



Cat® 6030/6030 FS

Hydraulic Shovel

Specifications

General Data

Operating weight (with C27 engine)

Face Shovel	287 tonnes	316 tons
Backhoe	290 tonnes	319 tons

Engine output SAE J 1995

Cat® C27	1 140 kW	1,530 HP
Cummins® QSK19	1 008 kW	1,350 HP

Standard bucket capacity

Face Shovel (SAE 2:1)	16.5 m³	21.6 yd³
Backhoe (SAE 1:1)	17.0 m³	22.2 yd³

Features

- TriPower shovel attachment
- Independent oil cooling system
- Spacious walk-through machine house
- 5-circuit hydraulic system
- New on-board electronics system: Control and Monitoring Platform (CAMP)
- New Board Control System (BCS III)
- Torque control in closed-loop swing circuit
- Automatic central lubrication system
- Xenon working lights

Operating Weight

Shovel

Standard track pads	1 000 mm (3 ft 3 in)
Operating weight	287 000 kg (632,720 lb)
Ground Pressure	21.5 N/cm² (31.1 psi)

Additional track pads available on request

Backhoe

Standard track pads	1 000 mm (3 ft 3 in)
Operating weight	289 700 kg (638,670 lb)
Ground Pressure	21.7 N/cm² (31.4 psi)

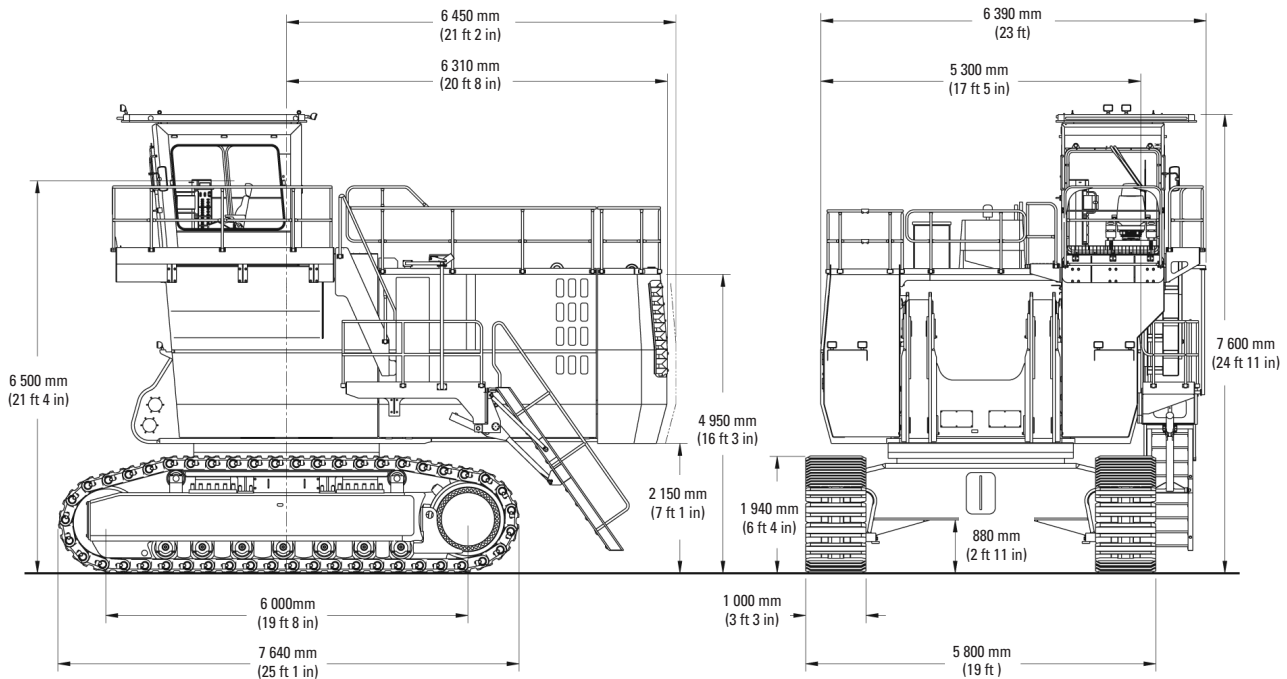
Additional track pads available on request

Electrical System (diesel drive)

System voltage	24 V
Batteries (12 V each)	4 x 210 Ah
in series / parallel installation	420 Ah - 24 V
Working spotlights	8 x high brightness Xenon lights

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

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Hydraulic Oil Cooling

Oil flow of cooling pumps

Diesel version	2 x 467 l/min (2 x 123 US gal/min)
Electric version	2 x 459 l/min (2 x 121 US gal/min)

Diameter of fans	2 x 1 220 mm (2 x 48 in)
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- 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 aluminium coolers
- Variable axial piston pumps supplying low-volume, high-pressure oil to fans
- Fan speed is thermostatically controlled
- Extremely high cooling efficiency to ensure optimum oil temperature

Electric Motor (optional)

Type	Squirrel cage induction motor
Output	1 000 kW
Voltage	6.3 kV +/- 10% (other on request)
Rated Current I_N	109 A (at 6.3 kV)
Frequency	50 Hz (60 Hz on request)
Speed	1 500 min ⁻¹ (1,800 min ⁻¹ at 60 Hz)
Starting current	450% of I_N (350% 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

Diesel Engines

Engine Features

Fuel tank capacity	5 360 l (1,416 US gal)
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- Hydraulically driven radiator fan with electronically controlled fan speed
- Microprocessed engine management
- Automatic rev. reduction
- Heavy-duty air filters
- Two-stage fuel filter, incl. water separator
- Additional high-capacity water separator
- Pre-lube starting system (Cummins engines only)

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Diesel Engines (continued)

Version 1 - Cat® C27 Tier 2

Make and model	2 x Cat C27
Total rated net power ISO 3046/1	1 140 kW (1,530 HP) 1,800 min ⁻¹
Total rated net power SAE J1349	1 140 kW (1,530 HP) 1,800 min ⁻¹
Total rated gross power SAE J1995	1 140 kW (1,530 HP) 1,800 min ⁻¹
No. of cylinders (each engine)	12
Bore	137.7 mm (5.42 in)
Stroke	152.4 mm (6.0 in)
Displacement	27.0 I (1,648 in ³)
Aspiration	Turbocharged and charge air-cooled
Max. altitude without deration at 15°C	1,750 m (5,750 ft) a.s.l.
Emission certification	US EPA Tier 2; Europe NRMM Tier 2
Alternators	2 x 150 A
Emission certification	US EPA Tier 4i

Version 2 - Cummins® QSK19 Tier 2

Make and model	2 x Cummins QSK19
Total rated net power ISO 3046/1	1 008 kW (1,350 HP) 1,800 min ⁻¹
Total rated net power SAE J1349	1 008 kW (1,350 HP) 1,800 min ⁻¹
Total rated gross power SAE J1995	1 008 kW (1,350 HP) 1,800 min ⁻¹
No. of cylinders (each engine)	6
Bore	159 mm (6.25 in)
Stroke	159 mm (6.25 in)
Displacement	19 I (1,159 in ³)
Aspiration	Turbocharged and charge air cooled
Max. altitude without deration	1 500 m (4,900 ft) a.s.l.
Alternators	2 x 175 A

Hydraulic System with Pump Managing System

Main pumps (Diesel and electric version)	
4 x variable swash plate pumps	
Max. oil flow	
Diesel version	4 x 552 I/min (4 x 146 US gal/min)
Electric version	4 x 543 I/min (4 x 143 US gal/min)
Max. pressure, attachment	31 MPa = 310 bar (4,495 psi)
Max. pressure, travel	36 MPa = 360 bar (5,220 psi)
Swing pumps	
Diesel version	2 x revers. swash plate double pumps
Electric version	2 x revers. swash plate double pumps
Max. oil flow	
Diesel version	2 x 394 I/min (2 x 104 US gal/min)
Electric version	2 x 426 I/min (2 x 113 US gal/min)

Hydraulic System with PMS (continued)

Max. pressure, swing system	31 MPa = 310 bar (4,495 psi)
Total volume of hydraulic oil	Approx. 3 500 I (925 US gal)
Hydraulic tank capacity	Approx. 2 500 I (660 US 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 working breaks
 - Reduced oil flow of main pumps at high hydraulic oil temperature or at 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
 - High pressure filters (100 µm) for the closed swing circuit
 - Full-flow filters (10 µm) for the complete return circuit
 - Full-flow filters (10 µm) for the cooling return circuit
 - Pressure filters (40 µm and 6 µm) for servo circuit
 - Transmission oil filters (40 µm)

Undercarriage

Travel speed (2 stages)	
1st stage	Max. 1.4 km/h (0.87 mph)
2nd stage	Max. 2.7 km/h (1.68 mph)
Max. tractive force	1 637 kN (167 t = 367,880 lb)
Gradability of travel drives	Approx 64 %
Track pads (each side)	47
Bottom rollers (each side)	7
Support rollers (each side)	2 plus a skid plate in between
Travel drives (each side)	1 planetary transmission with 2 two-stage axial piston motors
Parking brakes	Wet multiple disc brake, spring loaded / hydraulically released

- Cast double-grouser combined pad-links with bushings connected by hardened full floating pins
- All running surfaces of sprockets, idlers, rollers and pad links, as well as teeth contact areas of sprocket and pad links, are hardened
- Fully hydraulic self-adjusting track tensioning system with membrane accumulator
- Automatic hydraulic retarder valve to prevent over-speed on downhill travel
- Acoustic travel alarm

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Operator's Cab

Operator's eye level	approx. 6.5 m (21 ft 4 in)		
Internal dimensions of cab	Length	2 200 mm (7 ft 3 in)	
	Width	1 600 mm (5 ft 3 in)	
	Height	2 150 mm (7 ft 1 in)	
<ul style="list-style-type: none">• 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• New Board Control System (BCS III): Electronic monitoring, data logging and diagnostic system for vital signs and service data of engines, hydraulic and lubrication system, featuring:<ul style="list-style-type: none">- Robust instrument panel including large (12 in) colored touch screen for intuitive handling- On-screen PDF documentation (e.g. operating instructions, technical handbook, spare parts catalog, electric circuit diagram)- On-screen trouble shooting assistance- Graphic charts of logged data- Fault memory with storage of related conditions- USB, Lan (TCP/IP) and CAN BUS interfaces for data export• Machine access via retractable boarding ladder, hydraulically operated• Emergency exit harness kit			

Swing System

Swing Drives	2 compact planetary transmissions with axial piston motors
Parking Brake	Wet multiple-disc brake, spring-loaded / hydraulically released
Max. swing speed	
Diesel Version	4.6 rpm
Electric Version	5.0 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

Attachments

- Booms and sticks are torsion-resistant, welded box design of high-tensile steel with solid 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
- Catwalks with rails at boom (FS and BH)
- 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 universal wear package suitable for all standard applications, which consists of:
 - Special liner material covering main wear areas inside and outside of bucket
 - Lip shrouds between teeth
 - Wing shrouds on side walls
 - Heel shrouds at bottom edges
- Special wear packages for highly abrasive materials on request

Automatic Lubrication System

Capacity of grease container	450 l (120 US 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
- System failures displayed by Board Control System
- Grease filters (200 µm) between service station and container as well as directly behind grease pump

Retractable Service Station

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

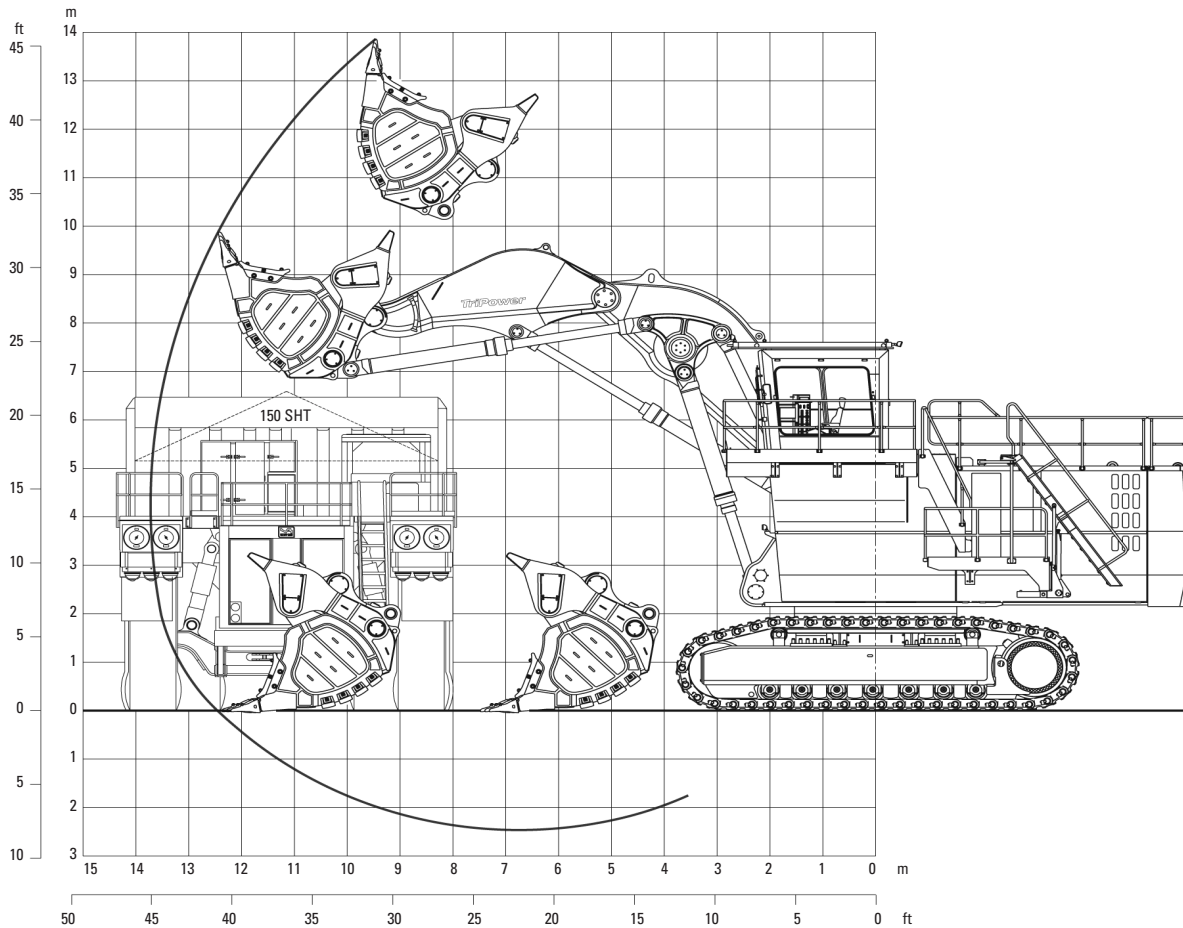
Equipped with:

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

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TriPower Face Shovel Attachment (FS)

Working Diagram - Boom 6.2 m (20 ft 4 in) - Stick 4.4 m (14 ft 5 in)



Working Range

Max. digging height	13.9 m	45 ft 7 in
Max. digging reach	13.7 m	44 ft 11 in
Max. digging depth	2.5 m	8 ft 2 in
Max. dumping height	10.7 m	35 ft 1 in
Crowd distance on level	4.9 m	16 ft 1 in

Digging Forces

Max. crowd force	1 370 kN	307,880 lb
Max. crowd force at ground level	1 210 kN	271,920 lb
Max. breakout force	920 kN	206,750 lb

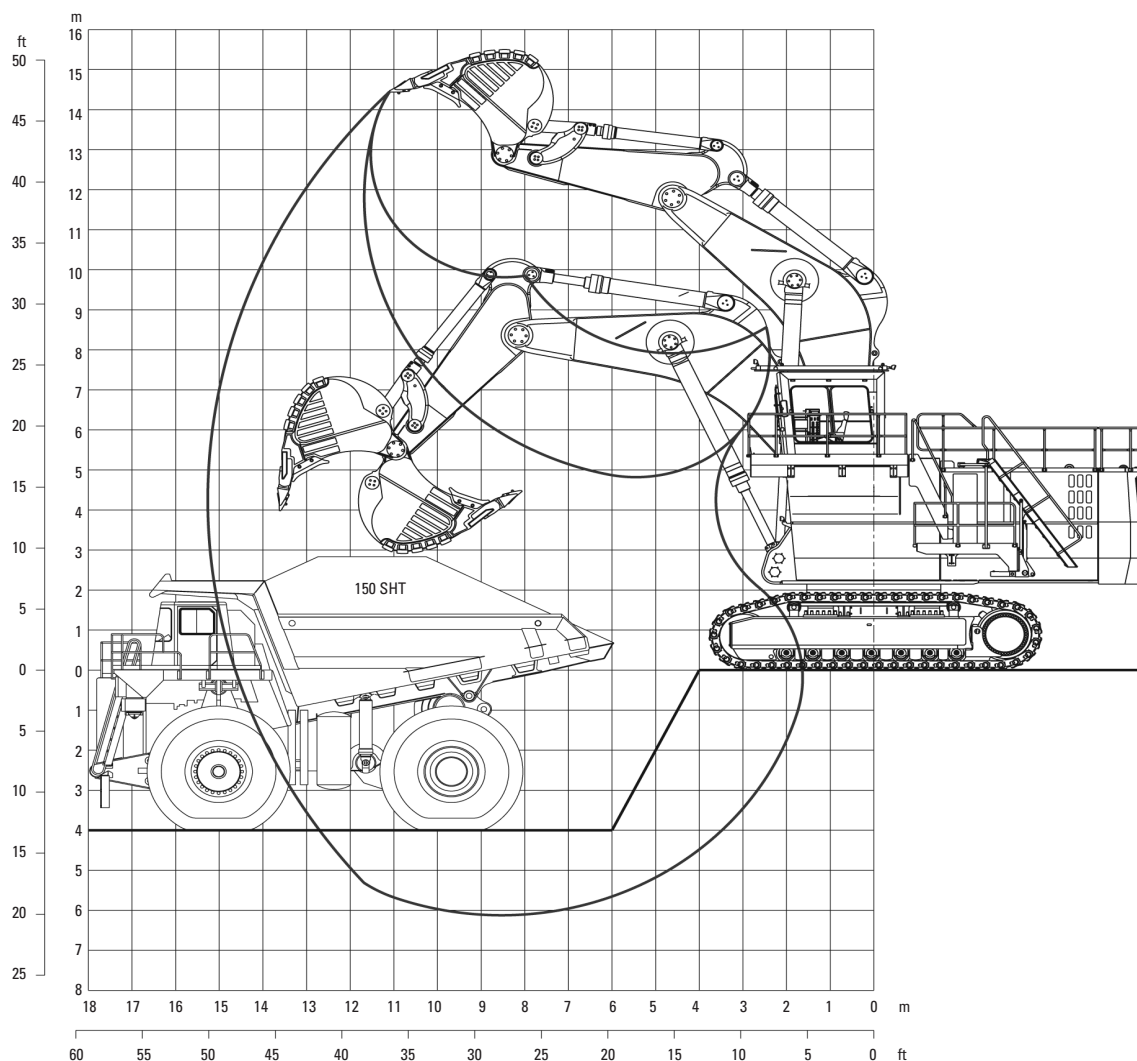
Face Shovels

Type	Iron ore shovel	Iron ore shovel	Heavy rock shovel	Heavy rock shovel	Standard rock shovel
Tooth system	ESCO S95	ESCO S95	ESCO S95	ESCO S95	ESCO S95
Capacity SAE/PCSA 1:1	11.6 m ³ (15.2 yd ³)	13.9 m ³ (18.2 yd ³)	15.4 m ³ (20.1 yd ³)	17.0 m ³ (22.2 yd ³)	19.0 m ³ (24.9 yd ³)
Capacity SAE/CECE 2:1	10.0 m ³ (13.1 yd ³)	12.0 m ³ (15.7 yd ³)	13.5 m ³ (17.7 yd ³)	15.0 m ³ (19.6 yd ³)	16.5 m ³ (21.6 yd ³)
Total width	3 620 mm (11 ft 11 in)	3 900 mm (12 ft 10 in)	3 900 mm (12 ft 10 in)	3 900 mm (12 ft 10 in)	3 900 mm (12 ft 10 in)
Inner width	3 220 mm (10 ft 7 in)	3 500 mm (11 ft 6 in)	3 500 mm (11 ft 6 in)	3 500 mm (11 ft 6 in)	3 500 mm (11 ft 6 in)
Opening width	1 680 mm (5 ft 6 in)	1 790 mm (5 ft 10 in)	1 790 mm (5 ft 10 in)	1 790 mm (5 ft 10 in)	1 790 mm (5 ft 10 in)
No. of teeth	5	6	6	6	6
Weight incl. wear kit	23 400 kg (51,590 lb)	26 700 kg (58,860 lb)	27 300 kg (60,190 lb)	27 500 kg (60,630 lb)	27 900 kg (61,510 lb)
Max. material density (loose)	3.2 t/m ³ (5,390 lb/yd ³)	2.6 t/m ³ (4,210 lb/yd ³)	2.2 t/m ³ (3,710 lb/yd ³)	2.0 t/m ³ (3,370 lb/yd ³)	1.8 t/m ³ (3,030 lb/yd ³)

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Backhoe Attachment (BH)

Working Diagram - Boom 8.5 m (27 ft 11 in) - Stick 4.0 m (13 ft 9 in)



Working Range

Max. digging depth	6.1 m	20 ft
Max. digging reach	15.1 m	49 ft 6 in
Max. digging height	14.5 m	47 ft 7 in

Digging Forces

Max. crowd force	880 kN	197,760 lb
Max. breakout force	870 kN	195,520 lb

Backhoes

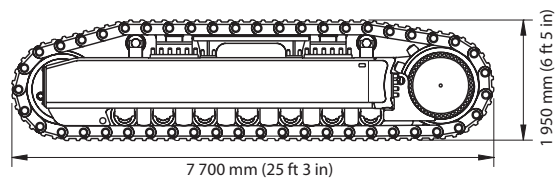
Type	Iron ore bucket	Heavy rock bucket	Standard rock bucket
Tooth system	ESCO V81	ESCO V81	ESCO V81
Capacity SAE 1:1	12.0 m ³ (15.7 yd ³)	15.0 m ³ (19.6 yd ³)	17.0 m ³ (22.2 yd ³)
Capacity CECE 2:1	10.9 m ³ (14.3 yd ³)	13.6 m ³ (17.8 yd ³)	15.3 m ³ (20.0 yd ³)
Capacity struck	9.6 m ³ (12.6 yd ³)	12.3 m ³ (16.1 yd ³)	13.5 m ³ (17.7 yd ³)
Total width	3 450 mm (12 ft 2 in)	3 700 mm (12 ft 2 in)	4 080 mm (13 ft 5 in)
Inner width	3 000 mm (9 ft 10 in)	3 310 mm (10 ft 10 in)	3 690 mm (12 ft 1 in)
No. of teeth	5	5	6
Weight incl. universal wear kit	16 400 kg (36,160 lb)	16 900 kg (37,260 lb)	18 000 kg (39,680 lb)
Max. material density (loose)	2.6 t/m ³ (4,380 lb/yd ³)	2.0 t/m ³ (3,370 lb/yd ³)	1.8 t/m ³ (3,030 lb/yd ³)

Hydraulic Shovel—6030/6030 FS

General Packing List

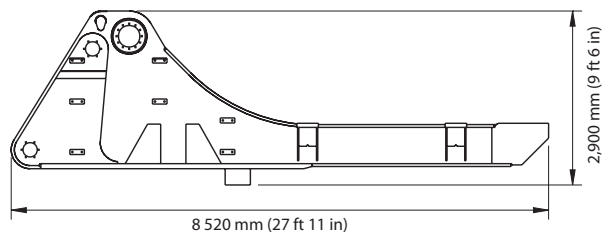
Crawler side frame with track pads (2 units)

Width 1 550 mm (5 ft 1 in) Gross weight 36 800 kg (81,130 lb)



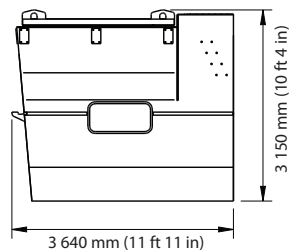
Superstructure center frame

Width 3 120 mm (10 ft 3 in) Gross weight 37 300 kg (82,230 lb)



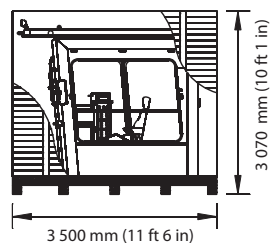
Cab pedestal module

Width 2 000 mm (6 ft 7 in) Gross weight 4 830 kg (10,650 lb)



Crate with cabin and FOPS

Width 2 610 mm (8 ft 7 in) Gross weight 3 800 kg (8,380 lb)



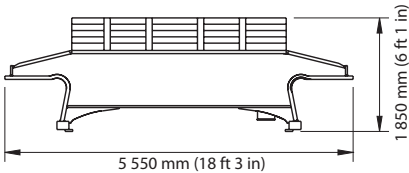
Above values are approximate. Details may vary depending on scope of supply and destination.
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Hydraulic Shovel—6030/6030 FS

General Packing List

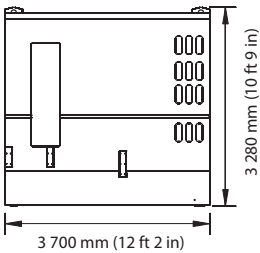
Undercarriage center frame with swing roller bearing

Width 3 400 mm (11 ft 2 in) Gross weight 25 000 kg (55,120 lb)



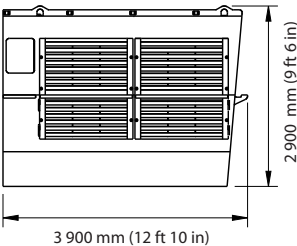
Engine module with diesel engines

Width 5 300 mm (17 ft 5 in)
Gross weight C27 24 200 kg (53,350 lb)
Gross weight QSK19 22 700 kg (50,040 lb)



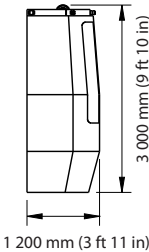
Oil cooler module

Width 1 550 mm (5 ft 1 in) Gross weight 4 600 kg (9,480 lb)



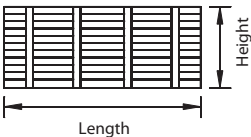
Counterweight incl. radiators

Width 5 300 mm (17 ft 5 in) Gross weight 33 500 kg (73,850 lb)



Crates

Content	Length	Width	Height	Gross Weight
Grease container with pump	1 380 mm (4 ft 6 in)	1 070 mm (3 ft 6 in)	2 060 mm (6 ft 9 in)	930 kg (2,050 lb)
Barrels (hydraulic oil; grease; antifreeze)	2 500 mm (8 ft 2 in)	1 300 mm (4 ft 3 in)	1 270 mm (4 ft 8 in)	2 200 kg (4,850 lb)
Swing ring cover	2 200 mm (7 ft 3 in)	1 300 mm (4 ft 3 in)	1 140 mm (3 ft 9 in)	370 kg (820 lb)
Retractable ladder	4 400 mm (14 ft 5 in)	1 100 mm (3 ft 7 in)	2 000 mm (6 ft 7 in)	620 kg (1,370 lb)



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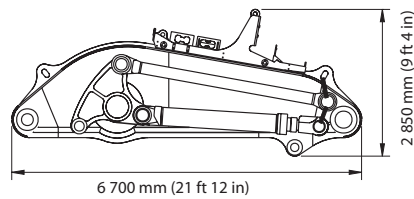


Hydraulic Shovel—6030/6030 FS

TriPower Shovel Attachment

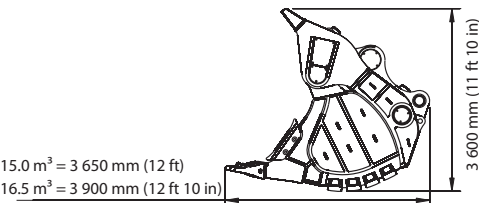
Boom with main valve block, TriPower linkages and rods

Width 2 600 mm (8 ft 6 in) Gross weight 26 400 kg (58,200 lb)



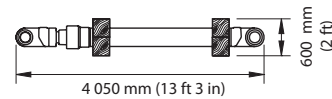
Face shovel incl. pin for stick

Capacity (2:1)	Width	Gross Weight
15.0 m ³ (19.6 yd ³)	3 900 mm (12 ft 10 in)	28,200 kg (62,170 lb)
16.5 m ³ (21.6 yd ³)	3 900 mm (12 ft 10 in)	28,600 kg (63,050 lb)



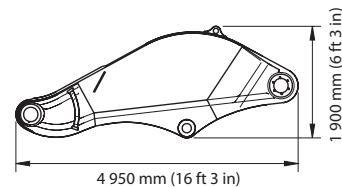
Bundle with 2 stick cylinders

Width 1 100mm (3 ft 7 in) Gross weight 3,800 kg (8,380 lb)



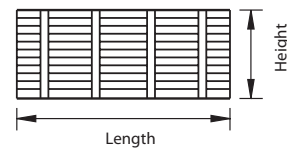
Stick

Width 1 840 mm (6 ft) Gross weight 9 000 kg (19,840 lb)



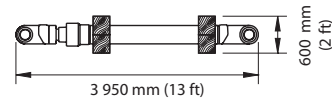
Crates with catwalks, railings and other parts

Length	Width	Height	Gross weight
3 400 mm (11 ft 2 in)	1 250 mm (4 ft 1 in)	1 370 mm (4 ft 6 in)	1 300 kg (2,870 lb)
4 960 mm (16 ft 3 in)	1 900 mm (6 ft 3 in)	1 960 mm (6 ft 5 in)	4 760 kg (10,490 lb)



Bundle with 2 bucket cylinders

Width 1 100 mm (3 ft 7 in) Gross weight 3 800 kg (8,380 lb)



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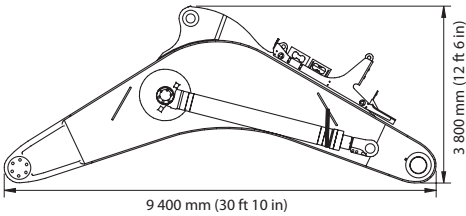


Hydraulic Shovel—6030/6030 FS

Backhoe Attachment

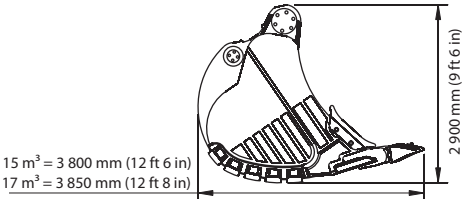
Monoboom with main valve block

Width 2 700 mm (8 ft 10 in) Gross weight 32 700 kg (72,090 lb)



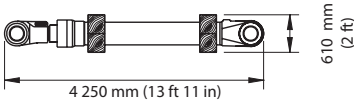
Backhoe bucket incl. pins for stick and linkage

Capacity (1:1)	Width	Gross Weight
15.0 m³ (19.6 yd³)	3 700 mm (12 ft 2 in)	18 000 kg (39,680 lb)
17.0 m³ (22.2 yd³)	4 150 mm (13 ft 7 in)	19 100 kg (42,110 lb)



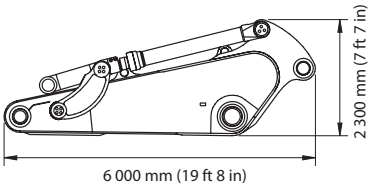
Bundle with 2 stick cylinders

Width 1 200mm (3 ft 11 in) Gross weight 6 350 kg (14,000 lb)



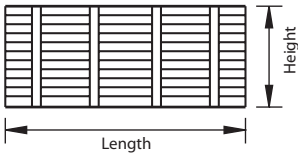
Stick with linkage and bucket cylinders

Width 2,100 mm (6 ft 11 in) Gross weight 16 200 kg (35,710 lb)



Crates with catwalks, railings and other parts

Length	Width	Height	Gross weight
4 950 mm (16 ft 3 in)	1 900 mm (6 ft 3 in)	1 900 mm (6 ft 3 in)	2 500 kg (7,050 lb)
3 400 mm (11 ft 2 in)	1 250 mm (4 ft 1 in)	1 370 mm (4 ft 6 in)	1 550 kg (3,420 lb)



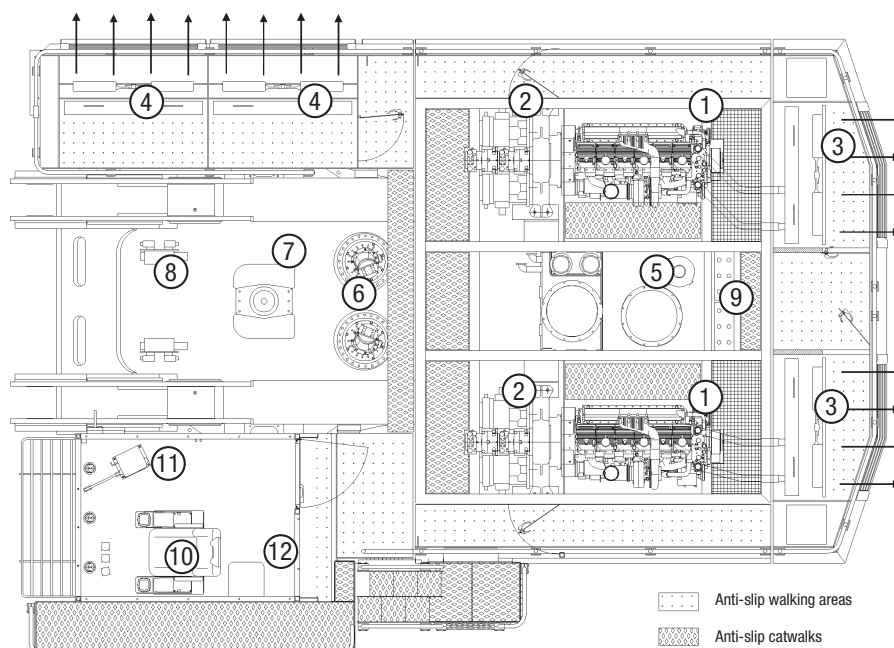
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Hydraulic Shovel—6030/6030 FS

Component accessibility on superstructure

- | | | | |
|---------------------------------------------------|-------------------|-----------------------|---------------------|
| 1. Diesel Engines | 4. Oil coolers | 7. Rotary distributor | 10. Operator's seat |
| 2. Gearboxes with hydraulic pumps | 5. Hydraulic tank | 8. Travel valves | 11. BCS tower |
| 3. Engine radiators with hydraulically driven fan | 6. Swing drives | 9. Batteries | 12. Auxilliary seat |



Optional Equipment

General

- Export crating
- Finishing as per end user's corporate colors
- Customizing of logos as per customer's specification

Superstructure

- Mechanical service crane on superstructure
- Hydraulic service crane on superstructure with auxilliary engine
- Oil change interval extension for engine oil up to 1000 hrs (Cummins engines only)
- Engine oil burn system (Cummins engines only)
- Centrifuges for engine oil filtration (Cummins engines only)
- Folding access stairway, stairway angle approx. 45°
- Round container with a standard 200 l grease barrel (instead of 450 l grease container)
- Lubricated pinion for greasing of internal gearing of swing ring
- Various cold-weather packages

Cab

- Various heating and air-conditioning systems
- Roller blinds at all windows
- Outside-mounted sun shields
- Rear windscreen wiper

Undercarriage

- Track pad width 800 mm (2 ft 7 in) or 1 200 mm (3 ft 11 in)
- Automatic lubrication of rollers by central lube system
- Cover plate under carbody (belly plate)

Attachment

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

Additional optional equipment available on request

Hydraulic Shovel—6030/6030 FS

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

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