

SEM
WHEEL LOADER

SEM 656F



SEM 656F payload is increased by 10%, from 5 tons to 5.5 tons. The machine design is new SEM F series styling, and the stability is improved through an extended wheelbase of 3,350 mm. An operator can work with less stress because 656F cab space increased by 20%. Moreover, there is a 15% increase in fuel tank capacity which enable for longer work hours on a single filling. The new generation 656F provides superior performance and advanced features.

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10% Productivity Boost

- Increased payload by 10%, from 5 tons to 5.5 tons.
- Improved stability through an extended wheelbase of 3,350 mm.
- Joystick/single lever pilot control and mechanical control.
- High-performance bucket with a 10% larger fill factor.
- Various work tools available, including a rock bucket, side dump bucket and more.

New SEM Signature Styling

- The new generation of SEM models feature a signature series styling tailored by the American CID team, which emphasizes toughness and visual appeal.
- Engine hood made from high-quality carbon plate molds for improved reliability and durability.
- Hood gull-wing design offers ample space for maintenance and servicing.

F Series Cab: 20% Additional Space

- The F series cab now offers 20% more space, providing useful features like 24V power, fuel gauge, visor and much more.
- Improved lighting with LED beams and work lamps for nighttime operations.
- Protective bucket leveler design safeguards tilt cylinder and its rod from damage;
- 15% increase in fuel tank capacity for extended operational hours.



1 Enhanced Reliability

- Articulated frame center design reduces workspace demand and rear tire track, decreasing fuel consumption and tire wear. Double tape bearings withstand radius and axis loads, while a longer wheelbase enhances reliability.
- Lube cap prevents dust ingress, improving reliability.
- Double-sealed pins connecting the bucket and lift arm prevent dust and water entry.
- Lubricated passage for increased pin reliability, especially in heavy-duty applications.
- New dust prevention pilot valve ensures enhanced reliability.
- End face tooth design for more reliable connections and improved torque transfer capacity.
- World class hydraulic components ensure reliability and higher efficiency.
- Optimized driveshaft layout to double the durability of the main drive shaft.
- Cooling package frame damping design for enhanced reliability on rough roads.
- Metal hose capable of withstanding high temperatures for reduced failure rates and improved reliability.
- 6-ton heavy duty axle delivers superior reliability and durability.





2

Excellent Performance

- Increased ground-level bucket rack angle for larger material loads.
- Linkage offering the same dump clearance, enabling one-side truck loading with longer dump reach.
- Auto-to-Ready function for linkage after dumped material at maximum height.
- Low-speed engine delivers better noise control, improved fuel economy and high torque.
- 5% fuel efficiency improvement with E-fan.
- Shunt tank extends the durability of equipment seals and prevents the water pump from running dry.
- Countershaft transmission for enhanced reliability, higher efficiency and easy maintenance.
- The first gear with high draw bar and second gears with high speed. These two work together for more productivity and fuel efficiency.
- Larger circulation diameter torque convertor for an improved transfer ratio and higher efficiency.
- Cat® shift cushion for smoother gear shifts.
- Hydraulic cycle time achieved to 9.3s for handling more material within same timeframe.
- Finger control pilot system make operation easier and precision.



3

Reduced Operation and Owned Cost

- Grease lube points for easy maintenance.
- Highly compatible engine parts for easier and more economical replacement.
- Cab opening at the bottom for service and repair.
- New, easily replaceable fresh air filter, requiring no special tools.
- Centralized No Engine End Frame (NEEF) lube points for ground servicing.
- 15% increase in fuel tank capacity for extended working hours.
- Separated calipers for easier disc replacement.

4

First-Class Safety

- Internal expanding drum parking brake automatically engages when air pressure falls below a set level.
- Slope switch ensures safe operation on slopes while maintaining power output.
- Certified backup alarm and frame lock bar for safety.
- Air tank with adaptor for tire charging and interior cab cleanliness.
- Soft first-step ladder to prevent damage.



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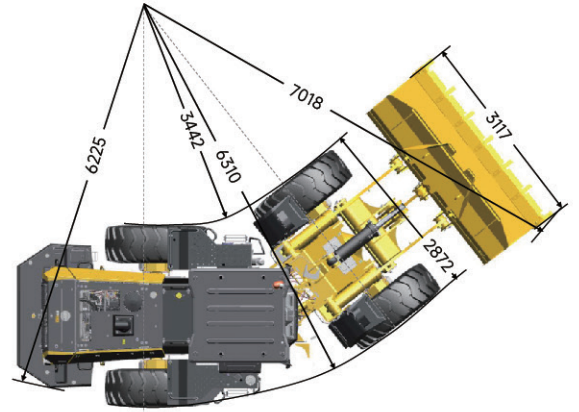
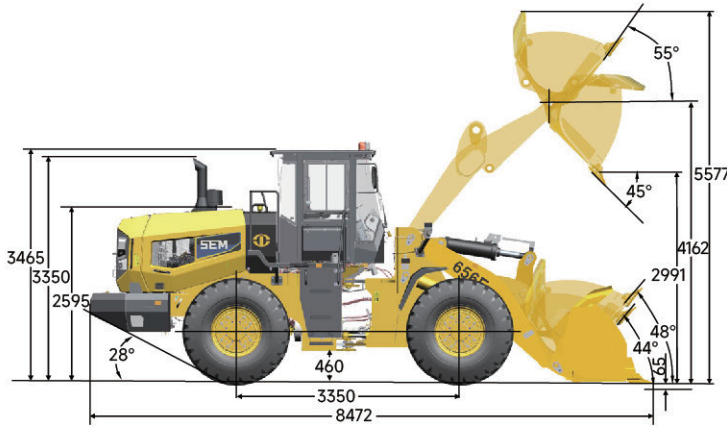
Enhanced Operating Comfort

- Step-free cab design for easy cleaning.
- Soft-trim build for a comfortable environment.
- Front-reverse slide window for easy ventilation.
- Multiple adjustable seat and steering column supports a comfortable operating environment.
- Improved front view with a rearward-opening cab door.
- Micro-pressured cab to prevent dust ingress.
- Auto Heating, Ventilation, and Air Conditioning (HVAC) for a more comfortable environment.
- Adjustable pilot armrest for reduced fatigue and enhanced comfort.

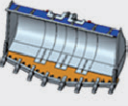
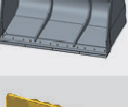
Main Specifications

Items		656F	Items		656F
Main Specifications			Engine		
Rated Load	kg	5,500	Model		WD10G220E23
Operating Weight with Standard Bucket	kg	17,385	Rated Power	kW	162
Bucket Capacity	m³	2.6-5	Rated Speed	r/min	2,000
Wheelbase	mm	3,350	Displacement	L	9.7
Overall Dimension	mm	8,472*3,117*3,465	Implement Hydraulic		
Max. Drawbar Force	kN	170	Implement System Type		Open center flow sharing
Breakout Force	kN	161	Boom Raise Time	s	5.13
Dump Clearance	mm	2,991	Hydraulic Cycle Time	s	9.3
B-Pin Height	mm	4,162	System Pressure Setting	MPa	17
Transmission			Brake System		
Transmission Type		Countershaft, power shift	Service Brake		Dry&caliper, air to oil control
Transmission Gears		F4/R4	Parking Brake		Drum/Shoe
Torque Converter Type		Single stage, 3 elements	Steering System		
Maker & Type		TR200	System Type		Load sensing
Forward I/Reverse I		7.6/7.6	Steering Pump Type		Gear pump
Forward II/Reverse II		14/14	System Pressure Setting	MPa	16
Forward III/Reverse III		22/22	Steering Angle (L/R)		38±1
Forward IV/Reverse IV		39/39	Tires		
Axle			Size		23.5-25
Main Drive Type		Spiral bevel gear, single stage	Type		Bias
Final Drive Reduction Type		Planetary type, single stage	Layer		16
Rear - Oscillating +/-		±11	Textured Type		L-3

Dimensions



WORK TOOLS

Capacity (m³)	Description	Lift Arm	Image (mm)	Dump Height (mm)	B Pin Height (mm)	Dump Reach (mm)	Work Tool W*L*H (mm)	Work Tool Weight (mm)	Note
2.5	BKTA SD 3074MM	STD		4,283	4,162	150	3,074*1,956*1,578	2,758	Side Dump, With Tips & Segment
2.6	BKTA RSP ST 3100MM	STD		2,858	4,162	1,484	3,100*1,677*1,293	1,986	Spade Nose Rock Bucket With Tips & Segment
2.7	BKTA FF ST 2963MM	STD/HL		3,102/3,447	4,162/4,468	1,332	2,963*1,496*1,245	1,332	PS Bucket With Tooth
3.5	BKTA FF ST 3200MM	SHL		3,734	4,855	1,355	3,200*1,484*1,348	1,592	Flat Floor, With Bolt-on Edges
4.1	BKTA FF ST 3180MM	STD/HL		2,917/3,272	4,162/4,468	1,435/1,414	3,180*1,759*1,376	1,796	Flat Floor, Bare, Without Tooth Or Bolt-on Edges
4.5	BKTA FF ST 3180MM	STD/HL		2,864/3,380	4,162/4,468	1,447/1,280	3,180*1,658*1,378	1,901	Coal Bucket, Flat Floor With Cutting Edge
5	BKTA FF ST 2963MM	HL		3,185	4,468	1,462	3,180*1,704*1,501	1,914	Coal Bucket, With Bolt-on Edges



COAL APPLICATION

- Available in 4.5 cum and 5 cum bucket sizes with high fill factor.

QUARRY AND AGGREGATION

- 2.7 cum rock bucket and 2.6 spade nose rock bucket for quarry applications.
- 3.5 cum bucket offers high productivity for aggregation purposes.

IRON ORE MINING

- High drawbar to support mining applications.

LOG GRAPPLE

- Corresponding log grapple.
- Crossed log grapple available.

SIDE DUMP BUCKET

- Exchangeable 2.5 cum side dump bucket.



Standard Equipment

ENGINE

- Weichai WD10 Engine EPA Tier 2 / EU Stage II engine output net 148 kW (198 hp), 6 cylinders, 4 stroke
- Mechanical direct fuel injection system
- Pre-filter with water separator
- Fuel filter
- E-fan

TRANSMISSION

- Countershaft transmission
- One stage, 3 elements torque convertor

AXLE

- SEM dry axle without limited slip differentials
- Caliper discs service brake system
- Parking brake service

HYDRAULIC SYSTEM

- Two pump flow sharing system
- Single joystick control
- Lift arm kick-out, automatic
- Bucket positioner, automatic
- Plugs for pressure check and sample oil
- Emergency lift arm lower via pilot accumulator

STEERING SYSTEM

- Load sensing system with coaxial flow amplification and steering priority

TIRE & RIM

- 23.5-25/L3 bias tire
- Normal fender with plastic plate

CHASSIS FRAME

- Spacious central articulation arrangement with conic bearing
- Articulation locking bar
- Tow hitch

LINKAGE & ATTACHMENTS

- Z-bar linkage

ELECTRIC SYSTEM

- Two front lights with high/low beam
- Two front headlights on top of cab
- Two rear headlight sides of hood
- Turn signals with flasher
- Batteries, free of maintenance
- 24V power outlet
- Electric horn
- Front windshield wiper
- Back-up alarm
- Radio/player with USB port
- Reversing warning light, automatic
- Rotating beacon

DASHBOARD

- Engine coolant temperature
- Transmission oil temperature
- Fuel level
- Hour meter
- Voltage

ALARM SYSTEM

- Intake air filter alert
- Battery charging
- Brake oil pressure
- Parking brake applied
- Power cut-off
- Turning lights
- Transmission oil pressure alarm

CAB

- Seat - mechanical suspension with seat belt
- Adjustable steering column
- Cab marco mounts
- Cab fresh air filter
- One interior & dual exterior rear-view mirrors
- HVAC

OTHERS

- Manual central lubrication

Optional Equipment

ENGINE

- Oil bath double air filter

TIRE & RIM

- Radia tire
- Desert pattern tire

CAB

- Front windshield screen
- Rear-view camera display
- Cab rear wiper and washer
- Cab top protection Guard

LINKAGE & ATTACHMENTS

- Quick coupler
- Additional counterweight
- High/Super-high linkage
- Rock bucket
- Log grapple with corresponding or crossed teeth
- Pallet fork
- Snow blade

OTHERS

- License-plate bracket and light
- Transmission protective guard
- GPS
- Hose sleeve
- Brake air drier

CONTROL

- Single level pilot control

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We are dedicated to providing a range of diversified and competitive aftermarket solutions, which encompass our Customer Service Agreement (CSA), SEM SELECT parts, service options, SEM Extended Protection (SEP) and more. Our aim is to deliver the utmost value to customers. With a global parts distribution network comprising over 20,000 types of spare parts, we assure unparalleled service and availability to SEM customers in a timely and dependable manner. Moving forward, we will continue to deliver reliable aftermarket support carefully tailored to your needs.



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