Åkerman EW230

- ***Engine Power:***
  122 kW (166 hp)
- ***Operating Weight:***
  18,9 t
- ***Buckets:***
  300 – 1300 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)
- *New 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*
- *Permanent 4-wheel drive*
- *Four travel speeds – max. 30 km/h*
- *Individually operated outriggers and dozer blade*

ÅKERMAN

ENGINE

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

Make		Volvo	
Model		TD 61 ACE	
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	

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	4x12
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	4,6
180° turn	s	6,5

* *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 is of drum type and 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 any 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 axle, 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	115
Travel speed, road travel	km/h	0 - 30
Travel speed, site travel	km/h	0 - 8
Turning radius, front wheels	m	8,0

CAB

Tested cab structure according to FOPS ISO 3471. 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 efficent heating and defrosting through 14 outlets. Prepared for Air Conditioning.

Operator's seat: Adjustable suspension operator's seat with 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)	105
Inside the cab (ISO 6394)		
with the door closed		
L_{pA} (acoustic pressure)	dB(A)	75

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.

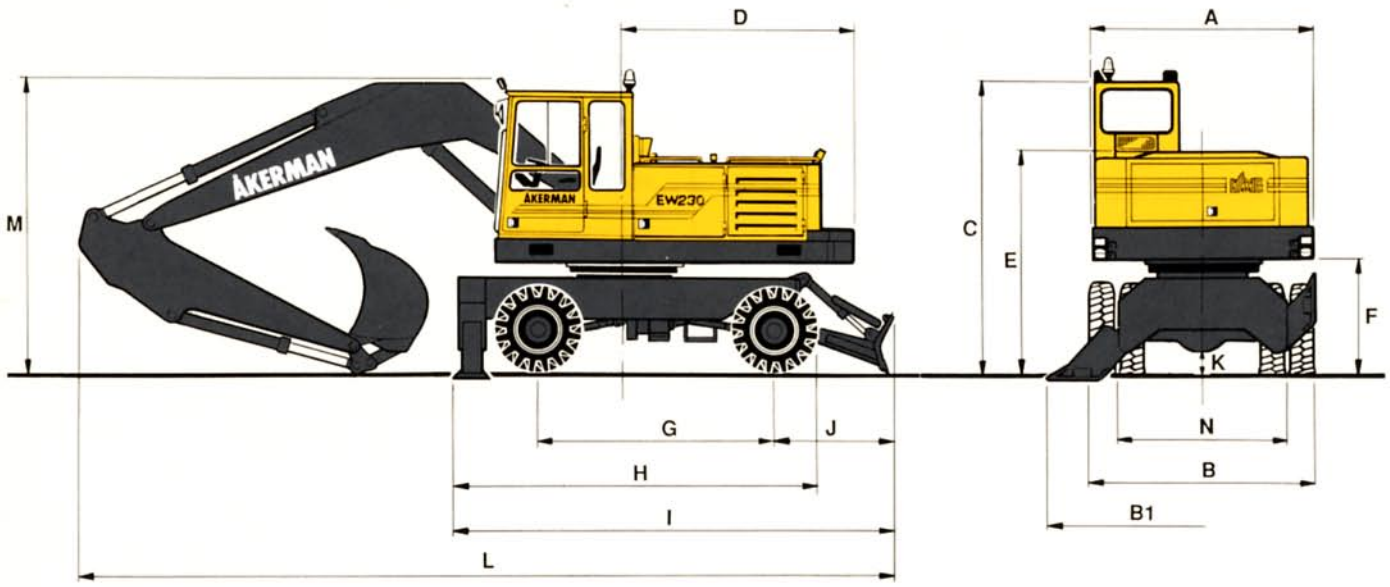
Pumps: P1 is a pressure controlled variable pump with priority to slew circuit. P2 and P3 are power and pressure controlled variable pumps with opposite cross flow priority to boom, bucket and arm.

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.

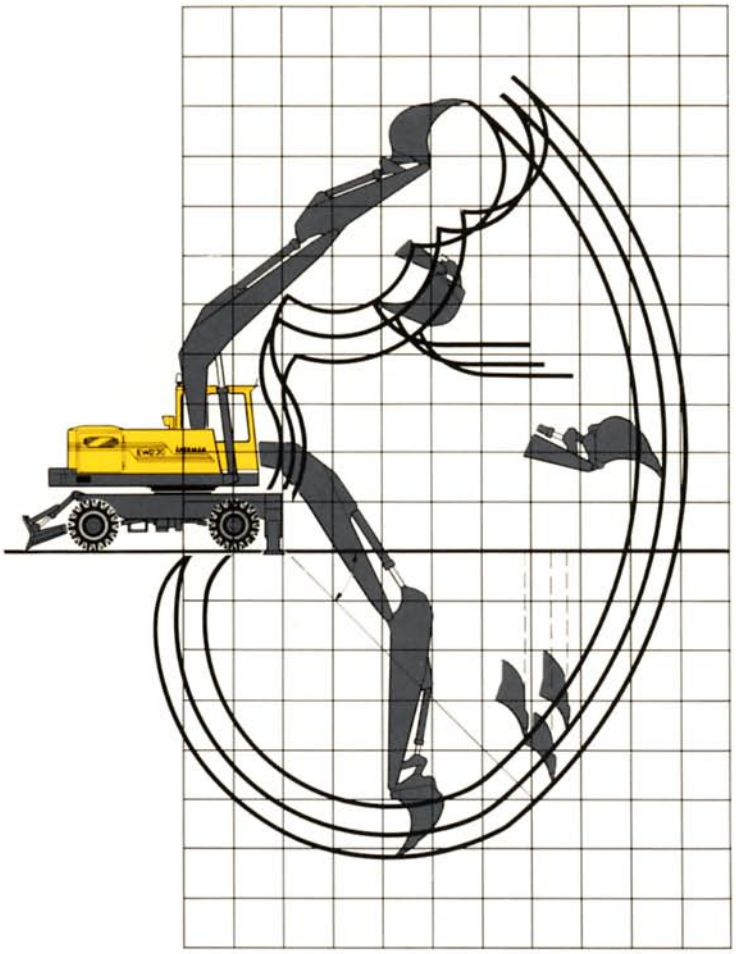
Pump P1		
Max. pressure	MPa	26
Max. flow	l/min	88
Pumps P2 and P3		
Max. pressure	MPa	26
Power boost	MPa	30
Max. flow	l/min	2x142
Servo pump		
Pressure	MPa	6,5
Flow	l/min	21
Steering pump		
Pressure	MPa	14
Flow	l/min	38

DIMENSIONS



A:	mm	2490	I:	mm	4990
B:	mm	2470	J:	mm	1170
B1:	mm	3330	K:	mm	400
C:	mm	3260	L:	mm	9500 *(2,25 m arm)*
D:	mm	2680	L:	mm	9500 *(2,80 m arm)*
E:	mm	2460	L:	mm	9600 *(3,30 m arm)*
F:	mm	1270	M:	mm	3380 *(2,25 m arm)*
G:	mm	2780	M:	mm	3390 *(2,80 m arm)*
H:	mm	4340	M:	mm	3900 *(3,30 m arm)*
			N:	mm	1900

WORKING RANGES



Arm	**m**	**2,25**	**2,80**	**3,30**
Max reach	m	9,2	9,7	10,1
Max. reach at ground level	m	8,9	9,5	9,9
Max. digging depth	m	5,2	5,7	6,2
Max. height, ground – tooth tip	m	9,0	9,2	9,5
Max. dumping height	m	6,3	6,4	6,8
Max. practical dumping height	m	4,2	3,7	3,6
Practical digging depth at a repose of material of 45°	m	4,4	4,8	5,1
Max. vertical digging depth	m	3,9	3,7	4,6
Min. slewing radius in front	m	4,1	4,1	4,2

DIGGING FORCE

Bucket digging force*	kN	166
Dipper arm force*	kN	118

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

BUCKET AND ARM COMBINATIONS

BUCKETS	Volume SAE l	Cutting width mm	Weight kg	Fitting *	Suitable for arm 2,25 m	2,80 m	3,30 m
Heavy Duty 2 t/m³	750	980	600	QF	•	•	•
	825	980	630	QF	•	•	
	900	1050	760	QF	•		
	900	1050	760	Std.	•		
Light material 1,5 t/m³	900	1125	585	QF	•	•	•
Articulated slope bucket	700	1600	840	QF	•	•	•
	800	1800	880	QF	•	•	
Ditch cleaning	700	1600	550	QF	•	•	•
	800	1800	590	QF	•	•	•
Cable bucket	280	550	385	QF	•	•	•

** Std. = Direct fitting* *QF = Quickfit*

WEIGHT AND AXLE LOAD

Standard machine, 2,25 m dipper arm, 900 l bucket and counterweight 2100 kg.

Total machine weight (incl. dozer blade)	kg	18 900
Axle load (incl. dozer blade)		
Front axle	kg	9 100
Rear axle	kg	9 800

STABILITY AND LIFTING CAPACITIES

In the quick fit lifting hook without bucket. Unit: 1000 kg.

Across carriage / Along carriage	Lifting hook related to ground level	Reach from machine centre														Max. reach					
		4,5 m				6,0 m				7,5 m				9,0 m							
																					Max. m
5,20 m boom	7,5 m					5,42	4,93	8,33	4,93							5,25	4,82	8,08	4,82		6,1
2,25 m arm	6,0 m					5,26	4,62	8,10	4,62							3,76	4,74	5,85	4,74		7,3
Quickfit	4,5 m	7,62	6,21	12,2	6,21	5,00	5,26	7,77	5,26	3,48	4,83	5,46	4,83			3,10	4,76	4,91	4,76		8,0
Support down	3,0 m	6,94	8,08	11,4	8,08	4,62	6,06	7,33	6,06	3,31	5,17	5,25	5,17			2,76	4,42	4,43	4,42		8,4
	1,5 m	6,47	9,54	10,9	9,54	4,32	6,75	7,00	6,75	3,15	5,52	5,08	5,52			2,67	4,99	4,33	4,99		8,4
	0,0 m	6,39	9,91	10,8	9,91	4,17	7,16	6,83	7,16	3,06	5,62	4,98	5,62			2,77	5,15	4,51	5,15		8,1
	−1,5 m	6,41	9,40	10,8	9,40	4,15	6,95	6,82	6,95	3,11	5,21	5,04	5.21			3,11	5,21	5,04	5,21		7,5
	−3,0 m	6,55	7,87	10,9	7,87	4,33	5,70	7,02	5,70							4,00	5,02	6,44	5,02		6,4
	−4,5 m																				
5,20 m boom	7,5 m																				
2,80 m arm	6,0 m									3,62	4,16	5,63	4,16			3,26	3,33	5,12	3,33		7,9
Quickfit	4,5 m					5,07	4,72	7,86	4,72	3,49	4,38	5,46	4,38			2,77	3,82	4,43	3,82		8,5
Support down	3,0 m	7,13	7,21	11,6	7,21	4,66	5,58	7,39	5,58	3,29	4,82	5,24	4,82			2,45	3,18	4,00	3,18		8,9
	1,5 m	6,48	9,13	10,9	9,13	4,30	6,38	6,99	6,38	3,11	5,24	5,03	5,24			2,37	3,67	3,91	3,67		8,9
	0,0 m	6,24	9,77	10,6	9,77	4,09	6,96	6,76	6,96	2,97	5,48	4,89	5,48			2,45	4,41	4,05	4,41		8,6
	−1,5 m	6,22	9,52	10,6	9,52	4,02	6,99	6,69	6,99	2,94	5,40	4,86	5,40			2,72	4,92	4,48	4,92		8,0
	−3,0 m	6,33	8,48	10,7	8,48	4,11	6,25	6,78	6,25							3,36	4,96	5,55	4,96		7,0
	−4,5 m																				
5,20 m boom	7,5 m																				
3,30 m arm	6,0 m									3,67	3,69	5,68	3,69			2,92	3,88	4,62	3,88		8,4
Quickfit	4,5 m									3,53	4,00	5,51	4,00	2,48	3,94	4,01	3,94	2,42	3,31	3,93	3,31	9,1
Support down	3,0 m	7,42	6,45	12,0	6,45	4,76	5,16	7,51	5,16	3,31	4,50	5,27	4,50	2,40	4,16	3,92	4,16	2,20	3,38	3,64	3,38	9,4
	1,5 m	6,61	8,52	11,1	8,52	4,35	6,05	7,07	6,05	3,10	5,00	5,04	5,00	2,30	4,37	3,81	4,37	2,13	3,78	3,56	3,78	9,4
	0,0 m	6,24	9,59	10,7	9,59	4,09	6,76	6,77	6,76	2,94	5,34	4,87	5,34	2,23	4,44	3,73	4,44	2,16	3,60	3,62	3,60	9,2
	−1,5 m	6,14	9,64	10,5	9,64	3,97	7,00	6,65	7,00	2,87	5,42	4,79	5,42					2,38	4,51	3,98	4,51	8,6
	−3,0 m	6,22	8,92	10,6	8,92	4,01	6,56	6,69	6,56	2,95	4,84	4,88	4,84					2,85	4,57	4,72	4,57	7,7
	−4,5 m	6,48	6,82	10,9	6,82	4,26	4,70	6,97	4,70									4,17	4,53	6,81	4,53	6,1

Tipping load *

Hydr. lifting capacities **

* *Regardless of the hydraulic lifting capacity of the machine.*

** *Regardless of the stability of the machine.*

Working pressure with HLD = 30 MPa (300 bar)

STANDARD EQUIPMENT

Engine and electrical system
Computer controlled monitoring system
Battery disconnector and main fuel tap
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

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

Safety and Comfort
Cab heating with 14 outlets
Filtered air intake
Cab skylight
Emergency exit through rear window
Ergonomically designed and adjustable operator's seat
Rear view mirrors,
2 exterior
1 interior
Lights:
headlights,
full and dipped beam asymmetrical, halogen
3 working lights, front, halogen
1 working light, rear, halogen
Brakelights
Rear lights
Direction indicators
Instrument lighting
Illuminated cab, engine compartment and fuel filling compartment
Safety bar for control levers
Adjustable steering wheel
Double intermittent windscreen wipers
Windscreen washers
Hazard flashers

Hydraulic refuelling pump
Compressor horn
Rotating beacon
Hose rupture valve on boom cyl.

Hydraulics
Three variable axial piston working pumps
Mode selector, 3 steps
Power boost
Standard filter cartridges for return, leak oil and respiration filter systems
Dual main valve for the travel and equipment functions
Float position on boom
Refilling pump for hydraulic oil
Automatic idling speed (Fuel-miser)

Equipment
5,2 m monobloc boom
2,25 m dipper arm
End dampening on all cylinders
Sphearical 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
Cranked exhaust pipe
Combined cab/engine heater Primus 2460
Engine heater Primus 2400/2440
Digital timer
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 2x50 mm
Oscillating outriggers plates
Tow outlets
Tool box

Safety and Comfort
Immersion heater
Tinted windows
Interior and exterior glare shields
Rear window blind
Protective grid for front pane/roof pane
Vandal protective guards
Support for fire extinguisher
Operator's seat with air cushion suspension
Seat belts
Rear window blind
Air conditioning
Fine filter for the cab
Micro filter for the cab
Circulation pump for the heating system

Radio and cassette player Blaupunkt
Tropical equipment
Extra hose rupture valve on dipper arm/bucket cylinders

Hydraulics
Hydraulic equipment for:
slope bucket
grab
hydraulic hammer
roto-tilt
jib
crusher
shears
magnet
Installation of a 4th working pump

Equipment
Dipper arm 2,8 m and 3,3 m
Extra headlights on the boom
Automatic grease system
Hydraulic quickfit
Mechanical quickfit
Varios buckets

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