



Cat[®] 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.

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

6018/6018 FS Hydraulic Shovel

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

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

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 transfective 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

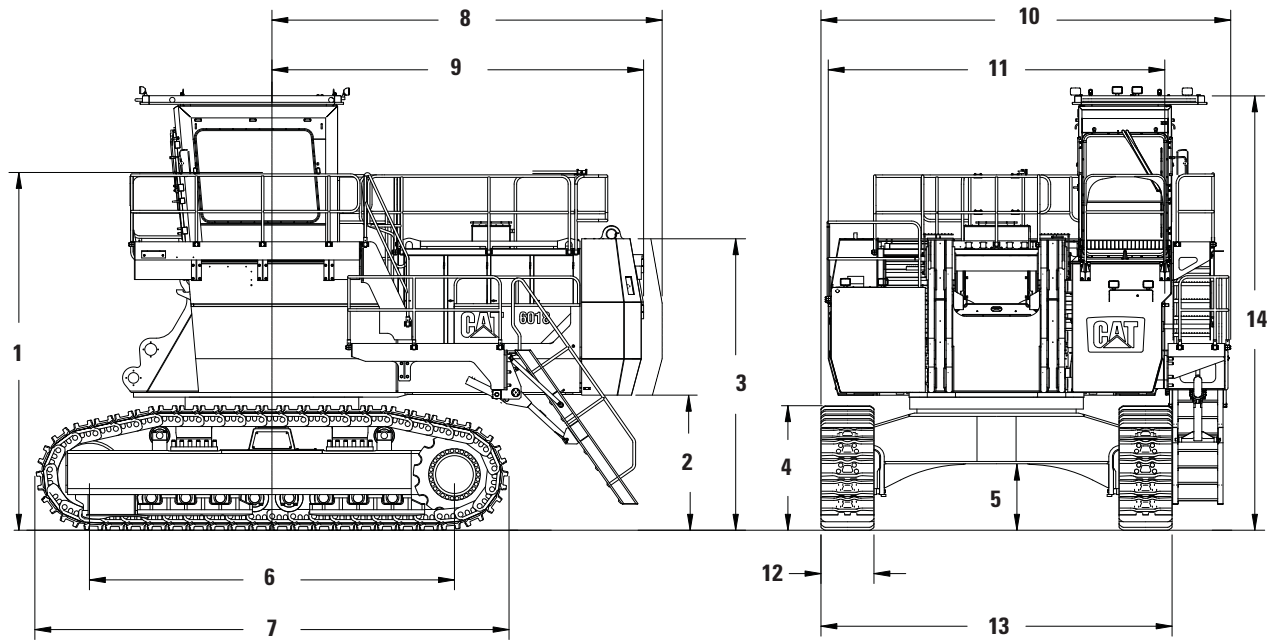
Capacity of grease barrel 200 L 53 gal

- 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



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	8	5890 mm	19 ft 4 in
2	2040 mm	6 ft 8 in	9	5610 mm	18 ft 5 ft
3	4400 mm	14 ft 5 in	10	6190 mm	20 ft 4 in
4	1880 mm	6 ft 2 in	11	5080 mm	16 ft 8 in
5	1000 mm	3 ft 3 in	12	800 mm	2 ft 7 in
6	5500 mm	18 ft 1 in	13	5300 mm	17 ft 5 in
7	7120 mm	23 ft 4 in	14	6560 mm	21 ft 6 in

OPTIONAL EQUIPMENT

GENERAL

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

SUPERSTRUCTURE

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

Additional optional equipment available on request.

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

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