B50E Articulated Dump Truck

ENGINE
Manufacturer
Mercedes Benz (MTU)

Model
OM473LA (MTU 6R 1500)

Configuration
Inline 6, turbocharged and intercooled

Gross Power
430 kW (577 hp) @ 1,700 rpm

Net Power
405 kW (543 hp) @ 1,700 rpm

Gross Torque
2,750 Nm (2,028 lbft) @ 1,300 rpm

Displacement
15.6 liters (952 cu.in)

Auxiliary Brake
Jacobs Engine Brake®

Fuel Tank Capacity
494 liters (130 US gal)

AdBlue® Tank Capacity
40 liters (11 US gal)

Certification
OM473LA (MTU 6R 1500) meets EPA Tier 4 Final emissions regulations.

TRANSMISSION
Manufacturer
Allison

Model
4800 ORS

Configuration
Fully automatic planetary transmission

Layout
Engine mounted

Gear Layout
Constant meshing planetary gears, clutch operated

Gears
7 Forward, 1 Reverse

Clutch Type
Hydraulically operated multi-disc

Control Type
Electronic

Torque Control
Hydrodynamic with lock-up in all gears

TRANSFER CASE
Manufacturer
Kessler

Series
W2400

Layout
Remote mounted

Gear Layout
Three in-line helical gears

Output Differential
Interaxle 29/71 proportional differential. Automatic inter-axle differential lock.

AXLES
Manufacturer
Bell

Model
30T

Differential
High input controlled traction differential with spiral bevel gears.

Final Drive
Outboard heavy duty planetary on all axles

BRAKING SYSTEM
Service Brake
Dual circuit, full hydraulic actuation wet disc brakes on front, middle and rear axles. Wet brake oil is circulated through a filtration and cooling system.

Maximum brake force:
488 kN (109,707 lbf)

Park & Emergency
Spring applied, air released driveline mounted disc

Maximum brake force:
215.5 kN (48,446 lbf)

Auxiliary Brake
Automatic Jacobs Engine Brake®. Automatic retardation through electronic activation of wet brake system.

Total Retardation Power
Continuous: 546 kW (732 hp)
Maximum: 963 kW (1,291 hp)

WHEELS
Type
Radial Earthmover

Tire
875/65 R 29 (29.5 R 25 optional)

FRONT SUSPENSION
Semi-independent, leading A-frame supported by hydro-pneumatic suspension struts. Suspension is electronically controlled adaptive suspension with ride height adjustment.

REAR SUSPENSION
Pivoting walking beams with laminated rubber suspension blocks.

Option: Comfort Ride suspension walking beams, with two-stage sandwich block.

HYDRAULIC SYSTEM
Full load sensing system serving the prioritized steering, body tipping, suspension and brake functions. A ground-driven, load sensing emergency steering pump is integrated into the main system.

Pump Type
Variable displacement load sensing piston

Flow
330 L/min (87 gal/min)

Pressure
315 bar (4,569 psi)

Filter
5 microns

STEERING SYSTEM
Double acting cylinders, with ground-driven emergency steering pump.

Lock to lock turns
4.9

Steering Angle
42°

DUMPING SYSTEM
Two double-acting, single stage, dump cylinders

Raise Time
11.5 seconds

Lowering Time
6 seconds

Tipping Angle
70 deg standard, or any lower angle programmable

PNEUMATIC SYSTEM
Air drier with heater and integral unloader valve, serving park brake and auxiliary functions.

System Pressure
810 kPa (117 psi)

ELECTRICAL SYSTEM
Voltage
24 V

Battery Type
Two AGM (Absorption Glass Mat) type

Battery Capacity
2 X 75 Ah

Alternator Rating
28V 80A

MAX. VEHICLE SPEED

1st	4 km/h	2.5 mph
2nd	9 km/h	6 mph
3rd	17 km/h	11 mph
4th	23 km/h	14 mph
5th	33 km/h	21 mph
6th	44 km/h	27.3 mph
7th	51 km/h	32 mph
R	7 km/h	4 mph

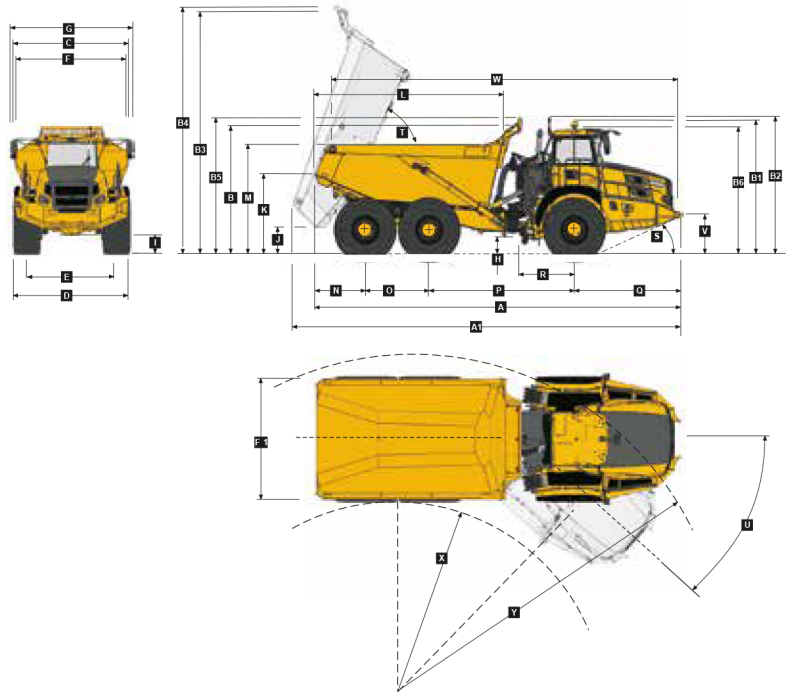
CAB
ROPS/FOPS certified 77 dBA internal sound level measured according to ISO 6396.

Load Capacity & Ground Pressure

OPERATING WEIGHTS		GROUND PRESSURE*		LOAD CAPACITY		OPTION WEIGHTS	
UNLADEN	kg (lb)	LADEN		BODY	m^3 (yd^3)		kg (lb)
Front	18,484 (40,750)	(No sinkage/Total Contact Area Method)		Struck Capacity	21.5 (28)	Bin liner	1,495 (3,296)
Middle	8,648 (19,066)	875/65 R29	kPa (Psi)	SAE 2:1 Capacity	27.5 (36)	Tailgate	1,117 (2,463)
Rear	8,543 (18,834)	Front	296 (43)	SAE 1:1 Capacity	33 (43)	29.5 R 25	
Total	35,675 (78,650)	Mid & Rear	366 (53)	SAE 2:1 Capacity		(per vehicle) Minus	1,182 (2,606)
LADEN				with Tailgate	29 (38)		
Front	24,204 (53,361)	29.5 R 25	kPa (Psi)			EXTRA WHEELSET	
Middle	28,488 (62,805)	Front	326 (47)	Rated Payload	45,400 kg	29.5 R 25	800 (1,764)
Rear	28,383 (62,574)	Mid & Rear	395 (57)		(100,090 lb)	875/65 R29	1,024 (2,258)
Total	81,075 (178,740)						

* 29.5R25 Groundpressures calculated with Michelin XADN+ Tire. 875/65 R29 Groundpressures calculated with Michelin XAD65-1 Tire.

Dimensions

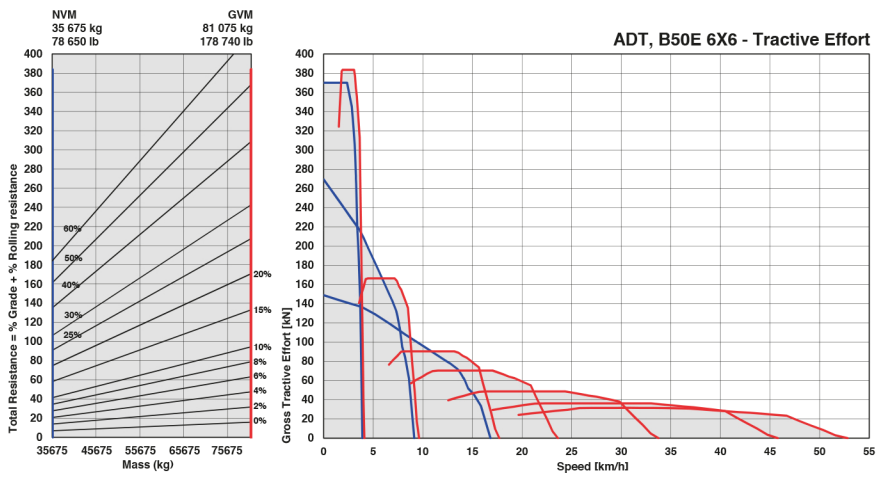


Machine Dimensions

A	Length - Transport Position with Tailgate	11,272 mm (37 ft.)
A	Length - Transport Position w/o Tailgate	11,272 mm (37 ft.)
A1	Length - Bin Fully Tipped	11,916 mm (39 ft. 1 in.)
B	Height - Transport Position w/o Rock Guard	3,822 mm (12 ft. 6 in.)
B	Height - Transport Position with Rock Guard	3,870 mm (12 ft. 8 in.)
B1	Height - Rotating Beacon	4,050 mm (13 ft. 3 in.)
B2	Height - Load Light	4,141 mm (13 ft. 7 in.)
B3	Bin Height - Fully Tipped w/o Rock Guard	7,325 mm (24 ft.)
B4	Bin Height - Fully Tipped with Rock Guard	7,430 mm (24 ft. 5 in.)
B5	Height - Rock Guard Operating Position	4,148 mm (13 ft. 7 in.)
B6	Height - Cab	3,813 mm (12 ft. 6 in.)
C	Width over Mudguards	3,790 mm (12 ft. 5 in.)
D	Width over Tires - 875/65 R29	3,832 mm (12 ft. 7 in.)
D	Width over Tires - 29.5R25	3,714 mm (12 ft. 2 in.)
E	Tire Track Width - 875/65 R29	2,949 mm (9 ft. 8 in.)
E	Tire Track Width - 29.5R25	2,952 mm (9 ft. 8 in.)
F	Width over Bin	3,735 mm (12 ft. 3 in.)
F1	Width over Tailgate	4,057 mm (13 ft. 4 in.)
G	Width over Mirrors - Operating Position	4,027 mm (13 ft. 3 in.)
H	Ground Clearance - Artic	558 mm (22 in.)
I	Ground Clearance - Front Axle	555 mm (21.9 in.)
J	Ground Clearance - Bin Fully Tipped	907 mm (35.7 in.)
K	Bin Lip Height - Transport Position	2,542 mm (8 ft. 4 in.)
L	Bin Length	5,714 mm (18 ft. 9 in.)
M	Load over Height	3,390 mm (11 ft. 1 in.)
N	Rear Axle Center to Bin Rear	1,533 mm (5 ft.)
O	Mid Axle Center to Rear Axle Center	1,950 mm (6 ft. 5 in.)
P	Mid Axle Center to Front Axle Center	4,438 mm (14 ft. 7 in.)
Q	Front Axle Center to Machine Front	3,351 mm (11 ft.)
R	Front Axle Center to Artic Center	1,558 mm (5 ft. 1 in.)
S	Approach Angle	23 °
T	Maximum Bin Tip Angle	70 °
U	Maximum Articulation Angle	42 °
V	Front Tie Down Height	1,269 mm (4 ft. 2 in.)
W	Machine Lifting Centers	10,632 mm (34 ft. 11 in.)
X	Inner Turning Circle Radius - 875/65R29	4,694 mm (15 ft. 5 in.)
X	Inner Turning Circle Radius - 29.5R25	4,753 mm (15 ft. 7 in.)
Y	Outer Turning Circle Radius - 875/65R29	9,408 mm (30 ft. 10 in.)
Y	Outer Turning Circle Radius - 29.5R25	9,349 mm (30 ft. 8 in.)

Grade Ability/Rimpull

1. Determine tractive resistance by finding intersection of vehicle mass line and grade line. NOTE: 2% typical rolling resistance is already assumed in chart and grade line.
2. From this intersection, move straight right across charts until line intersects rimpull curve.
3. Read down from this point to determine maximum speed attained at that tractive resistance.



Retardation

1. Determine retardation force required by finding intersection of vehicle mass line.
2. From this intersection, move straight right across charts until line intersects the curve. NOTE: 2% typical rolling resistance is already assumed in chart.
3. Read down from this point to determine maximum speed.