

6018/6018 FS

Hydraulic Shovel



Features

With over 190 deliveries world-wide, the Cat 6018/6018 FS has proven itself as a durable and versatile hydraulic shovel. Along with much of the same advanced technology available on its larger Cat counterparts, the 6018/6018 FS offers the productivity capability and facilitates the mobility and flexibility you need from a 180 tonne machine. When optimally paired with our 773, 775, or 777 Series off-highway trucks, you'll experience the operational efficiency and productivity you're looking for, supported by our unmatched Cat dealer network.

6018/6018 FS Hydraulic Shovel Specifications

General Data

Operating weight		
Face Shovel	183 tonnes	202 tons
Backhoe	186 tonnes	205 tons
Engine output SAE J1995		
2 × Cat C18 ACERT	858 kW	1,150 hp
Standard bucket capacity		
Face Shovel (heaped 2:1)	10.0 m ³	13.1 yd ³
Backhoe (heaped 1:1)	10.0 m ³	13.1 yd ³

Features

- Twin-engine concept
- TriPower shovel attachment
- Independent oil-cooling system
- 3-circuit hydraulic system
- Electronic-hydraulic servo control
- Board Control System (BCS)
- Torque control in closed-loop swing circuit
- Automatic central lubrication system
- Xenon working lights

Operating Weight

Shovel		
Standard track pads	800 mm	2 ft 7 in
Operating weight	183 400 kg	404,320 lb
Ground pressure	18.5 N/cm ²	26.9 psi
• Additional track pads available on request		
Backhoe		
Standard track pads	800 mm	2 ft 7 in
Operating weight	186 000 kg	410,060 lb
Ground pressure	18.6 N/cm ²	27.3 psi
• Additional track pads available on request		

Diesel Engines

Make and model	2 × Cat C18 (Tier 3)	
Total rated net power – ISO 3046/1	824 kW	1,104 hp
	1,800 min ⁻¹	1,800 min ⁻¹
Total rated net power – SAE J1349	824 kW	1,104 hp
	1,800 min ⁻¹	1,800 min ⁻¹
Total rated gross power – SAE J1995	858 kW	1,150 hp
	1,800 min ⁻¹	1,800 min ⁻¹
Number of cylinders (each engine)	6	
Bore	145 mm	5.7 in
Stroke	183 mm	7.2 in
Displacement	18.1 L	1,105 in ³
Aspiration	Turbocharged and charge air cooled	
Maximum altitude without deration at 20° C (68° F) – above sea level	2000 m	6,560 ft
Emissions	U.S. E.P.A. Flex, EU Flex	
Alternators	2 × 150A	
Fuel tank capacity	3200 L	845 gal

- Micro processed engine management
- Heavy duty air filters
- Two-stage fuel filter including water separator

Electric Motor – 6018 AC/6018 AC FS

Type	Squirrel cage induction motor
Output	650 kW
Voltage	6.3 kV ± 10% (other on request)
Rated current I _N	72A (at 6.3 kV)
Frequency	50 Hz (60 Hz on request)
Revolutions	1,500 min ⁻¹ (1,800 min ⁻¹ on request)
Starting current	350% of I _N (197% of I _N optional)

- Custom-made electric motor with increased gap between rotor and stator to withstand severe mining conditions
- Power limit control by Pump Managing System

Electrical System (diesel drive)

System voltage	24V
Batteries (12V each) in series/parallel installation	4 × 210 Ah 420 Ah – 24V
Working spotlights	8 × Xenon lights

- Battery isolation relays
- Emergency stop switches accessible from ground level and in engine module

6018/6018 FS Hydraulic Shovel Specifications

Hydraulic System with Pump Managing System

Main pumps		
Diesel version	4 × variable swash plate pumps	
AC version	2 × variable axial piston pumps	
Maximum oil flow		
Diesel version	4 × 412 L/min	4 × 109 gal/min
AC version	2 × 578 L/min	2 × 153 gal/min
Maximum pressure, attachment		
	300 bar	4,350 psi
Swing pumps		
Diesel version	2 × reversible swash plate pumps	
AC version	1 × reversible swash plate pump	
Maximum oil flow		
Diesel version	2 × 288 L/min	2 × 76 gal/min
AC version	516 L/min	136 gal/min
Maximum pressure, swing pumps		
	370 bar	5,365 psi
Total volume of hydraulic oil – approximately		
	2500 L	660 gal
Hydraulic tank capacity – approximately		
	2000 L	528 gal

- Pump Managing System contains:
 - Electronic load limit control
 - Flow on demand from main pumps depending on joystick position
 - Automatic regulation of main pumps to zero flow without demand
 - Automatic RPM reduction of engine speed during workout breaks
 - Reduced oil flow of main pumps at high hydraulic oil temperature or at low and high engine temperature
- Pressure cut-off for main pumps
- Cooling of pump transmission gear oil
- Filters:
 - Full-flow high-pressure filters (100 µm) for the main pumps, installed directly behind each pump
 - Full-flow filters (10 µm) for the complete return circuit
 - Pressure filters (40 µm and 6 µm) for servo circuit

Hydraulic Oil Cooling

Oil flow of cooling pumps		
Diesel version	2 × 412 L/min	2 × 109 gal/min
AC version	608 + 218 L/min	161 + 58 gal/min
Diameter of fans		
	2 × 1120 mm 2 × 3 ft 8 in	

- Cooling system is fully independent of all main circuits, i.e. controlled cooling capacity is available whenever engine is running
- Gear-type cooling pumps supplying high-volume low pressure oil to fans and aluminum coolers
- Fan speed and flow of oil to the coolers are electronically controlled
- Extremely high cooling efficiency to ensure optimum oil temperature

Swing System

Swing drives	2 compact planetary transmissions with axial piston motors
Parking brakes	Wet multiple disc brake, spring-loaded/hydraulically released
Maximum swing speed	
Diesel version	4.7 rpm
AC version	4.1 rpm
Swing ring	Triple race roller bearing with sealed internal gearing

- Closed-loop swing circuit with torque control
- Hydraulic braking of the swing motion by counteracting control
- All raceways of swing ring, as well as grease bath for internal gearing, supplied by automatic central lubrication system

Retractable Service Station

Retractable service station installed underneath the engine module and easily accessible from ground. Equipped with:

- Quick couplings for:
 - Diesel fuel
 - Engine coolant – left/right
 - Pump transmission gear oil – left/right
 - Engine oil – left/right
 - Hydraulic oil tank
 - Grease container (optional)
- Cat jump-start socket
- Indicator lights for fuel tanks left/right full

6018/6018 FS Hydraulic Shovel Specifications

Operator's Cab

Operator's eye level		
Diesel version – approximately	5.4 m	17 ft 9 in
AC version – approximately	6.2 m	20 ft 4 in
Internal dimensions of cab		
Length	1800 mm	5 ft 11 in
Width	1300 mm	4 ft 3 in
Height	2150 mm	7 ft 1 in

- Pneumatically cushioned and multi-adjustable comfort seat with lumbar support, seat heating, safety belt, head- and armrests
- Switch in seat cushion to automatically neutralize the hydraulic controls when operator leaves the seat
- Joystick controls integrated in independently adjustable seat consoles
- Fold-away auxiliary seat with safety belt
- FOPS (rock guard; approved acc. to DIN ISO 3449) integrated into cab structure
- All-round safety glass, armored windshield and sliding side window
- Windshield with parallel intermittent wiper/washer
- Roller blind at windshield
- Robust instrument panel includes large colored BCS screen with transreflective technology
- Board Control System (BCS) electronic monitoring and data logging system for vital signs and service data of engines, hydraulic system and lubrication system
- Machine access via retractable boarding ladder, hydraulically operated
- Emergency exit harness kit

Undercarriage

Travel speeds		
Diesel version – maximum	2.3 km/h	1.43 mph
AC version – maximum	1.7 km/h	1.06 mph
Maximum tractive force	1239 kN	278,440 lbf
Gradeability of travel drives – maximum	88%	
Track pads (each side)	47	
Bottom rollers (each side)	8	
Support rollers (each side)	2 plus a skid plate in between	
Travel drives (each side)	1 planetary transmission with 1 axial piston motor	
Parking brakes	Wet multiple disc brake, spring applied/ hydraulically released	

- Forged double-grouser track pads
- Chain links connected by hardened pins and bushings
- All running surfaces of sprockets, idlers, rollers and track links are hardened
- Fully hydraulic self-adjusting track tensioning system with membrane accumulator
- Automatic hydraulic retarder valve to prevent overspeed on downhill travel
- Acoustic travel alarm
- Track guides

Automatic Lubrication System

Capacity of grease barrel	200 L	53 gal
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- Dual-circuit system with hydraulically driven heavy-duty pump and electronic time relay control to adjust the pause/lube times
- Connected to the lubrication system are the swing roller bearing with internal gearing and all pivot points of attachment, bucket and cylinders except linkage of BH attachment
- System failures displayed by Board Control System
- Grease filters (200 µm) behind grease pump

Attachments

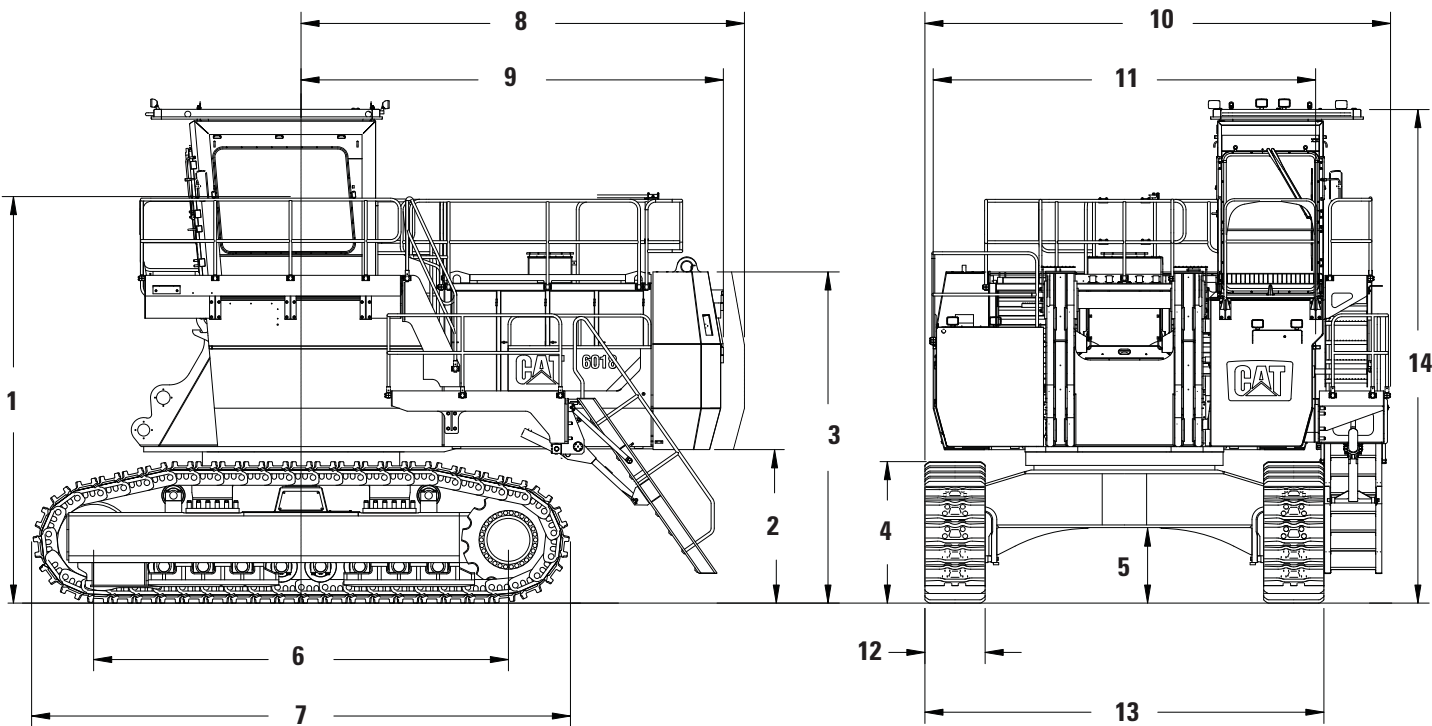
- Booms and sticks are torsion-resistant, welded box design of high tensile steel with massive steel castings at pivot areas
- Welding procedures allow for internal counter-welding (double prep weld) wherever possible
- Booms and sticks are stress-relieved after welding
- Inspection hole in boom (FS)
- Pressure-free lowering of boom (FS and BH) and stick (FS) by means of a float valve
- Shovel attachment with unique TriPower kinematics ensuring the following main features:
 - Horizontal automatic constant-angle bucket guidance
 - Vertical automatic constant-angle bucket guidance
 - Automatic roll-back limiter to prevent material spillage
 - Kinematic assistance to hydraulic forces
 - Constant boom momentum throughout the whole lift arc
 - Crowd force assistance
- All buckets (FS and BH) are equipped with a wear package consisting of:
 - Special liner material covering main wear areas inside and outside of bucket
 - Lip shrouds between teeth
 - Wing shrouds on side walls
 - Bottom edge protection
- Special wear packages for highly abrasive materials on request

6018/6018 FS Hydraulic Shovel Specifications

Dimensions

All dimensions are approximate.

Dimensions and weights of AC machine differs slightly. Separate drawings, dimensions and weights can be provided upon request.



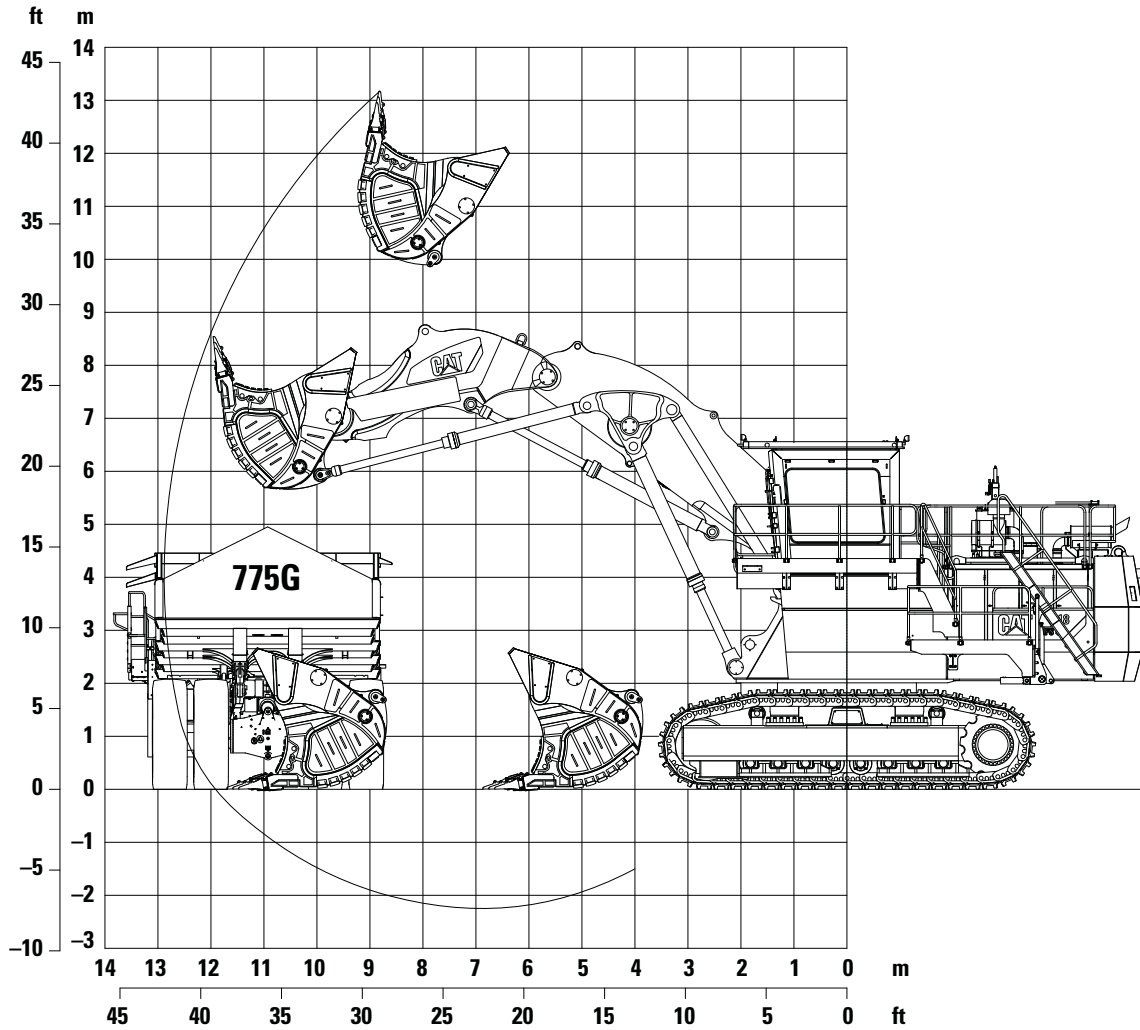
1	5400 mm	17 ft 9 in
2	2040 mm	6 ft 8 in
3	4400 mm	14 ft 5 in
4	1880 mm	6 ft 2 in
5	1000 mm	3 ft 3 in
6	5500 mm	18 ft 1 in
7	7120 mm	23 ft 4 in

8	5890 mm	19 ft 4 in
9	5610 mm	18 ft 5 in
10	6190 mm	20 ft 4 in
11	5080 mm	16 ft 8 in
12	800 mm	2 ft 7 in
13	5300 mm	17 ft 5 in
14	6560 mm	21 ft 6 in

6018/6018 FS Hydraulic Shovel Specifications

Working Range – TriPower Face Shovel Attachment (FS)

All dimensions are approximate.



Boom	6.35 m	20 ft 10 in	Working Range	
Stick	4.1 m	13 ft 5 in	Maximum digging height	13.2 m 43 ft 4 in
Digging Forces			Maximum digging reach	12.9 m 42 ft 4 in
Maximum crowd force	910 kN	204,500 lbf	Maximum digging depth	2.3 m 7 ft 7 in
Maximum crowd force at ground level	810 kN	182,030 lbf	Maximum dumping height	10.1 m 33 ft 2 in
Maximum breakout force	730 kN	164,050 lbf	Crowd distance on level	4.8 m 15 ft 9 in

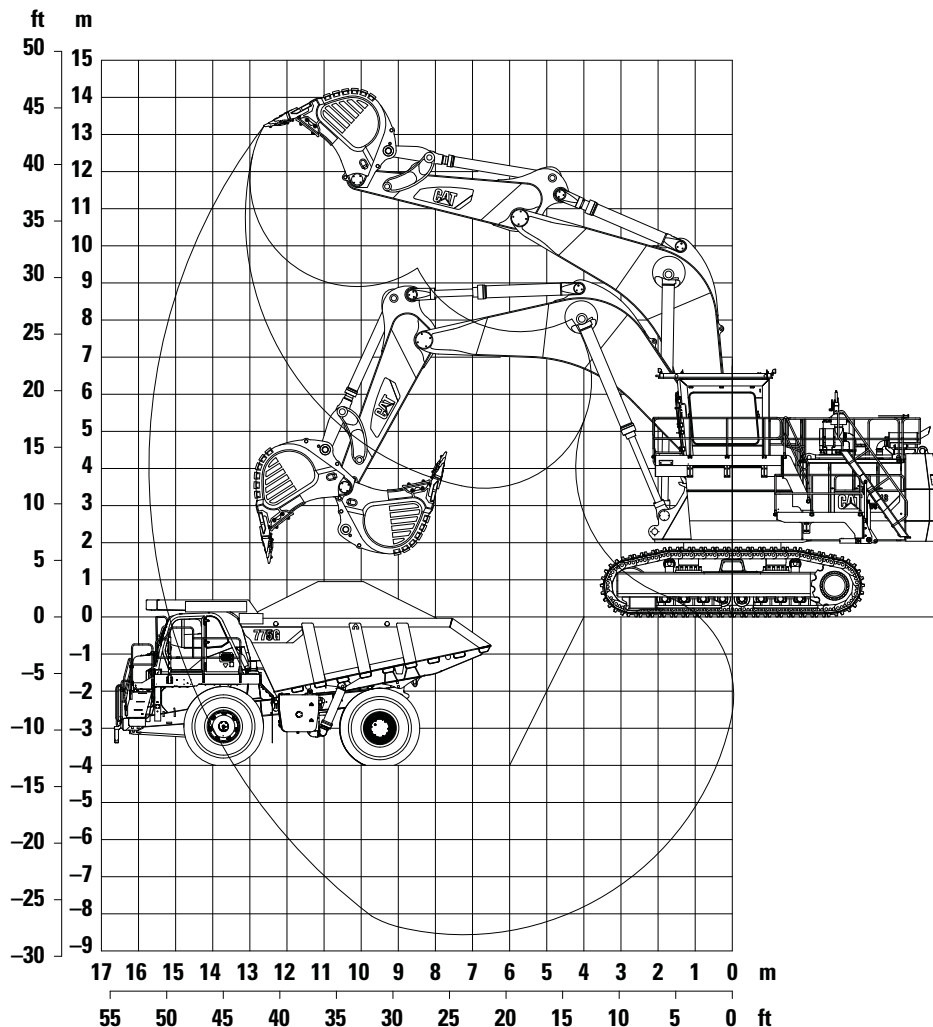
Face Shovels

Type	Heavy Rock Shovel		Standard Rock Shovel	
Capacity heaped 1:1	9.4 m ³	12.3 yd ³	11.4 m ³	14.9 yd ³
Capacity heaped 2:1	8.0 m³	10.5 yd³	10.0 m³	13.1 yd³
Total width	3750 mm	12 ft 4 in	3750 mm	12 ft 4 in
Inner width	3330 mm	10 ft 11 in	3330 mm	10 ft 11 in
Opening width	1900 mm	6 ft 3 in	1900 mm	6 ft 3 in
Number of teeth	5		5	
Weight including wear package	16 450 kg	36,270 lb	17 650 kg	38,910 lb
Maximum material density (loose)	2.2 t/m ³	3,710 lb/yd ³	1.8 t/m ³	3,030 lb/yd ³

6018/6018 FS Hydraulic Shovel Specifications

Working Range – Backhoe Attachment (BH)

All dimensions are approximate.



Boom	8.5 m	27 ft 11 in
Stick	4.5 m	14 ft 9 in
Digging Forces		
Maximum tearout force	540 kN	121,350 lbf
Maximum breakout force	510 kN	114,610 lbf

Working Range			
Maximum digging depth	8.5 m	27 ft 11 in	
Maximum digging reach	15.6 m	51 ft 2 in	
Maximum digging height	13.2 m	43 ft 4 in	

Backhoes

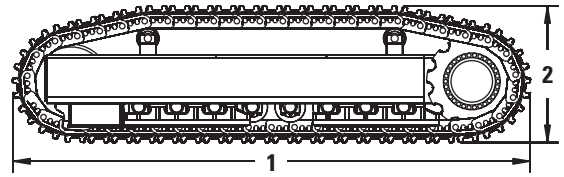
Type	Iron Ore Bucket		Heavy Rock Bucket		Standard Rock Bucket	
Capacity heaped 1:1	7.5 m ³	9.8 yd ³	8.5 m ³	11.1 yd ³	10.0 m ³	13.1 yd ³
Capacity heaped 2:1	6.6 m ³	8.6 yd ³	7.6 m ³	9.9 yd ³	9.0 m ³	11.8 yd ³
Capacity struck	6.0 m ³	7.8 yd ³	6.7 m ³	8.8 yd ³	8.0 m ³	10.5 yd ³
Total width	2290 mm	7 ft 6 in	2890 mm	9 ft 6 in	2960 mm	9 ft 9 in
Inner width	1900 mm	6 ft 3 in	2513 mm	8 ft 3 in	2570 mm	8 ft 5 in
Number of teeth	4		5		5	
Weight including wear package	8850 kg	19,510 lb	10 350 kg	22,820 lb	11 300 kg	24,910 lb
Maximum material density (loose)	2.6 t/m ³	4,380 lb/yd ³	2.2 t/m ³	3,710 lb/yd ³	1.8 t/m ³	3,030 lb/yd ³

6018/6018 FS Hydraulic Shovel Specifications

General Packing List

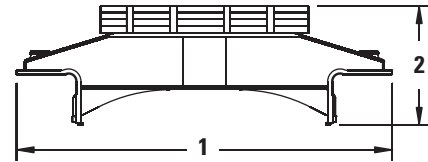
Crawler side frame with track pads (2 units, each)

Gross weight	24 100 kg (53,130 lb)
1 Length	7150 mm (23 ft 5 in)
Width	950 mm (3 ft 1 in)
2 Height	1900 mm (6 ft 3 in)



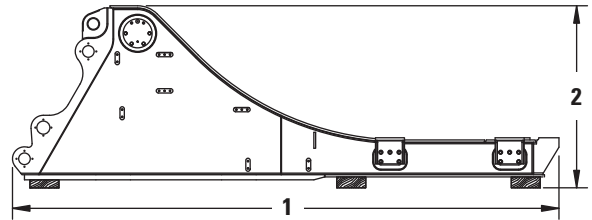
Undercarriage center frame with swing roller bearing

Gross weight	14 200 kg (31,310 lb)
1 Length	5150 mm (16 ft 11 in)
Width	3050 mm (10 ft 1 in)
2 Height	1600 mm (5 ft 3 in)



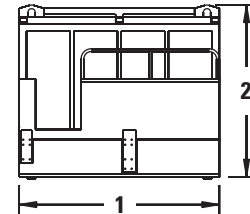
Superstructure center frame

Gross weight	18 800 kg (41,450 lb)
1 Length	7530 mm (24 ft 1 in)
Width	2650 mm (8 ft 8 in)
2 Height	2650 mm (8 ft 8 in)



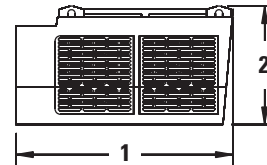
Engine module with diesel engines

Gross weight	16 200 kg (35,710 lb)
1 Length	3100 mm (10 ft 2 in)
Width	5100 mm (16 ft 9 in)
2 Height	2900 mm (10 ft 2 in)



Oil cooler module

Gross weight	2130 kg (4,700 lb)
1 Length	3000 mm (9 ft 10 in)
Width	1550 mm (5 ft 1 in)
2 Height	1650 mm (5 ft 5 in)



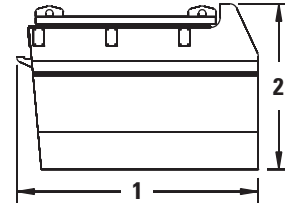
Above values are approximate. Details may vary depending on scope of supply and destination. Exact data subject to selected machine configuration and final packing list.

6018/6018 FS Hydraulic Shovel Specifications

General Packing List

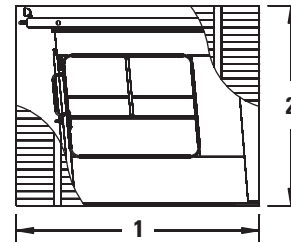
Cab pedestal module

Gross weight	3390 kg (7,470 lb)
1 Length	3320 mm (10 ft 11 in)
Width	1800 mm (5 ft 11 in)
2 Height	2300 mm (7 ft 7 in)



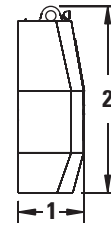
Crate with cabin and FOPS

Gross weight	3500 kg (7,720 lb)
1 Length	3450 mm (11 ft 4 in)
Width	2350 mm (7 ft 9 in)
2 Height	2900 mm (10 ft 2 in)



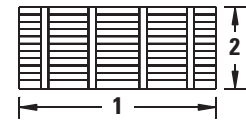
Counterweight

Gross weight	24 000 kg (52,910 lb)
1 Length	950 mm (3 ft 1 in)
Width	5100 mm (16 ft 9 in)
2 Height	2600 mm (8 ft 6 in)



Crates

Content	1 Length	Width	2 Height	Gross Weight
Two swing gears	1650 mm (5 ft 5 in)	1100 mm (3 ft 7 in)	1750 mm (5 ft 9 in)	1440 kg (3,170 lb)
Swing ring bolts, covers, tools, etc.	3400 mm (11 ft 2 in)	1250 mm (4 ft 1 in)	1450 mm (4 ft 9 in)	1610 kg (3,550 lb)
Handrails, catwalks, air filters, etc.	4500 mm (14 ft 9 in)	1900 mm (6 ft 3 in)	1800 mm (5 ft 11 in)	2500 kg (5,510 lb)
Grease container with pump	1400 mm (4 ft 7 in)	1100 mm (3 ft 7 in)	2050 mm (6 ft 9 in)	670 kg (1,480 lb)
Barrels with hydraulic oil and grease	1900 mm (6 ft 3 in)	1300 mm (4 ft 3 in)	1250 mm (4 ft 1 in)	1400 kg (3,090 lb)
Air condenser	1450 mm (4 ft 9 in)	1050 mm (3 ft 5 in)	1200 mm (3 ft 11 in)	280 kg (620 lb)
Pallet with retractable ladder	4000 mm (13 ft 1 in)	1000 mm (3 ft 3 in)	1900 mm (6 ft 3 in)	740 kg (1,630 lb)



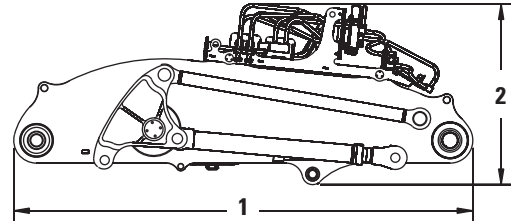
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TriPower Shovel Attachment

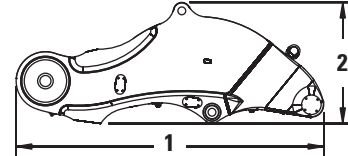
Boom with main valve block, TriPower linkages and rods

Gross weight	17 100 kg (37,700 lb)
1 Length	7050 mm (23 ft 2 in)
Width	2150 mm (7 ft 1 in)
2 Height	2800 mm (9 ft 2 in)



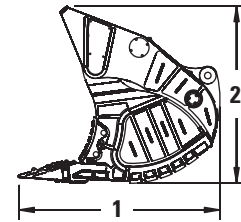
Stick including pin for boom

Gross weight	6200 kg (13,670 lb)
1 Length	4750 mm (15 ft 7 in)
Width	1650 mm (5 ft 5 in)
2 Height	1900 mm (6 ft 3 in)



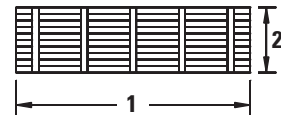
Face shovel including pin for stick

Capacity (2:1)	10.0 m ³ (13.1 yd ³)
Gross weight	18 000 kg (39,680 lb)
1 Length	3350 mm (11 ft)
Width	3750 mm (12 ft 4 in)
2 Height	2900 mm (9 ft 6 in)



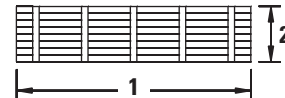
Crate with two bucket cylinders

Gross weight	2100 kg (4,630 lb)
1 Length	3600 mm (11 ft 10 in)
Width	1000 mm (3 ft 3 in)
2 Height	1000 mm (3 ft 3 in)



Crate with two stick cylinders

Gross weight	2200 kg (4,850 lb)
1 Length	3600 mm (11 ft 10 in)
Width	900 mm (2 ft 11 in)
2 Height	850 mm (2 ft 9 in)



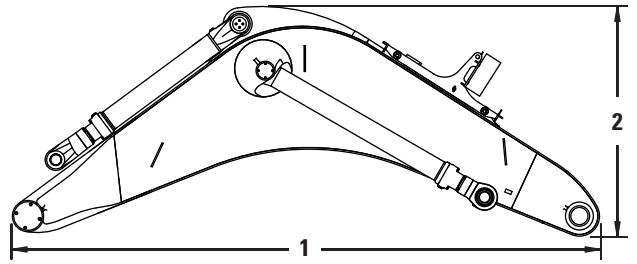
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Backhoe Attachment

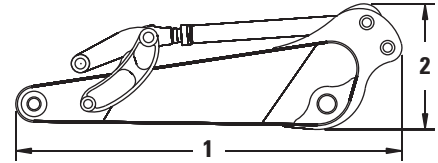
Monoboom with main valve block, boom and stick cylinders

Gross weight	25 800 kg (56,880 lb)
1 Length	9000 mm (29 ft 6 in)
Width	2200 mm (7 ft 3 in)
2 Height	3550 mm (11 ft 8 in)



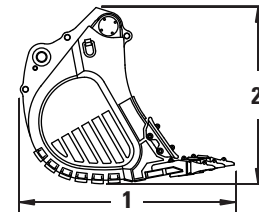
Stick with linkage and bucket cylinder

Gross weight	10 000 kg (22,050 lb)
1 Length	6000 mm (19 ft 8 in)
Width	1400 mm (4 ft 7 in)
2 Height	2050 mm (6 ft 9 in)



Backhoe bucket including pins for stick and linkage

Capacity (1:1)	8.5 m ³	10.0 m ³
	(11.1 yd ³)	(13.1 yd ³)
Gross weight	10 750 kg	11 700 kg
	(23,700 lb)	(25,790 lb)
1 Length	3400 mm	3400 mm
	(11 ft 2 in)	(11 ft 2 in)
Width	2900 mm	3000 mm
	(9 ft 6 in)	(9 ft 10 in)
2 Height	2500 mm	2750 mm
	(8 ft 2 in)	(9 ft)



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6018/6018 FS Hydraulic Shovel

Optional Equipment

Optional equipment may vary. Consult your Cat dealer for details.

GENERAL

- Export crating
- Finishing as per end user's corporate colors

SUPERSTRUCTURE

- Camera system
- High capacity water separator
- Various cold-weather packages

CAB

- Various heating and air-conditioning systems
- Roller blinds at all windows
- Additional instrumentation

UNDERCARRIAGE

- Track pad width 600 mm (2 ft)
- Belly plate

ATTACHMENT

- Guards for boom cylinders of FS attachment
- Xenon lighting on boom
- Special wear packages

Additional optional equipment available on request.

Materials and specifications are subject to change without notice.

Featured machines in photos may include additional equipment.

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com.

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Product ID: 6018/6018 FS

AEHQ7076-01
Replaces AEHQ7076

August 2013

