

# AC ELECTRIC DRIVE DUMP TRUCK

## 120AC 120t AC Electric Drive Dump Truck



### TECHNICAL SPECIFICATION

#### VEHICLE PARAMETER



Drive Mode	4 x 2 rear axle
Empty Vehicle Weight (EVW)	90t
Rated / Nominal Payload	120t
Distribution of Axle Load	
Empty: Front Axle	46%
Rear Axle	54%
Loaded: Front Axle	34%
Rear Axle	66%
Maximum Speed	50km/h
Rated Gradeability	8%
Maximum Gradeability	20%
Braking Distance (in 30km/h)	≤ 18m

#### ENGINE



Model	QST30KTA38
Fuel	Diesel
Number of Cylinders	12
Operating Cycle	4 cycle
Displacement	30.5L/37.8L
Rated Power	(895Kw) 1,200 HP @ 2,100 rpm
Net Flywheel Power	(840 kW) 1,127 HP @ 2,100 rpm
Maximum Torque	5,086Nm@1,400rpm/4,678Nm@1,300rpm
Starting Mode	electric starting
Weight (wet)	3,555kg (7,837lb)/3,950kg (8,708lbs)
Emission	EPA Tire 2/EPA Tire 0
(Net Flywheel Power is the rated power at the engine flywheel minus the average accessory losses. Accessories include fan and charging alternator. Rating(s) represent net engine performance in accordance with ISO3046 or SAE J1995)	

#### ELECTRIC DRIVE SYSTEM



Alternator	TQFR-860-3H
Motorized Wheel	YQ-360
Rated Power	360kW
Ratio	27.3:1
Maximum Speed	50km/h

#### HYDRAULIC SYSTEM



Brake Control Cabinet	with a diagnostic interface, easy maintenance
Steering	accumulator assisted with twin double acting cylinders provide constant rate steering emergency steering supplied by accumulator automatically
Turning Circle Diameter (SAE) (According to ISO5010)	24.6m(80' 8" )
Filtration	In-line replaceable elements
Suction	full-flow, accuracy 100 μm
Hoist and Steering	In-line, high-pressure.
Hoist	two of dual-acting outboard cylinders, internal cushion valve, over-center damping
Hoist Time	
Power-up Loaded	20 sec
Power-down	6 sec
Float-down Empty	12 sec
Pumps	double pump and engine shaft, coupling connected
Hoist	Vane pump with output of 367lpm (97gpm) @ 1,900rpm pressure 17,200kPa (2,500psi)
Steering and Brake	Vane pump with output of 230lpm (61gpm) @ 1,900rpm pressure 17,200kPa (2,500psi)
System Relief Pressures	
Hoist	13,000kPa (1,885psi)
Steering and Brake	21,000kPa (3,046psi)

#### FRAME



Full welded structure of advanced high-strength low- alloyed steel with integral ROPS supports, Integral fish-bellied longitude grider with variable cross-section, gantry, rear tubular cross members, tubular tail beam with reasonable stress distribution, advanced anti-bend, torsion resistance and high liability. Applied advanced technology of welding and integral welding stress relief to improve durability of weld and prolong fatigue life.

Plate Material	600MPa 87,023psi high tensile strength steel
Rail Width	210 mm 8.27"
Rail Depth (maximum)	1,470mm 57.87"
Rail Depth (minimum)	310mm 12.2"
Top and Bottom Plate Thickness	32 mm 1.26"
Side Plate Thickness	14 mm 0.55"
Drive Axle Mounting	pin and spherical bushing
Drive Axle Alignment	swing link

## BRAKING SYSTEM ▶



System meets ISO 3450 standards

Service Brakes	hydraulic-actuated, multiple disc
Front Wheel	single disc, three calipers on a 946 mm 37.2" O.D. disc per wheel
Rear Wheel	dual disc, two calipers on a 482.6 mm 19" O.D. disc per wheel
Parking Brakes	two calipers, spring-applied, hydraulically released can hold on $\pm 15\%$ rated grade at maximum GVW
Brake Pressure (Maximum)	14,500kPa (2,103psi)
Electric Brakes (Maximum)	1,400Kw 1,877hp
Emergency Brakes	auto-applied prior to hydraulic system pressure dropping below level
Wheel Brake Locks	switch-activated

## ELECTRICAL SYSTEM ▶



Batteries	6*12 V/195Ah
Alternator	24vdt, 100amp
Lighting	24 vdt
Cranking Motors	two / 24 vdt

## SUSPENSION ▶



Hydro-pneumatic suspension, Variable rate hydro-pneumatic with rebound control.

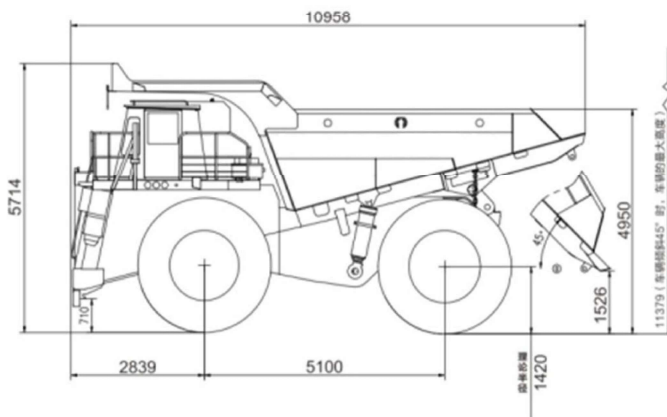
Front Stroke	314 mm 12.36"
Rear Stroke	211 mm 8.31"
Max. rear axle oscillation	$\pm 6.5^\circ$

## TIRES AND RIMS ▶



Standard Tire	30.00R51, rock service, tubeless E-4
Standard Rim	558.8mm x 1295.4mm x 114.3mm 22" x 51" x 45" standard five (5) piece rim
Optional Tire	30.00-51, rock service, tubeless E-4

## DIMENSION ▶



## BODY ▶



All-welded structure flat floor body of high-strength low-alloyed steel includes floor sheet, front sheet, side sheet, canopy. Rock ejectors for rear wheel, body up sling and mud flaps, fender, body down indicator mounts on frame are standard. Optional exhaust mode (side or rear).

Floor Sheet	20 mm 0.79" 1,400MPa 203,053 psi high strength wear steel (two-piece)
Front Sheet	12 mm 0.47" 1,400MPa 203,053 psi high strength wear steel
Side Sheet	8 mm 0.31" 1,400MPa 203,053 psi high strength wear steel
Canopy Sheet	5 mm 0.20" 800MPa 116,030 psi high strength low carbon bainitic steel
Struck (Standard)	48m <sup>3</sup> 62.8yd <sup>3</sup>
Heaped (SAE 2:1)	68m <sup>3</sup> 88.9yd <sup>3</sup> (Customized body in accordance with volume weight of material and rate loaded)

## COOLING SYSTEM ▶



Exhausting expansion type, double circulation cooling system with two pumps, four of combined fan guards

## SERVICE REFILL CAPACITY ▶

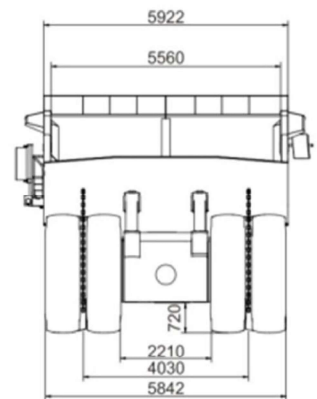
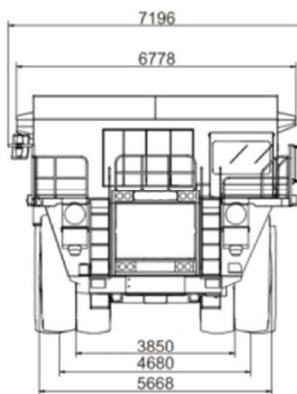


Cooling System	360 L/260L 95 U.S. gal / 68.7 U.S. gal
Crankcase	143 L/129L 37.8 U.S. gal / 34 U.S. gal
Hydraulic System	740 L 195.5 U.S. gal
Electric Wheel	2 x 19L 2 x 5 U.S. gal
Fuel Tank	1,160 L 306.4 U.S. gal

## CAB ▶



Advanced Operator Environment with integral 4-post ROPS/FOPS, anti-rollover protection device, anti-falling protection device and structure are in accordance with requirement of ISO 3471, ISO 3449 and ISO3164. Comfortable and productive environment of full closed cab with adjustable air suspension seat and steering wheel, air condition, power windows, electric wiper and VHMS.



# AC ELECTRIC DRIVE DUMP TRUCK

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### STANDARD EQUIPMENT ▶

- Air cleaners
  - Alternator (24 volt/100A)
  - Auto lubrication system - 90lbs
  - Batteries (6 x 12V / 195Ah)
  - Body over center device
  - Brakes: Front: Wheel speed disc;
  - Rear: dual disc armature speed disc
  - Electric start
  - Filters, high pressure hydraulic
  - Gate valves on hydraulic tank
  - IGBT Control Cabinet
  - Mirrors, LH flat and RH rectangular convex
  - Mud flaps
  - Muffled exhaust, right deck-mounted
  - On-board load box
  - Quick disconnects (steering and hoist)
  - Radiator sight gauge
  - Removable power module unit (engine, alternator, blower)  
Retard grids, 12 elements
  - Rock ejectors
  - Fast-Fill Fuel System (in-tank)
  - Hubodometer
- OPERATOR ENVIRONMENT AND CONTROL:**
- All-hydraulic service brakes with emergency auto apply  
Battery disconnect switch
  - Body down indicator
  - Brake lock and drive system interlock
  - Circuit breakers, 24 volt
  - Dynamic retarding with continuous rated grids
  - Engine shutdown at ground level
  - Hoist interlock
- Horns (electric, center of steering wheel)
  - Integral roll-over protection ROPS/FOPS Level 2
  - Maintenance & power lock-out
  - Parking brake with warning light and speed application protection
  - Power steering w/auto emergency steering
  - Protective deck rails
  - Pump drive guard
  - Radiator fan guard
  - Seat belts retractable
  - Skid-resistant coating on walkways
- STANDARD HIGH VISIBILITY CAB INSTRUMENTATION:**
- Alarm System warning lights
    - Charge fault
    - System fault
    - Diesel shutdown
    - Main circuit earth fault
  - Air conditioner HFC 134a
  - AM/FM radio, CD player
  - Speedometer and digital tachometer
  - Dome light
  - Engine hourmeter
  - Engine shutdown
  - Floor mat
  - Fuel gauge in cab and on tank
  - Fuel low level warning
  - Gauges (backlighted)
  - Headlight switch
  - Heater and defroster (heavy-duty)
  - High beam
  - Indicator lights (green):
    - Electric brakes
    - Service brakes
    - Parking brakes
    - Traction
  - Oil pressure gauge (engine)
  - Operator seat, adjustable w/air suspension, lumbar support and arm rests
  - Panel lighting (adjustable)
  - Passenger seat
  - Starter key switch
  - Steering system warning light and buzzer
  - Sunvisor (adjustable)
  - Tilt and telescoping steering wheel
  - Vehicle health monitoring system (VHMS)
  - Windshield (tinted)
  - Windshield wipers and washer (electric)
- LIGHTING:**
- Back-up lights (4)
  - Clearance lights
  - Control cabinet service light
  - Dynamic retarding, rear (2)
  - Headlights, LED (8)
  - Ladder lights
  - Manual back-up light, switch and indicator
  - Service light in rear axle
  - Stop and tail lights (2)
  - Turn signals, LED
  - Under-hood service lights

### OPTIONAL EQUIPMENT ▶

- (Optional equipment may change operating weight).
- Wearable board
  - XEMC Payload Weighing System-PLM
  - Fire extinguisher 9 kg 20 lb
  - Fog lights
  - Hot starts (oil, coolant, hydraulic tank)
  - Pivot exhaust (heated body)
  - PLM Scoreboard Display (RH and LH)
  - RS232 interface - PLM
  - Radiator shutters
  - Special language decals
  - Pressureless Oil device
  - Tire monitor
  - Blind Spot Detection
  - Arctic protection package (suspensions, antifreeze, anti-collision)
  - 360 surround view system
  - Remote control system
  - Charging socket for batteries



# PRODUCT FEATURES

**Brake Control System:** full hydraulic brake, brake pressure proportional actuated, with multi safety measures, low pressure alarm and automatic implementation of emergency brake, integrated control valve applied, with the features of accurate control, fast response, stable braking, safety, high reliability, convenient maintenance and high standardization.

**Steering system:** full hydraulic steering, for stable and reliable normal steering, a large capacity accumulator equipped to provide enough energy while the power failure.

**Hoist system:** dual-acting large flow hoist cylinders, double pump applied for hoist power, down speed control and anti-pulling device equipped for safe, fast and stable hoist

**Frame:** Full welded structure of advanced high-strength low-alloyed steel with integral ROPS supports, Integral fish-bellied longitude grider with variable cross-section, gantry, rear tubular cross members, tubular tail beam with reasonable stress distribution, advanced anti-bend, torsion resistance and high liability. Applied advanced technology of welding and integral welding stress relief to improve durability of weld and prolong fatigue life.

**Body:** All-welded structure flat floor body of high-strength low-alloyed steel includes floor sheet, front sheet, side sheet, canopy. Rock ejectors for rear wheel, body up sling and mud flaps, fender, body down indicator mounts on frame are standard. Optional exhaust mode (side or rear). Body can design according to volume weight of material and rated load.

**Electrical:** High reliability and intelligence. Applied AC-DC-AC electric drive control system. Rectified to DC through three-phase alternator, converted into AC with inverter, and outputted to AC traction motor of motorized wheel, which drives whole vehicle. When decelerating, the traction motor turns into a generator, which converts kinetic energy into electric energy and consumes it in the braking resistor grid to realize electric braking. Equipped vehicle management system to monitor whole vehicle, Telex system and diesel engine in real time, and provide fault warning or vehicle protection.

