm ²)

Cab:

Independent, isolation mounted and sound protected with tinted safety glass windows. Front window can be stored overhead. Side windows slide open for ventilation. Hydraulic system lockout for safety during operator entry and exit from the cab. Centralized monitoring alarm system.

Seat:

Fully adjustable deluxe reclining seat with armrests.

Controls:

All hydraulic functions are controlled by low-effort hydraulic pilot controls. Two short levers control swing, boom, arm and bucket functions. Right and left pedals control forward, reverse and track counterrotation.

Boom and Arm:

Welded, low-stress, full box-section design. Centralized lubrication system.

Servicing and Vandal Protection:

Non-slip steps and handrails allow for easier servicing and maintenance. Easily accessible engine and hydraulic system covers. Machine covers, fuel cap and cab door have built-in locks.

Additional Standard Equipment:

- Cab:**
- Automatic idle mode selection:
 - Digging mode selection — three modes
 - Travel mode selection — two modes
 - Front windshield wiper
 - Travel alarm with cancel switch
 - Horn
 - Interior light
 - Positive position hand throttle
 - Monitor package with alarm system:
 - Air cleaner restriction warning light
 - Alternator charge indicator light
 - Automatic idle indicator light
 - Engine coolant level light
 - Engine coolant temperature gauge
 - Engine coolant temperature warning light w/alarm buzzer
 - Engine oil pressure warning light w/warning buzzer
 - Fuel gauge
 - Hydraulic oil level light
 - Low fuel level indicator light
 - Quartz hourmeter
 - Work lights on indicator
 - 13,500 Btu/hr (4.1 kW) heater

Engine:

- Cold weather (ether) starting aid
- Dual dry-type air filters
- Full-flow oil filter w/bypass
- Isolation mounted engine
- Oil cooler
- Single heavy-duty fuel filter

Frame:

- 5950 lb. (2700 kg) counterweight
- Fully enclosed swing gears
- Vandal protection—lockable service doors and fuel filler cap

Front attachment:

- Bucket clearance adjusting mechanism
- Centralized lubrication system
- Dirt seals on all bucket pins

Undercarriage:

- Propel motor and hydraulic line shields
- Single flange lower track rollers

Work lights:

- One mounted on frame
- One mounted on boom

Optional or Special Equipment:

- Cab:**
- 20,000 Btu/hr (5.9 kW) heater
 - 40,000 Btu/hr (11.7 kW) heater
 - Window vandal protection

Front Attachment:

- 8 ft. 6 in. (2.6 m) standard arm
- 10 ft. 2 in. (3.1 m) long arm

Undercarriage:

- 28-in. (700 mm) triple-grouser shoes
- 20-in. (500 mm) triple-grouser shoes

590D EXCAVATOR LIFT CAPACITIES

8 ft. 6 in. (2.6 m) Arm

Ratings at bucket lift hook, machine equipped with 20-in. (500 mm) shoes, $\frac{3}{4}$ cu. yd. (.6 m³) PCSA heaped bucket and standard counterweight, situated on firm, level, uniform supporting surface. **Boldface** type indicates hydraulic-limited capacities, lightface type indicates stability-limited capacities, in lb. (kg). Figures do not exceed 87 percent of hydraulic capacities or 75 percent of weight needed to tip machine. Lift capacity will increase approximately 4 percent with 28 in. (700 mm) shoes.

LIFTING OVER FRONT OR REAR

Horizontal distance from centerline of rotation:	5 ft. (1.52 m)	10 ft. (3.05 m)	15 ft. (4.57 m)	20 ft. (6.10 m)	25 ft. (7.62 m)
20 ft. (7.62 m)				4859 (2204)	
15 ft. (4.57 m)				6067 (2752)	
10 ft. (3.05 m)			8756 (3971)	6925 (3141)	4622 (2096)
5 ft. (1.52 m)			10364 (4701)	8526 (2960)	4456 (2021)
Ground level			9803 (4446)	6214 (2818)	4312 (1955)
- 5 ft. (- 1.52 m)		14058 (6376)	9646 (4375)	6072 (2754)	
- 10 ft. (- 3.05 m)	15122 (6858)	10827 (4911)	9746 (4420)	6125 (2780)	
- 15 ft. (- 4.57 m)		13772 (6248)	10139 (4600)		

LIFTING OVER SIDE OR 360 DEGREES

Horizontal distance from centerline of rotation:	5 ft. (1.52 m)	10 ft. (3.05 m)	15 ft. (4.57 m)	20 ft. (6.10 m)	25 ft. (7.62 m)
20 ft. (7.62 m)				4859 (2204)	
15 ft. (4.57 m)				5496 (2093)	
10 ft. (3.05 m)			8420 (3819)	5187 (2353)	3401 (1543)
5 ft. (1.52 m)			7552 (3425)	4812 (2183)	3242 (1471)
Ground level			7040 (3193)	4519 (2050)	3104 (1408)
- 5 ft. (- 1.52 m)		13544 (6143)	6897 (3128)	4386 (1990)	
- 10 ft. (- 3.05 m)	15122 (6858)	10827 (4911)	6988 (3170)	4436 (2012)	
- 15 ft. (- 4.57 m)		13772 (6248)	7346 (3333)		

590D EXCAVATOR LIFT CAPACITIES

10 ft. 2 in. (3.1 m) Arm

Ratings at bucket lift hook, machine equipped with 20-in. (500 mm) shoes, $\frac{3}{4}$ cu. yd. (.6 m³) PCSA heaped bucket and standard counterweight, situated on firm, level, uniform supporting surface. **Boldface** type indicates hydraulic-limited capacities, lightface type indicates stability-limited capacities, in lb. (kg). Figures do not exceed 87 percent of hydraulic capacities or 75 percent of weight needed to tip machine. Lift capacity will increase approximately 4 percent with 28 in. (700 mm) shoes.

LIFTING OVER FRONT OR REAR

Horizontal distance from centerline of rotation:	5 ft. (1.52 m)	10 ft. (3.05 m)	15 ft. (4.57 m)	20 ft. (6.10 m)	25 ft. (7.62 m)
20 ft. (7.62 m)					
15 ft. (4.57 m)				5200 (2359)	3896 (1767)
10 ft. (3.05 m)			7410 (3361)	6460 (2930)	4643 (2106)
5 ft. (1.52 m)			10539 (4780)	6559 (2975)	4440 (2014)
Ground level			9816 (4452)	6186 (2806)	4255 (1930)
- 5 ft. (- 1.52 m)	5752 (2609)	11907 (5400)	9533 (4324)	5980 (2712)	4155 (1885)
- 10 ft. (- 3.05 m)	12861 (5834)	10488 (4757)	9551 (4332)	5965 (2705)	
- 15 ft. (- 4.57 m)		13068 (5928)	9838 (4462)		

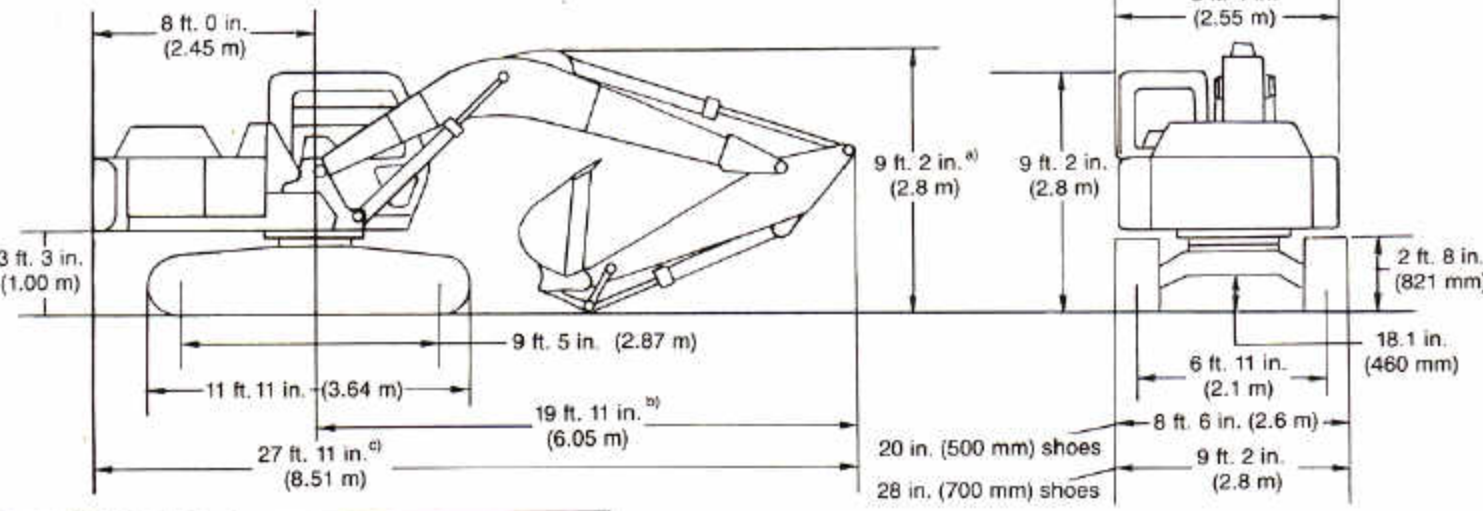
LIFTING OVER SIDE OR 360 DEGREES

Horizontal distance from centerline of rotation:	5 ft. (1.52 m)	10 ft. (3.05 m)	15 ft. (4.57 m)	20 ft. (6.10 m)	25 ft. (7.62 m)
20 ft. (6.10 m)					
15 ft. (4.57 m)				5200 (2359)	3540 (1606)
10 ft. (3.05 m)			7410 (3361)	5249 (2381)	3412 (1548)
5 ft. (1.52 m)			7896 (3491)	4833 (2192)	3219 (1460)
Ground level			7037 (3192)	4483 (2033)	3042 (1380)
- 5 ft. (- 1.52 m)	5752 (2609)	11907 (5400)	6779 (3075)	4290 (1946)	2948 (1337)
- 10 ft. (- 3.05 m)	12861 (5834)	10488 (4757)	6796 (3088)	4275 (1939)	
- 15 ft. (- 1.52 m)		13068 (5928)	7057 (3201)		

590D EXCAVATOR SPECIFICATIONS

Specifications shown are for machine equipped with 8 ft. 6 in. (2.6 m) arm.

Note: Track shoe lug height not included.



w/10 ft. 2 in. (3.1 m) arm
a) 9 ft. 10 in. (3.0 m)
b) 21 ft. 3 in. (6.48 m)
c) 29 ft. 3 in. (8.9 m)

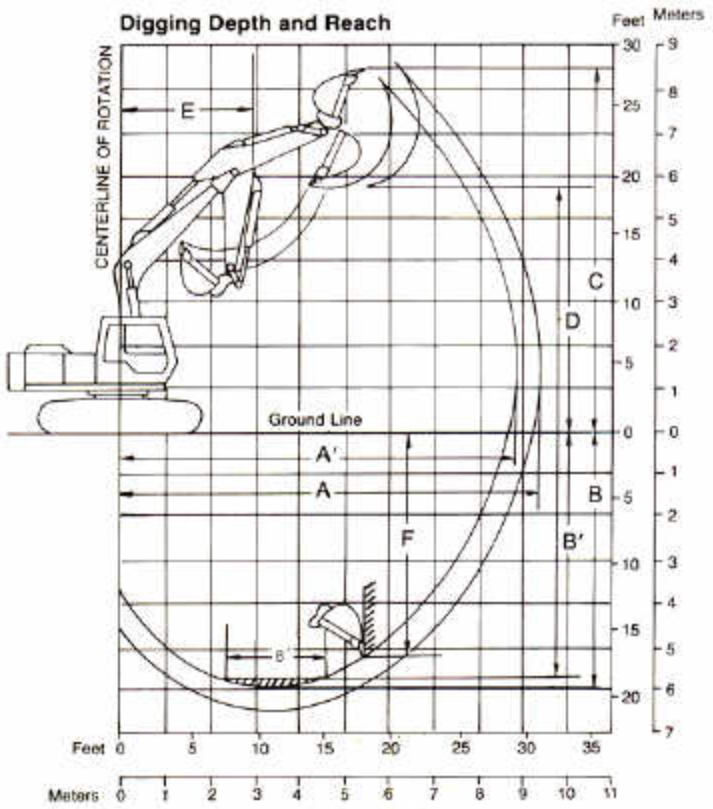
Weights:	lb.	kg
Operating weight w/full fuel tank, operator, optional 28 in. (700 mm) triple grouser shoes, 10 ft. 2 in. (3.1 m) arm, and 36-in. (925 mm) .82 cu. yd. (.55 m ³) bucket	33,180	15 050
Upperstructure with full fuel tank and counterweight less all front attachments	14,310	6490
Undercarriage with 28-in. (700 mm) triple grouser shoes	11,950	5420
Undercarriage with 20-in. (500 mm) triple grouser shoes	11,067	5020
Boom, one-piece, with two boom cylinders and arm cylinder	3,450	1566
Arm, 8 ft. 6 in. (2.6 m) with bucket cylinder and linkage	1,620	735
Arm, 10 ft. 2 in. (3.1 m) with bucket cylinder and linkage	1,810	820
Boom cylinders (2) total weight with pins	675	306
Arm cylinder without pins	425	192
Bucket cylinder without pins and linkage	250	114
Counterweight	5,950	2700

Capacities:	U.S.	Liters
Fuel tank	66 gal.	250
Cooling system	22 qt.	21
Engine lubrication w/filter	3.5 gal.	13
Hydraulic system	42.3 gal.	160
Hydraulic reservoir	22.5 gal.	85
Planetary propel drive (each side)	1.1 gal.	4
Swing drive	1.3 gal.	5

Operating Information:	
Gradability	100% (45 deg.)*
Swing speed	13.5 rpm
Tail swing	8 ft. 0 in. (2.45 m)
Infinitely variable travel speed, forward and reverse	0-3.0 mph (0-4.8 km/h)
Drawbar pull	22,500 lb. (100 kN)
*Limited by the off-level operating capacity of the engine	

Bucket Digging Force: (Tangential Penetrating Force) SAE Heaped	
Regular Duty	
5/8 cu. yd. (.5 m ³)	18,965 lb. (84.3 kN)
3/4 cu. yd. (.6 m ³)	18,965 lb. (84.3 kN)

	8 ft. 6 in. (2.6 m) Arm	10 ft. 2 in. (3.1 m) Arm
Arm force	14,330 lb. (63.7 kN) (6500 kg)	12,570 lb. (55.9 kN) (5700 kg)
Lifting capacity over front or rear @ ground level		
20 ft. (6.1 m) reach	6214 lb. (2818 kg)	6186 lb. (2806 kg)
A Max. digging reach	29 ft. 2 in. (8.9 m)	30 ft. 9 in. (9.36 m)
A' Max. digging reach @ ground level	28 ft. 8 in. (8.73 m)	30 ft. 2 in. (9.19 m)
B Max. digging depth	19 ft. 10 in. (6.05 m)	21 ft. 6 in. (6.55 m)
B' Max. digging depth @ 8 ft. (2.44 m) flat bottom	19 ft. 1 in. (5.81 m)	20 ft. 10 in. (6.34 m)
C Max. cutting height	28 ft. 1 in. (8.55 m)	28 ft. 10 in. (8.78 m)
D Max. dumping height	19 ft. 0 in. (5.8 m)	19 ft. 9 in. (6.03 m)
E Min. swing radius	10 ft. 3 in. (3.13 m)	10 ft. 3 in. (3.13 m)
F Max. vertical wall	17 ft. 1 in. (5.21 m)	18 ft. 9 in. (5.71 m)



590D EXCAVATOR BUCKETS

Without Side Cutters	Bite Width		SAE (Heaped)	CECE (Heaped)	Weight	Recommendation	
	8 ft. 6 in. (2.6 m) Arm	10 ft. 2 in. (3.1 m) Arm					
	With Side Cutters or Shrouds						
31 in. (790 mm)	36 in. (910 mm)	5/8 cu. yd. (.45 m ³)	950 lb. (432 kg)	○	○		
36 in. (925 mm)	41 in. (1045 mm)	3/4 cu. yd. (.6 m ³)	1050 lb. (475 kg)	○	□		

○ : Suitable for materials with density of 3370 lb/cu. yd. (2000 kg/m³) or less

□ : Suitable for materials with density of 2700 lb/cu. yd. (1600 kg/m³) or less

BUCKET SELECTION CHART Maximum Recommended Bucket Size*						
lb/yd ³	kg/m ³	Material	8 ft. 6 in. (2.6 m) Arm		10 ft. 2 in. (3.1 m) Arm	
			Regular Duty	Heavy Duty	Regular Duty	Heavy Duty
700	420	Wood chips	3 5/8 yd ³ (2.8 m ³)	—	3 1/4 yd ³ (2.5 m ³)	—
800	470	Peat, dry	3 1/8 yd ³ (2.4 m ³)	—	2 7/8 yd ³ (2.2 m ³)	—
1250	740	Peat, wet	2 yd ³ (1.5 m ³)	—	1 3/4 yd ³ (1.3 m ³)	—
1450	860	Cinders	1 3/4 yd ³ (1.3 m ³)	—	1 1/2 yd ³ (1.1 m ³)	—
1600	950	Topsoil, loose	1 1/2 yd ³ (1.1 m ³)	—	1 3/8 yd ³ (1.1 m ³)	—
2300	1360	Topsoil, heavy packed	1 1/8 yd ³ (.8 m ³)	—	1 yd ³ (.8 m ³)	—
2300	1360	Coal, natural bed	1 1/8 yd ³ (.8 m ³)	—	1 yd ³ (.8 m ³)	—
2600	1540	Earth, dry loam	1 yd ³ (.8 m ³)	3/4 yd ³ (.6 m ³)	7/8 yd ³ (.7 m ³)	5/8 yd ³ (.5 m ³)
2700	1600	Sand, dry	7/8 yd ³ (.7 m ³)	3/4 yd ³ (.6 m ³)	7/8 yd ³ (.7 m ³)	5/8 yd ³ (.5 m ³)
3200	1900	Earth, moist loam	3/4 yd ³ (.6 m ³)	5/8 yd ³ (.5 m ³)	3/4 yd ³ (.6 m ³)	5/8 yd ³ (.5 m ³)
3250	1930	Sand, gravel, dry	3/4 yd ³ (.6 m ³)	5/8 yd ³ (.5 m ³)	3/4 yd ³ (.6 m ³)	1/2 yd ³ (.4 m ³)
3300	1960	Sand, moist	3/4 yd ³ (.6 m ³)	5/8 yd ³ (.5 m ³)	3/4 yd ³ (.6 m ³)	1/2 yd ³ (.4 m ³)
3500	2080	Sand, wet	3/4 yd ³ (.6 m ³)	1/2 yd ³ (.4 m ³)	5/8 yd ³ (.5 m ³)	1/2 yd ³ (.4 m ³)
3500	2080	Shale	3/4 yd ³ (.6 m ³)	1/2 yd ³ (.4 m ³)	5/8 yd ³ (.5 m ³)	1/2 yd ³ (.4 m ³)
3600	2100	Clay, wet	3/4 yd ³ (.6 m ³)	1/2 yd ³ (.4 m ³)	5/8 yd ³ (.5 m ³)	1/2 yd ³ (.4 m ³)
4200	2490	Limestone, broken	—	1/2 yd ³ (.4 m ³)	—	3/8 yd ³ (.3 m ³)
4600	2730	Rock, granite, blasted	—	3/8 yd ³ (.3 m ³)	—	3/8 yd ³ (.3 m ³)

* Contact your John Deere dealer for optimum bucket and attachment selection. The use of larger than recommended bucket in heavy materials and tough conditions should be carefully analyzed for digging force and load capacity. Bucket capacity indicated is SAE heaped.