Åkerman EW230B

- ***Engine Power:***
  122 kW (166 hp)
- ***Operating Weight:***
  20,0 t
- ***Buckets:***
  700 – 1 300 l
- *Direct injection, turbocharged Volvo diesel engine*
- *Åkerman three-circuit multilevel priority hydraulic system*
- *COS = Capacity Optimized System – all three pumps for the digging movements. Mode Selector and electronically controlled pump regulation (SSC = Speed Sensing Control)*
  - *Comfort cab*
    - *computerized control and warning system*
    - *ergonomic environment*
    - *low sound level*
    - *filtered air*
- *Digging and breakout forces for tough conditions*
- *Highest flexibility for extra equipment/hydraulics*
- *Four travel speeds – max. 30 km/h*
- *Individually operated outriggers and dozer-blade*
- *Heavy duty equipment with spherical bearings*

ENGINE

The engine is a turbocharged, 4-stroke diesel engine with water cooling and direct injection.

Make			Volvo
Model			TD 61 GE
Net output at	r/s	(r/min)	35 (2100)
ISO 3046 / DIN 6271*	kW	(hp)	122 (166)
No. of cylinders			6
Displacement, total	l		5,48
Bore	mm		98,43
Stroke	mm		120

* Fan excluded

ELECTRIC SYSTEM

Micro processor for monitoring of engine/ hydraulic system. High capacity and well protected electric system. Printed circuit board based electric central with clearly arranged fuses and relays. Central prepared for connection optional equipment. Battery disconnector standard.

Voltage	V	24
A.C. Generator	V/A	28/55
Battery	V	4 x 12
Battery capacity	Ah	120
Alternator rating	W	1540

SLEWING SYSTEM

The superstructure is slewed by an axial piston motor through a servo released slew brake, into the two-step slew gear giving torque to the inner tooth race of the slew ring. The entire slew ring runs in a dust protected oil bath.

Slew, start to stop*		
90° turn	s	6,2
180° turn	s	8,2

* *Empty bucket and extended equipment.*

BRAKES

Brake system corresponds to ISO 3450.
Service brakes consist of a 2-circuit oil servo system with drum brakes on each axle.
Parking brake of drum type mounted on the gearbox. It is activated by spring power and servo released.
Digging brake without play is obtained through the same drum brake system.
Security system: The 2-circuit travel brakes are supplied with two accumulators in the event of failure in the service brake system.

UNDERCARRIAGE

Drive Train: One big variable piston motor on the mid-mounted two-step gearbox gives power to front and rear axles, both with hub reductions.

Framework and supports: All-welded robust torsion box frame with two outriggers on rear end and a dozer blade on the front end. These 3 supports can by choice be operated separately or simultaneously for quick re-positioning.

Wheels: Alternative single and twin wheels available.

Front axle: Oscillating ±8°.

Twin wheels, standard		10.00 - 20 PR16
Max tractive force	kN	148
Travel speed, road travel	km/h	0 - 30
Travel speed, site travel	km/h	0 - 8
Turning radius, front wheels	m	8,0

CAB

Operator's cab with a supporting frame structure. Large panes for all round good visibility. The upper front pane can be pushed up in the ceiling, and the lower one can be removed. Sliding window in the cab door.

Heater and defroster: Pressurized and filtered cab. A 3-speed fan provides efficient heating and defrosting through 14 outlets. Prepared for Air Conditioning.

Operator's seat: Adjustable suspension operator's seat with heating coils, headrest and individually adjustable armrests and hand controls.

Sound level: Approved according to 86/662/EEC.

Surroundings (ISO 6393)		
L_{wA} (acoustic power)	dB(A)	108
Inside the cab (ISO 6394)		
with the door closed		
L_{pA} (acoustic pressure)	dB(A)	76

SERVICE REFILL CAPACITIES

Fuel tank	l	340
Fuel pump capacity	l/min	90
Hydraulic system, total	l	400
Diesel engine	l	22
Cooling system (incl. glycol)	l	32
Slew ring	l	35
Travel gearbox	l	5

HYDRAULIC SYSTEM

Åkerman 3-circuit multilevel priority system all-servo controlled.

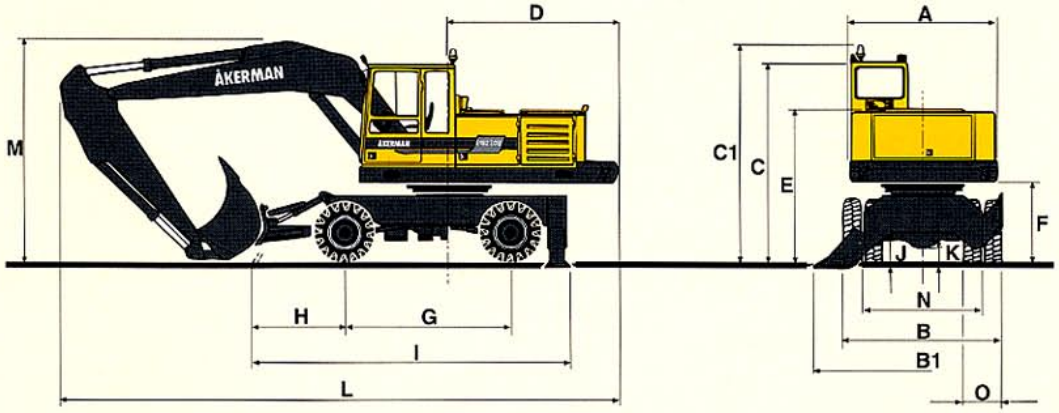
Pumps: P1 is a pressure controlled variable pump with priority to slew circuit. P2 and P3 are power and pressure controlled variable pumps with opposite cross flow priority to boom, bucket and arm.

Mode selector: Three working modes:
HLD = Heavy Lift Device
ECO = Economy
CAP = Capacity.
Powerboost temporarily selectable 10 sec. even in Economy and Capacity mode. Electronically controlled pump regulation for highest power output.

Valve system: Boom, arm and bucket are operated by dual main valves to obtain best combination of precision manoeuvrability and minimized fuel consumption. Boom cylinder equipped with floating position valve for improved comfort and increased digging speed. Security hose rupture valve on the boom cylinder.

Pump P1		
Max. pressure	MPa	26
Max. flow	l/min	88
Pumps P2 and P3		
Max. pressure	MPa	28
Power boost	MPa	32
Max. flow	l/min	2 x 142
Servo pump		
Pressure	MPa	6,5
Flow	l/min	28
Steering pump		
Pressure	MPa	14
Flow	l/min	34

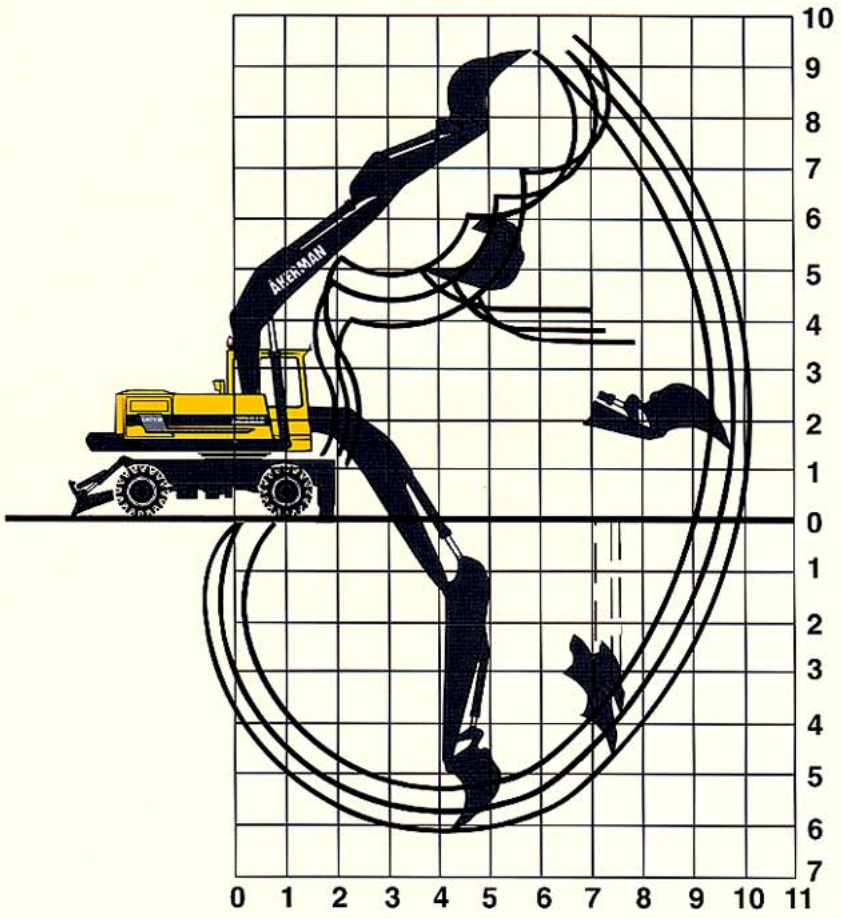
DIMENSIONS



A:	mm	2490	
B:	mm	2470	*(2580 mm with widening rings)*
B1:	mm	3330	*(3350 mm with articulated plate)*
C:	mm	3260	
C1:	mm	3530	
D:	mm	2870	
E:	mm	2460	
F:	mm	1270	
G:	mm	2780	
H:	mm	1170	
I:	mm	4990	

J:	mm	400	
K:	mm	330	
L:	mm	9200	*(2,25 m arm)*
L:	mm	9100	*(2,80 m arm)*
L:	mm	9000	*(3,30 m arm)*
M:	mm	3900	*(2,25 m arm)*
M:	mm	4200	*(2,80 m arm)*
M:	mm	4500	*(3,30 m arm)*
N:	mm	1900	
O:	mm	600	

WORKING RANGES



Boom	**m**	**5,2**	**5,2**	**5,2**
Arm	**m**	**2,25**	**2,8**	**3,3**
Max reach	m	9,4	9,8	10,2
Max. reach at ground level	m	9,1	9,5	9,9
Max. digging depth	m	5,4	5,8	6,2
Max. height, ground – tooth tip	m	9,2	9,2	9,5
Max. dumping height	m	6,1	6,3	6,8
Max. practical dumping height	m	4,0	3,8	3,7
Practical digging depth at a repose of material of 45°	m	4,5	4,8	5,1
Max. vertical digging depth	m	3,9	3,9	4,6
Min. slewing radius in front	m	4,1	4,1	4,2

DIGGING FORCE

Bucket digging force*	kN	177
Dipper arm force*	kN	125

** Std. HD-bucket, 900 l SAE and 2,25 m dipper arm.*

BUCKET AND ARM COMBINATIONS

BUCKETS for quickfit	Volume SAE l	Cutting width mm	Weight kg	Suitable for arm 2,25 m	2,8 m	3,3 m
Heavy Duty 1,8 t/m³	825	980	630	•	•	•
	900	1050	760	•	•	
	1000	1050	850	•		
Light material 1,5 t/m³	1100	1250	620	•	•	
	1300	1250	835	•		
Articulated slope bucket	700	1600	840	•	•	•
	800	1800	880	•	•	
Ditch cleaning	800	1800	590	•	•	•
Cable bucket	280	550	385	•	•	•

WEIGHT AND AXLE LOAD

Machine with 5,2 m boom, 2,25 m dipper arm, quickfit, 1 000 l bucket and counterweight 3 000 kg.

Total machine weight (incl. dozer blade)	kg	20 000
Axle load (incl. dozer blade)		
Front axle	kg	9 200
Rear axle	kg	10 800

LIFTING CAPACITIES

In the quickfit lifting hook without bucket. Unit: 1 000 kg.

Across carriage / Along carriage

Lifting hook related to ground level	Reach from machine center — u = support up — d = support down																				
	4,5 m				6,0 m				7,5 m				9,0 m				Max. reach				
	u	d	u	d	u	d	u	d	u	d	u	d	u	d	u	d	u	d	u	d	Max. m
5,20 m boom 2,25 m arm Quickfit Outriggers and dozerblade																					
7,5 m					3,1*	4,6*	3,4	4,6*									3,0	3,8*	3,3	3,8*	6,1
6,0 m					3,0	4,7	3,3	4,8									2,1	3,4	2,4	3,9*	7,3
4,5 m	4,2	6,5*	4,6	6,5*	2,8	4,5	3,1	5,5*	1,9	3,1	2,2	4,3					1,7	2,8	1,9	3,9	8,0
3,0 m	3,7	6,2	4,2	8,4*	2,6	4,2	2,9	5,8	1,8	3,0	2,1	4,2					1,5	2,5	1,7	3,5*	8,4
1,5 m	3,4	5,9	3,8	8,6	2,3	3,9	2,6	5,6	1,7	2,9	1,9	4,1					1,4	2,5	1,7	3,4	8,4
0,0 m	3,3	5,8	3,8	8,5	2,2	3,8	2,5	5,4	1,7	2,8	1,9	4,0					1,5	2,6	1,7	3,6	8,1
-1,5 m	3,3	5,8	3,8	8,5	2,2	3,8	2,5	5,4	1,7	2,8	1,9	4,0					1,7	2,8	1,9	4,0	7,5
-3,0 m	3,5	5,9	3,9	8,2*	2,3	3,9	2,6	5,6									2,2	3,6	2,5	5,1	6,4
5,20 m boom 2,80 m arm Quickfit Outriggers and dozerblade																					
6,0 m									2,0	3,3	2,3	4,3*					1,8	2,6*	2,0	2,6*	7,9
4,5 m					2,9	4,5	3,2	4,9*	1,9	3,1	2,2	4,3					1,5	2,5	1,7	3,0*	8,5
3,0 m	3,8	6,4	4,3	7,5*	2,6	4,2	2,9	5,8*	1,8	3,0	2,0	4,2					1,3	2,3	1,5	2,5*	8,9
1,5 m	3,4	5,9	3,8	8,6	2,3	3,9	2,6	5,5	1,7	2,8	1,9	4,0					1,3	2,2	1,5	2,9*	8,9
0,0 m	3,2	5,7	3,7	8,4	2,2	3,7	2,5	5,4	1,6	2,7	1,8	3,9					1,3	2,3	1,5	3,2	8,6
-1,5 m	3,2	5,7	3,6	8,4	2,1	3,7	2,4	5,3	1,6	2,7	1,8	3,9					1,4	2,5	1,7	3,6	8,0
-3,0 m	3,3	5,8	3,7	8,5	2,2	3,8	2,5	5,4									1,8	3,1	2,1	4,4	7,0
5,20 m boom 3,30 m arm Quickfit Outriggers and dozerblade																					
6,0 m									2,1	3,3	2,3	3,9*					1,6	2,7	1,8	3,1*	8,4
4,5 m									2,0	3,2	2,2	4,2*	1,3	2,3	1,5	3,2*	1,3	2,2	1,5	2,6*	9,1
3,0 m	4,0	6,6	4,5	6,7*	2,6	4,3	2,9	5,4*	1,8	3,0	2,1	4,2	1,3	2,2	1,5	3,1	1,2	2,0	1,4	2,7*	9,4
1,5 m	3,5	6,0	3,9	8,8	2,4	4,0	2,7	5,6	1,7	2,8	1,9	4,0	1,2	2,1	1,4	3,0	1,1	2,0	1,3	2,8	9,4
0,0 m	3,2	5,7	3,7	8,4	2,2	3,8	2,5	5,4	1,6	2,7	1,8	3,9	1,2	2,1	1,4	3,0	1,1	2,0	1,3	2,8*	9,2
-1,5 m	3,2	5,6	3,6	8,4	2,1	3,7	2,4	5,3	1,5	2,7	1,7	3,8					1,2	2,2	1,4	3,2	8,6
-3,0 m	3,2	5,7	3,6	8,4	2,1	3,7	2,4	5,3	1,6	2,7	1,8	3,9					1,5	2,6	1,7	3,8	7,7
-4,5 m	3,4	5,9	3,8	7,2*	2,3	3,9	2,6	5,0*									2,2	3,8	2,5	4,8*	6,1

* ***Limited by hydraulic lifting capacity.***
The above loads are in compliance with ISO standard 10567. They do not exceed 87% of hydraulic lifting capacity or 75 % of tipping load, with the machine on firm, level ground.
Working pressure with HLD = 32 MPa (320 bar)

STANDARD EQUIPMENT

Engine and Electrical System
Computer controlled monitoring system
Battery disconnector and main fuel tap
Automatic idling speed (Fuel-miser)
Air filter with indicator
Hour meter
Electric preheating element
Revs counter
Fuel meter
Temperature meter for cooling fluid and hydraulic oil
24 volt electrical system with 4 standard batteries
Cranked exhaust pipe

Undercarriage
Slew ring in oil bath
Twin wheels 10.00 – 20 PR16
4-wheel drive
Dozer blade in front and two outriggers rear
Oscillating front axle ±8°
Axles with hub reduction
2-circuit travel brakes

Superstructure
Counterweight 3000 kg

Safety and Comfort
Safety bar for control levers
Hose rupture valve on boom cyl.
Hydraulic refuelling pump, 90 l/min
Over load indicator
Lights:
- headlights, full and dipped beam asymmetrical, halogen
- Brakelights
- Rear lights
- Direction indicators
- Rotating beacon
- Hazard flashers
- 3 working lights, front, halogen
- 1 working light, rear, halogen

Instrument lighting
Illuminated cab, engine compartment and fuel filling compartment
Rear view mirrors: 4 exterior, 1 interior
Cab heating with 14 outlets
Ergonomically designed and adjustable operator's seat, with heating coils
Adjustable steering wheel
Filtered air intake
Cab skylight
Sliding window in the cab door
Emergency exit through rear window
Tinted windows (clear front)
Internal sunvisor
Double intermittent windscreen wipers
Windscreen washers
Compressor horn
Radio console

Hydraulics
Float position on boom
Three variable axial piston working pumps
Mode selector, 3 steps
Power boost
Dual main valve for the travel and equipment functions
Standard filter cartridges for return, leak oil and respiration filter systems
Swing-out oil cooler
Hydraulic equipment for quickfit

Equipment
5,2 m monobloc boom
2,25 m dipper arm
Hydraulic quickfit
End dampening on all cylinders
Spherical link bearings in all connections
Security lifting hook
Friction welded piston rod eyes

OPTIONAL EQUIPMENT *(Standard on certain markets)*

Engine and Electrical System
Electric over speed protector
Volvo diesel driven engine and cab heater, with digital timer
Immersion heater, 220 V
Precyclone with exhaust ejector

Undercarriage
Twin wheels
- 11.00 – 20 PR16
- 12.00 – 20 PR16

Single tyres
Solid tyres
Mud guards
Stone protection rings
Widening rings 2 x 50 mm
Oscillating outriggers plates
Tool box
Tow hook

Safety and Comfort
Protective grid for front pane/roof pane
Fire extinguisher
Seat belts
Protection against overfilling fuel
Extra circulation pump for the heating system
Extra hose rupture valve on dipper arm/bucket cylinders
Exterior glare shields
Rear window jalousie
Air conditioning
Micro filter for the cab
Radio and cassette player
Cruise controller

Hydraulics
Biologically degradable oil
Hydraulic equipment for:
- slope bucket
- grab
- hydraulic hammer
- roto-tilt
- jib
- crusher
- shears
- magnet

Installation of a 4th working pump

Equipment
2,8 m and 3,3 m dipper arm
Extra headlights on the boom

Volvo Construction Equipment

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