



Cat[®] 6015/6015 FS

Hydraulic Shovel

Specifications

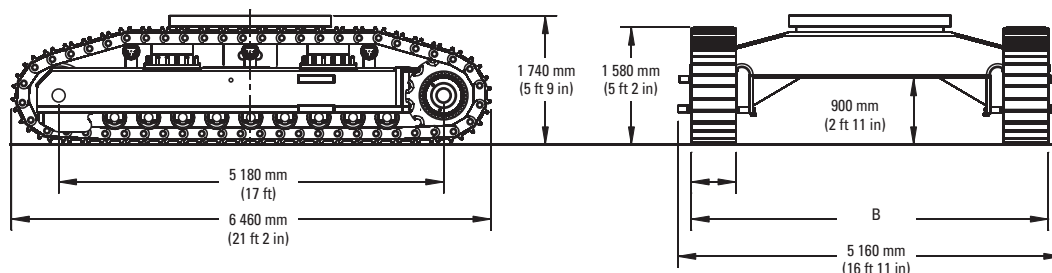
Operating Weights With Standard Undercarriage

Shovel Unit	Cat [®] C18				Cummins [®] QSK19	
	Pad width A	Width over pads B	Operating weight	Ground pressure	Operating weight	Ground pressure
Standard track pads	600 mm 23.6 in	4 400 mm 14 ft 5 in	105 200 kg 231,920 lb	16.7 N/cm ² 24.2 psi	102 900 kg 226,850 lb	16.3 N/cm ² 23.6 psi
Track pads option	750 mm 29.5 in	4 550 mm 14 ft 11 in	106 600 kg 235,010 lb	13.5 N/cm ² 19.6 psi	104 300 kg 229,940 lb	13.2 N/cm ² 19.1 psi

Backhoe Unit	Cat [®] C18				Cummins [®] QSK19	
	Pad width A	Width over pads B	Operating weight	Ground pressure	Operating weight	Ground pressure
Standard track pads	600 mm 23.6 in	4 400 mm 14 ft 5 in	105 600 kg 232,810 lb	16.7 N/cm ² 24.2 psi	103 300 kg 227,740 lb	16.4 N/cm ² 23.8 psi
Track pads option	750 mm 29.5 in	4 550 mm 14 ft 11 in	107 000 kg 235,890 lb	13.6 N/cm ² 19.7 psi	104 700 kg 230,820 lb	13.3 N/cm ² 19.3 psi

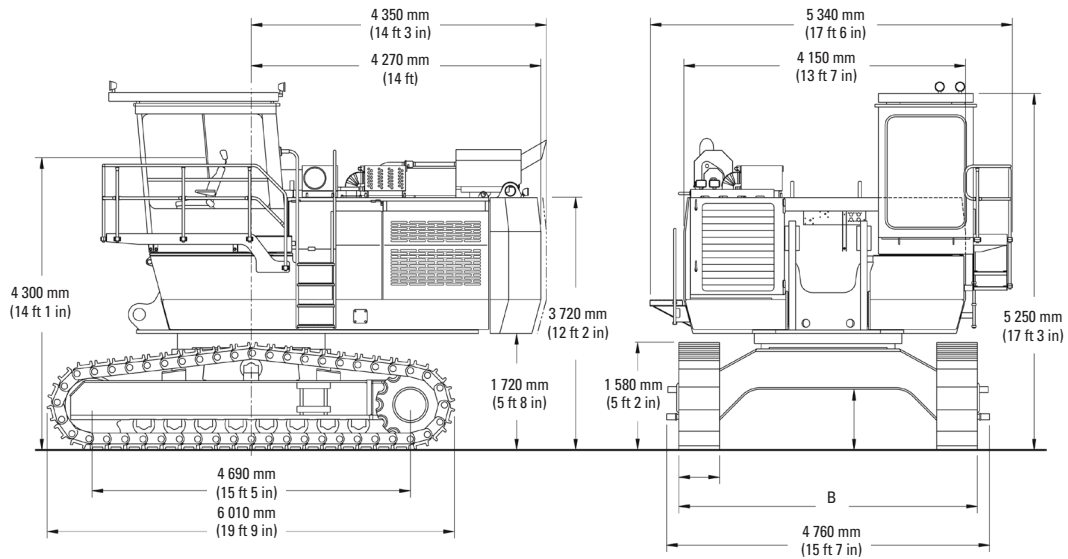
Operating Weights With HD-LC Undercarriage (optional)

Backhoe Unit Only	Cat [®] C18				Cummins [®] QSK19	
	Pad width A	Width over pads B	Operating weight	Ground pressure	Operating weight	Ground pressure
Standard track pads	600 mm 23.6 in	4 800 mm 15 ft 9 in	16.4 N/cm ² 23.8 psi	110 500 kg 243,610 lb	16.1 N/cm ² 23.3 psi	17.5 N/cm ² 25.4 psi
Track pads option	750 mm 29.5 in	4 950 mm 16 ft 3 in	13.3 N/cm ² 19.3 psi	112 100 kg 247,140 lb	13.0 N/cm ² 18.8 psi	14.2 N/cm ² 20.6 psi

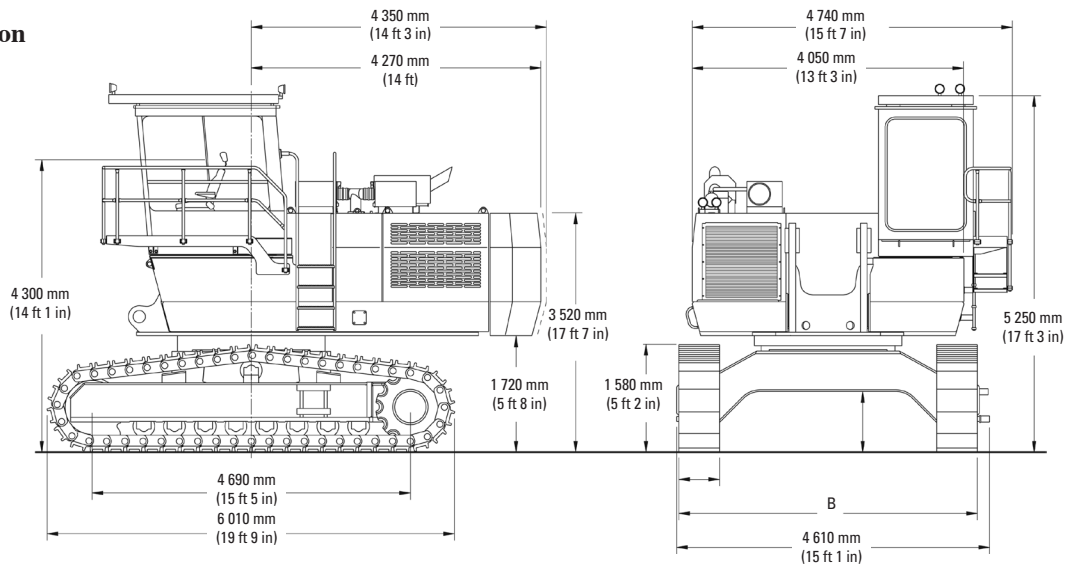


Hydraulic Shovel—6015/6015 FS

Cat version



Cummins version



General Data

Operating weight (with C18 engine)

Face Shovel	105 tonnes	116 sht
Backhoe	106 tonnes	117 sht

Engine output SAE J 1995

Cat® C18	522 kW	700 HP
Cummins® QSK19	477 kW	640 HP

Standard bucket capacity

Face Shovel (SAE 2:1)	7.0 m ³	9.2 yd ³
Std. rock backhoe (SAE 1:1)	6.0 m ³	7.8 yd ³
M.E. backhoe (SAE 1:1)	7.0 m ³	9.2 yd ³

Features

- TriPower shovel attachment
- Independent oil-cooling system
- 3-circuit hydraulic system
- Torque control in closed-loop swing circuit
- Automatic central lubrication system
- Triple-race swing roller bearing

Hydraulic Shovel—6015/6015 FS

Electrical System

System voltage	24 V	
Version	Cat	Cummins
Batteries (12 V each) in series/parallel installation	2 x 210 Ah 210 Ah–24 V	2 x 170 Ah 170 Ah–24 V
Alternator	150 A	175 A
Working spotlights	6 x Halogen lights	

- Battery isolation relays

Hydraulic Oil Cooling

Oil flow of cooling pumps

Cat Version 467 l/min (123 US gal/min)
Cummins version 496 l/min (131 US gal/min)

Diameter of fan 930 mm (3 ft 1in)

- Cooling system is fully independent of all main circuits, i.e. controlled cooling capacity is available whenever engine is running
- Gear-type cooling pump supplying high volume low-pressure oil to aluminium cooler
- Variable axial piston pump supplying low-volume, high-pressure oil to fan
- Fan speed is thermostatically controlled
- Extremely high cooling efficiency to ensure optimum oil temperature

Hydraulic System with Pump Managing System

Main pumps	2 x variable swash plate pumps	
Max. oil flow		
Cat version	2 x 552 L/min (2 x 146 US gal/min)	
Cummins version	2 x 587 L/min (2 x 155 US gal/min)	
Max. pressure, attachment, travel	30 MPa = 300 bar (4,350 psi)	
Swing pump	Reversible swash plate pump	
Max. oil flow		
Cat version	287 L/min (76 US gal/min)	
Cummins version	307 L/min (81 US gal/min)	
Max. pressure, swing system	32 MPa = 320 bar (4,640 psi)	
Total volume of hydraulic oil	approx. 1 700 L (449 US gal)	
Hydraulic tank capacity	approx. 1 300 L (343 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 high engine temperature
- Pressure cut-off for main pumps

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
- Full-flow filter (10 µm) for the cooling return circuit
- Pressure filter (40 µm) for servo circuit
- Pressure filter (40 µm) for the feed pump of the closed swing circuit

Diesel Engine

Engine features

Fuel tank capacity 1 300 L (343 US gal)

- Microprocessed engine management
- Automatic rev. reduction
- Heavy-duty air filters, STRATA 1 with automatic dust evacuation
- Two-stage fuel filter, incl. water separator

Version 1 - Cat® C18 Tier 3

Make and model	Cat C18
Total rated net power ISO 3046/1	496 kW (665 HP) 1,800 min-1
Total rated net power SAE J1349	496 kW (665 HP) 1,800 min-1
Total rated gross power SAE J1995	522 kW (700 HP) 1,800 min-1
No. 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
Max. altitude without deration	1 500 m (4,900 ft) a.s.l.
Emission certification	US EPA Tier 4i Europe NRMM Tier III B

Version 2 - Cummins® QSK19 Tier 1

Make and model	Cummins QSK19
Total rated net power ISO 3046/1	453 kW (607 HP) 1,800 min-1
Total rated net power SAE J1349	453 kW (607 HP) 1,800 min-1
Total rated gross power SAE J1995	477 kW (640 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 L (1,159 in ³)
Aspiration	Turbocharged and aftercooled
Max. altitude without deration	3 100 m (10,200 ft) a.s.l.



Hydraulic Shovel—6015/6015 FS

Undercarriage

Travel speed	Max. 2.7 km/h (1.68 mph)
Max. tractive force	652 kN (66 t = 146,520 lb)
Gradability of travel drives	Max. 72 %
Track pads (each side)	48
Bottom rollers (each side)	8
Support rollers (each side)	1
Travel drives (each side)	1 planetary transmission with 1 axial piston motor
Parking brake	Wet multiple disc brake, spring applied / hydraulically released

- Rolled double-grouser track pads
- 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

Swing System

Swing Drive	Compact planetary transmission with axial piston motor
Parking Brake	Wet multiple disc brake, spring loaded/hydraulically released
Max. swing speed	Cat version 5.1 rpm Cummins version 5.4 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

Automatic Lubrication System

Capacity of grease drum	8 l (2.1 US gal)
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- Single line progressive automated lubrication system, electric motor driven and electronically controlled
- Connected to the lubrication system are the swing roller bearing with internal gearing and all pivot points of attachment, bucket and cylinders except backhoe bucket and linkage
- System failures displayed on control panel

Attachments

- Booms and sticks are torsion-resistant, welded box design of high-tensile steel with massive steel castings at pivot areas
- Booms and sticks are stress-relieved after welding
- Pressure-free lowering of boom (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:
 - Lip shrouds between teeth
 - Side edge protection
 - Heel shrouds at bottom edges
 - Special liner material covering main wear areas inside and outside of bucket
- Special wear packages for highly abrasive materials on request

Operator's Cab

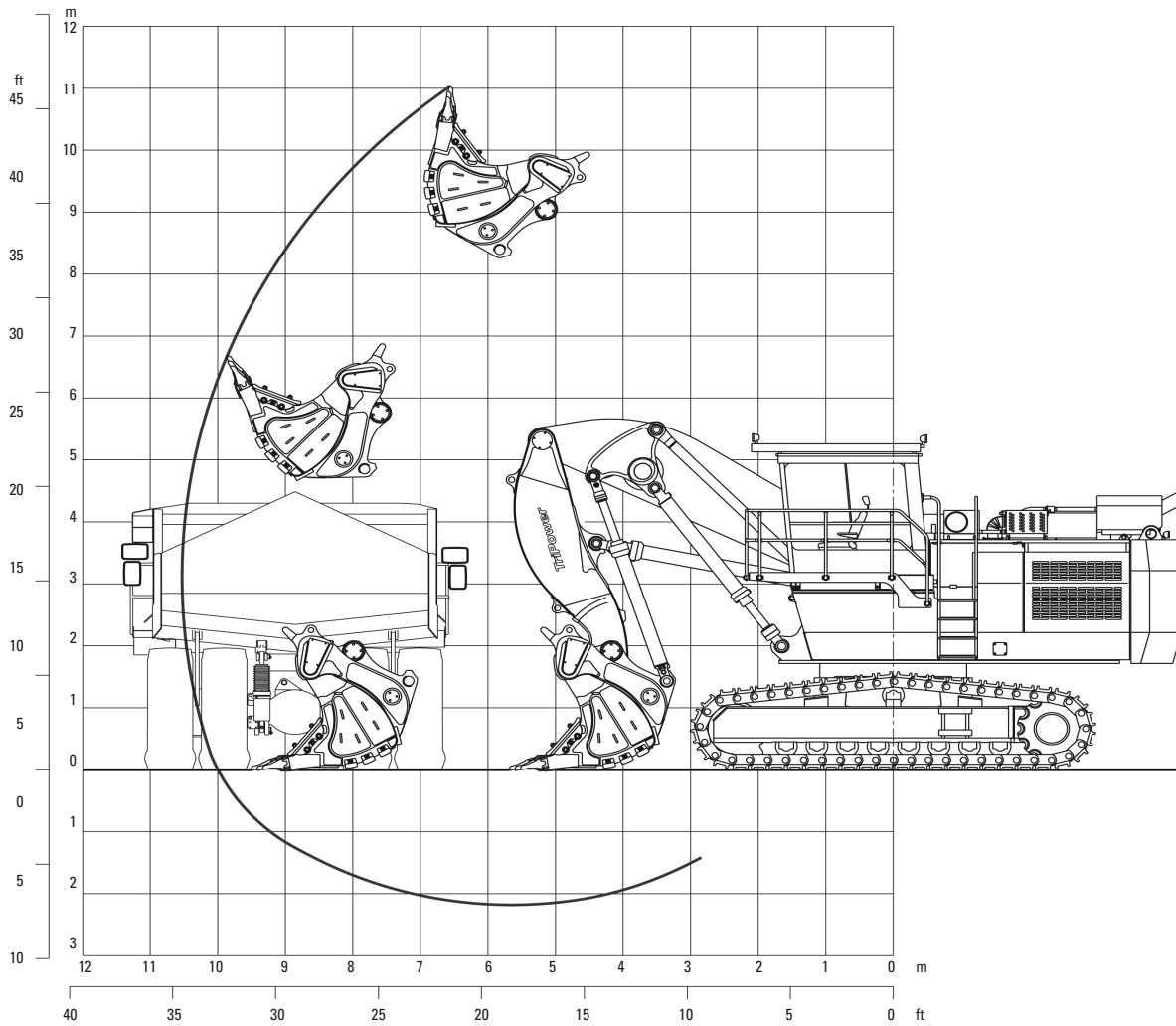
Operator's eye level	approx. 4.3 m (14 ft 1 in)	
Internal dimensions	Length	1 800 mm (5 ft 11 in)
	Width	1 300 mm (4 ft 3 in)
	Height	1 900 mm (6 ft 3 in)

- 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 incl. large and easy-to-read instruments

Hydraulic Shovel—6015/6015 FS

TriPower Face Shovel Attachment (FS)

Working Diagram - Boom 5.05 m (16 ft 7 in) - Stick 3.55 m (11 ft 8 in)



Working Range

Max. digging height	11.0 m	36 ft 1 in
Max. digging reach	10.5 m	34 ft 5 in
Max. digging depth	2.2 m	7 ft 3 in
Max. dumping height	8.8 m	28 ft 10 in
Crowd distance on level	3.9 m	12 ft 10 in

Digging Forces

Max. crowd force	650 kN	146,070 lb
Max. crowd force at ground level	480 kN	107,870 lb
Max. breakout force	490 kN	110,120 lb

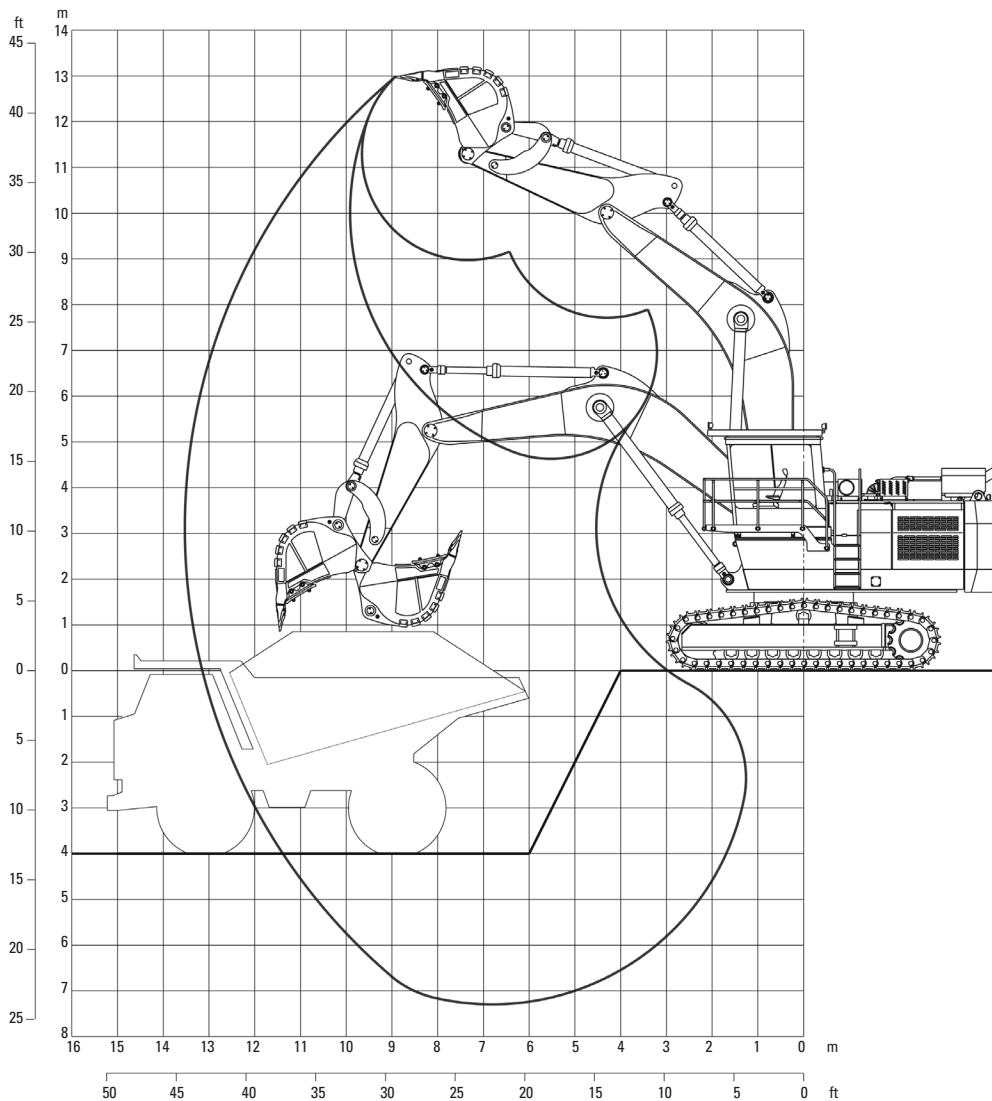
Face Shovels

Type	Heavy rock shovel	Standard rock shovel
Tooth system	ESCO V69	ESCO V69
Capacity SAE / PCSA 1:1	6.9 m ³ (9.0 yd ³)	8.1 m ³ (10.6 yd ³)
Capacity SAE / CECE 2:1≠	6.0 m³ (7.8 yd³)	7.0 m³ (9.2 yd³)
Total width	2 500 mm (8 ft 2 in)	3 000 mm (9 ft 10 in)
Inner width	2 300 mm (7 ft 7 in)	2 800 mm (9 ft 2 in)
Opening width	1 450 mm (4 ft 9 in)	1 450 mm (4 ft 9 in)
No. of teeth	5	6
Weight incl. universal wear kit	9 500 kg (20,940 lb)	10 100 kg (22,270 lb)
Max. material density (loose)	2.2 t/m ³ (3,710 lb/yd ³)	1.8 t/m ³ (3,030 lb/yd ³)

Hydraulic Shovel—6015/6015 FS

Standard Backhoe Attachment (BH)

Working Diagram - Boom 7.8 m (25 ft 7 in) - Stick 3.3 m (10 ft 10 in)



Working Range

Max. digging depth	7.3 m	23 ft 11 in
Max. digging reach	13.5 m	44 ft 3 in
Max. digging height	13.0 m	42 ft 8 in

Digging Forces

Max. crowd force	390 kN	87,640 lb
Max. breakout force	390 kN	87,640 lb

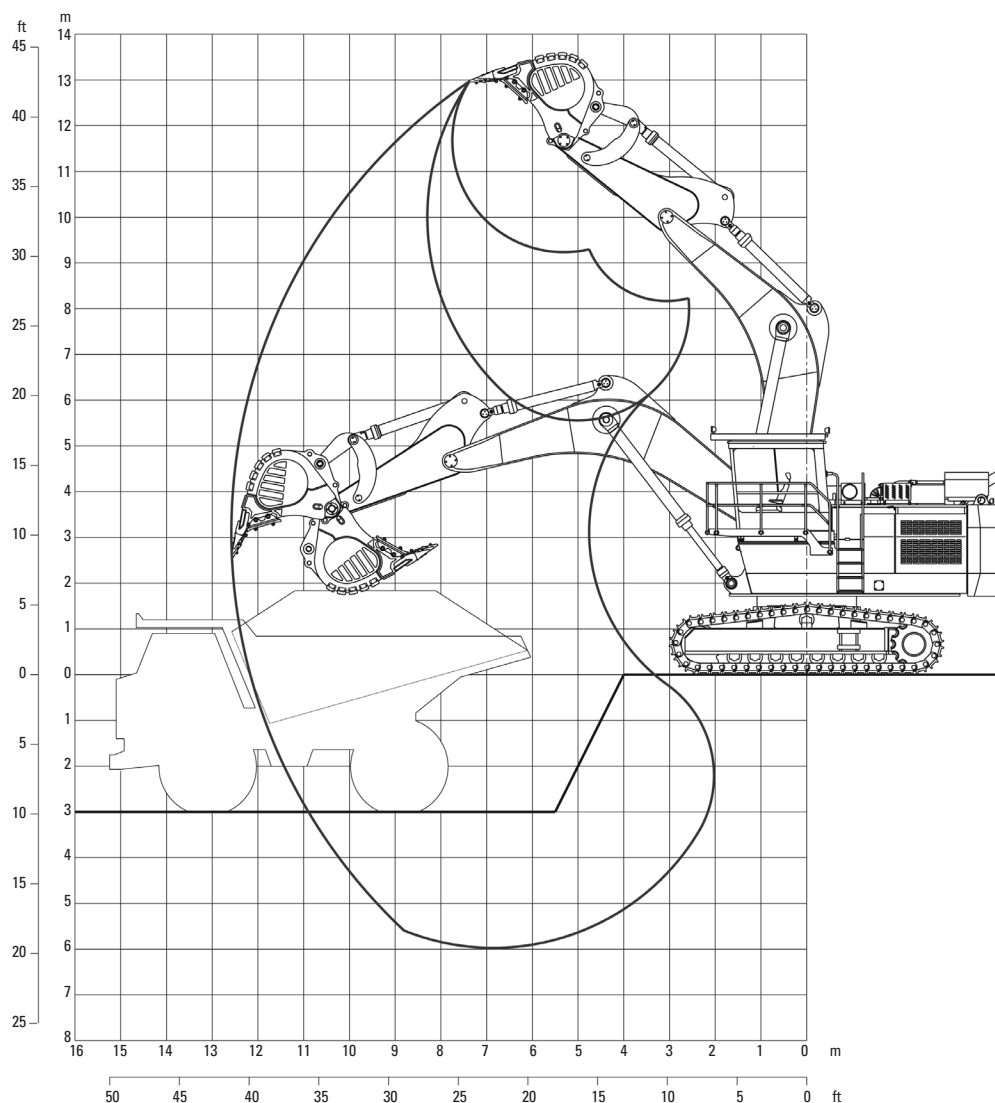
Backhoes

Type	Heavy rock bucket	Standard rock bucket	Mass excavation bucket
Tooth system	ESCO V69	ESCO V61	ESCO 65SV2
Capacity SAE 1:1	4.6 m ³ (6.0 yd ³)	6.0 m ³ (7.8 yd ³)	7.0 m ³ (9.2 yd ³)
Capacity CECE 2:1	4.1 m ³ (5.4 yd ³)	5.2 m ³ (6.8 yd ³)	6.2 m ³ (8.1 yd ³)
Capacity struck	3.6 m ³ (4.7 yd ³)	4.5 m ³ (5.9 yd ³)	5.4 m ³ (7.1 yd ³)
Total width	2 040 mm (6 ft 8 in)	2 390 mm (7 ft 10 in)	2 800 mm (9 ft 2 in)
Inner width	1 840 mm (6 ft)	2 220 mm (7 ft 3 in)	2 468 mm (8 ft 6 in)
No. of teeth	4	5	5
Weight incl. universal wear kit	6 200 kg (13 670 lb)	6 300 kg (13 890 lb)	7 750 kg (17 090 lb)
Max. material density (loose)	2.4 t/m ³ (4,050 lb/yd ³)	1.8 t/m ³ (3,030 lb/yd ³)	1.4 t/m ³ (2,360 lb/yd ³)

Hydraulic Shovel—6015/6015 FS

Mass Excavation Backhoe Attachment (BH)

Working Diagram - Boom 7.3 m (23 ft 11 in) - Stick 2.8 m (9 ft 2 in)



Working Range

Max. digging depth	6.0 m	19 ft 8 in
Max. digging reach	12.6 m	41 ft 4 in
Max. digging height	13.0 m	42 ft 8 in

Digging Forces

Max. crowd force	430 kN	96,630 lb
Max. breakout force	410 kN	92,140 lb

Backhoes

Type	Heavy rock bucket	Standard rock bucket	Mass excavation bucket
Tooth system	ESCO V69	ESCO V61	ESCO 65SV2
Capacity SAE 1:1	4.6 m³ (6.0 yd³)	6.0 m³ (7.8 yd³)	7.0 m³ (9.2 yd³)
Capacity CECE 2:1	4.1 m ³ (5.4 yd ³)	5.2 m ³ (6.8 yd ³)	6.2 m ³ (8.1 yd ³)
Capacity struck	3.6 m ³ (4.7 yd ³)	4.5 m ³ (5.9 yd ³)	5.4 m ³ (7.1 yd ³)
Total width	2 040 mm (6 ft 8 in)	2 390 mm (7 ft 10 in)	2 800 mm (9 ft 2 in)
Inner width	1 840 mm (6 ft)	2 220 mm (7 ft 3 in)	2 468 mm (8 ft 6 in)
No. of teeth	4	5	5
Weight incl. universal wear kit	6,200 kg (13,670 lb)	6,300 kg (13,890 lb)	7 750 kg (17,090 lb)
Max. material density (loose)	3.0 t/m ³ (5,060 lb/yd ³)	2.2 t/m ³ (3,710 lb/yd ³)	1.8 t/m ³ (3,030 lb/yd ³)

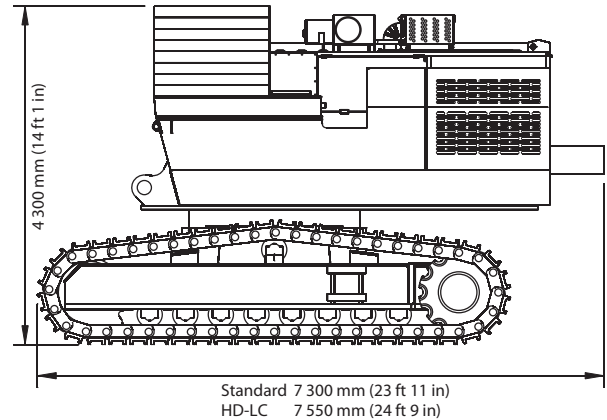
Hydraulic Shovel—6015/6015 FS

General Packing List

Basic unit with C18 engine

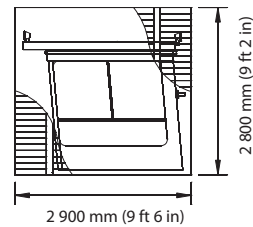
Pad width	Width	Gross weight*
With standard undercarriage		
600 mm (23.6 in)	4 550 mm (14 ft 11 in)	59 500 kg (131,170 lb)
750 mm (29.5 in)	4 550 mm (14 ft 11 in)	61 050 kg (134,590 lb)
With HD-LC undercarriage (optional)		
600 mm (23.6 in)	4,950 mm (16 ft 3 in)	67 350 kg (149,140 lb)
750 mm (29.5 in)	4,950 mm (16 ft 3 in)	68 900 kg (151,900 lb)

* Weights with QSK19 engine 300 kg / 660 lb less



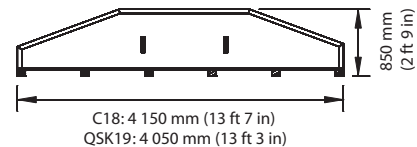
Crate with cabin and FOPS

Width 1 760 mm (5 ft 9 in) Gross weight 1 650 kg (3,640 lb)



Pallet with counterweight

Width 2 400 mm (7 ft 10 in)
 Gross weight C18: 18 000 kg (39,680 lb)
 QSK19 16 000 kg (35,270 lb)



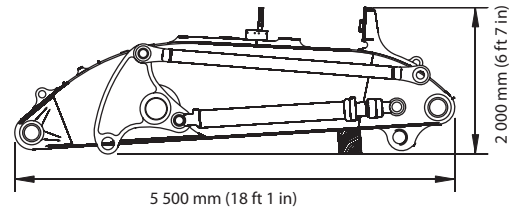
Above values are approximate. Details may vary depending on scope of supply and destination.
 Exact data subject to selected machine configuration and final packing list.

Hydraulic Shovel—6015/6015 FS

TriPower Shovel Attachment

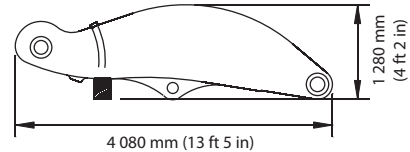
Boom with *TriPower* linkages, rods and boom cylinders

Width 1 420 mm (4 ft 8 in) Gross weight 8 650 kg (19,070 lb)



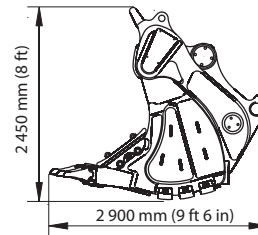
Stick

Width 1 160 mm (3 ft 10 in) Gross weight 3 300 kg (7,280 lb)



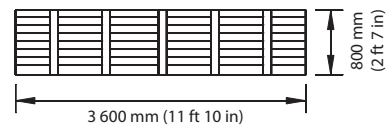
Face shovel incl. pin for stick

Capacity (2:1)	Width	Gross weight
6.0 m ³ (7.8 yd ³)	2 500 mm (8 ft 2 in)	9 700 kg (21,380 lb)
7.0 m ³ (9.2 yd ³)	3 000 mm (9 ft 10 in)	10 300 kg (22,710 lb)



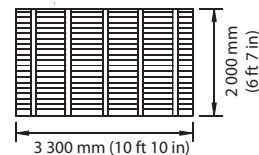
Crate with 1 stick and 2 bucket cylinders

Width 1 130 mm (3 ft 8 in) Gross weight 2 330 kg (5,140 lb)



Crate with accessories

Width 800 mm (2 ft 7 in) Gross weight 1 400 kg (3,090 lb)



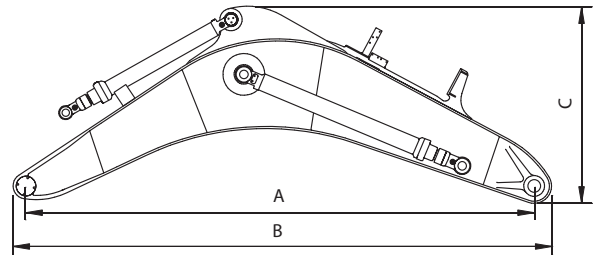
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Hydraulic Shovel—6015/6015 FS

Backhoe Attachment

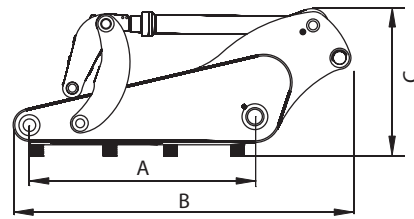
Monoboom with main valve block, boom and stick cylinders

Boom A	Length B	Width
7.3 m ³ (23 ft 11 in)	7 750 mm (25 ft 5 in)	1 580 mm (8 ft 2 in)
7.8 m ³ (25 ft 7 in)	8 250 mm (27 ft 1 in)	1 620 mm (9 ft 10 in)
Boom A	Height C	Gross weight
7.3 m ³ (23 ft 11 in)	2 900 mm (9 ft 6 in)	12 100 kg (26,680 lb)
7.8 m ³ (25 ft 7 in)	3 000 mm (9 ft 10 in)	12 600 kg (27,780 lb)



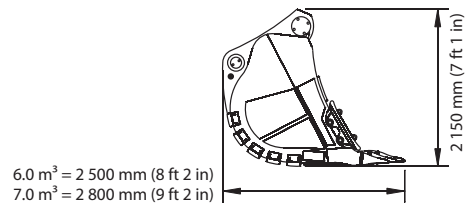
Pallet with stick, linkage and bucket cylinders

Stick A	Length B	Width
2.8 m ³ (9 ft 2 in)	4 400 mm (14 ft 5 in)	1 100 mm (3 ft 7 in)
3.3 m ³ (10 ft 10 in)	4 850 mm (15 ft 11 in)	1 100 mm (3 ft 7 in)
Stick A	Height C	Gross weight
2.8 m ³ (9 ft 2 in)	1 900 mm (6 ft 3 in)	5 000 kg (11,020 lb)
3.3 m ³ (10 ft 10 in)	1 900 mm (6 ft 3 in)	5 400 kg (11,900 lb)



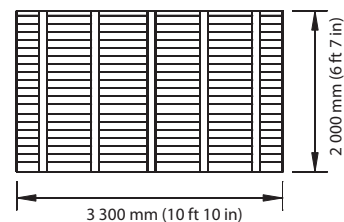
Backhoe bucket incl. pins for stick and linkage

Capacity (1:1)	Width	Gross weight
6.0 m ³ (7.8 yd ³)	2 400 mm (7 ft 10 in)	6 400 kg (14,110 lb)
7.0 m ³ (9.2 yd ³)	2 800 mm (9 ft 2 in)	6 800 kg (14,990 lb)



Crate with accessories

Width 800 mm (2 ft 7 in)	Gross weight 1 400 kg (3,090 lb)
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Hydraulic Shovel—6015/6015 FS

Optional Equipment

General

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

Superstructure

- Environmentally compatible hydraulic oil
- Xenon lighting
- High-capacity water separator
- Fast-filling connection for fuel
- Catwalk with access steps at engine module (standard on C18 version)
- Centrifuge for engine oil filtration
- Various cold-weather packages

Cab

- Radio with loudspeaker and antenna
- On roof-mounted air conditioning unit

Undercarriage

- Track pad width 500 mm, 750 mm or 900 mm
- Track guides
- HD-LC undercarriage

Attachment

- Xenon lighting on boom
- Special wear packages

Additional optional equipment available on request

Hydraulic Shovel—6015/6015 FS

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