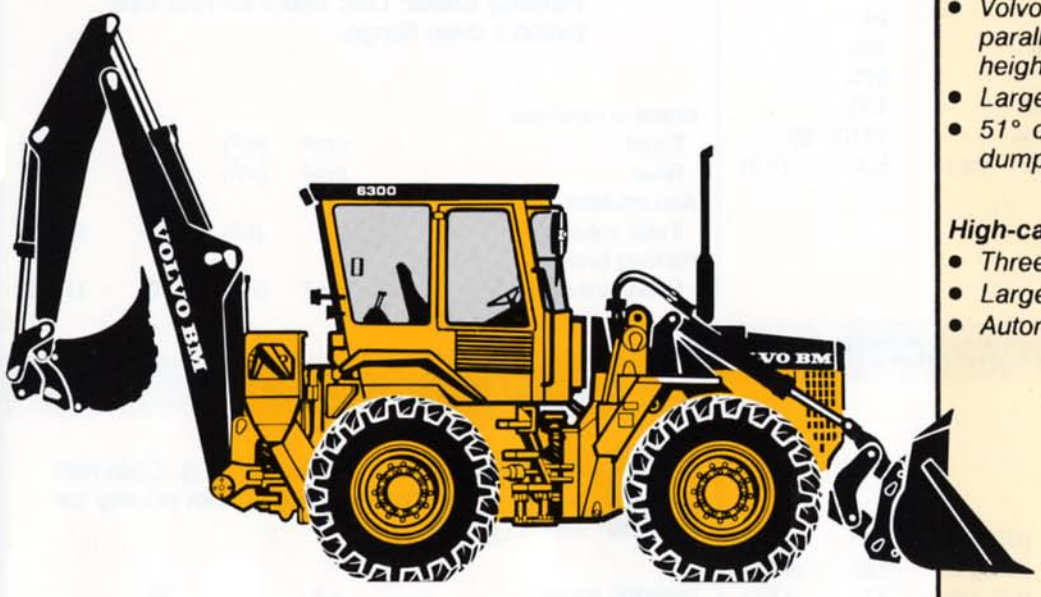
Volvo BM 6300



- ***Engine output:***
  SAE J1349 Net 84 kW (114 hp)
- ***Operating weight:***
  10,8 t (23810 lb)
- ***Loader buckets:***
  1,45-3,0 m³ (1,9-3,9 yd³)
- ***Excavator buckets:***
  320-430 l (0,42-0,56 yd³)

- *The largest family of attachments on the market*
- *Volvo BM Automatic Power Shift*
- *Load-sensing dual-circuit hydraulics*
- *The lowest fuel consumption in its class*
- *Electro-servo hydraulics*
- *Dual controls*

High-capacity loader

- *Volvo BM loader unit with parallel lift-arm action, high lift height and long reach*
- *Large breakout and lifting forces*
- *51° carry angle and 112 ° dump angle*

High-capacity excavator

- *Three different excavator units*
- *Large digging and lifting forces*
- *Automatic rear-axle lock*

VOLVO BM

ENGINE

Volvo BM TD 45 B: a 4-cylinder, direct-injection, turbocharged 4-stroke diesel engine with wet replaceable cylinder linings.

Air cleaning in three stages:
1. Cyclone precleaner
2. Paper filter
3. Catch-all safety filter

Output at	r/s	(r/min)	33,3	(2000)
SAE J1349	kW	(hp)	84	(114)
DIN 70020 / 6271	kW	(hp)	78	(106)
Max. torque at	r/s	(r/min)	23,3	(1400)
SAE J1349	Nm	(lbf ft)	440	(324)
DIN 70020 / 6271	Nm	(lbf ft)	425	(313)
Displacement	l	(in^3)	4,48	(273)
Cylinder bore	mm	(in)	105,57	(4,2)
Stroke	mm	(in)	128	(5,0)
Compression ratio			15,6:1	

ELECTRICAL SYSTEM

Two 12 V batteries connected in series.
Central warning: *for the following functions: Engine oil pressure, engine temperature, transmission oil pressure, transmission temperature, brake pressure, hydraulic oil temperature, parking brake.*

Voltage	V		24	
Battery capacity	Ah		105	
Cranking capacity	A		575	
Reserve capacity	min		170	
Alternator	W/A		1710 / 60	
Starter motor	kW	(hp)	5,4	(7,3)

SERVICE REFILL CAPACITIES

Crankcase	l	(US gal)	12	(3,2)
Fuel tank	l	(US gal)	195	(51,5)
Cooling system	l	(US gal)	27	(7,1)
Transmission, total	l	(US gal)	27	(7,1)
Front axle, total	l	(US gal)	26	(6,8)
Rear axle, total	l	(US gal)	22,5	(5,9)
Hydraulic tank	l	(US gal)	115	(30,4)
Hydraulic system	l	(US gal)	206	(54,4)

DRIVE TRAIN

Torque converter: single-stage type

Transmission: Volvo BM power-shift transmission

Axles: Fully floating axle shafts with planetary hub reductions. All axles made by Volvo BM. The rear axle has a differential with 100% lock-up.
*Speed limitation 30 km/h on certain markets. Only 3 speeds in reverse with Volvo BM Automatic Power Shift.

Torque multiplication ratio			2,3: 1	
Transmission			HT 90	
Speeds, forward/reverse				
1	km/h	(mile/h)	7,0	(4,3)
2	km/h	(mile/h)	13,5	(8,4)
3	km/h	(mile/h)	25,5	(15,8)
4*	km/h	(mile/h)	44	(27,3)
Low range (option)				
1	km/h	(mile/h)	1,9	(1,2)
2	km/h	(mile/h)	3,7	(2,3)
3	km/h	(mile/h)	7,1	(4,4)
4	km/h	(mile/h)	13,3	(8,3)
Front axle			AH 45	
Rear axle			AH 31	
Oscillation	± °		8	
	mm	(in)	265	(10,4)

BRAKE SYSTEM

Service brakes: Fully hydraulically operated disc brakes split into two independent circuits.

Parking brake: Disc brake on rear axle pinion's drive flange.

Brake area/wheel				
Front	cm^2	(in^2)	396	(61,4)
Rear	cm^2	(in^2)	396	(61,4)
Accumulators			3	
Total volume		(ft^3)	1,5	(0,53)
Parking brake				
Brake area	cm^2	(in^2)	70	(10,8)

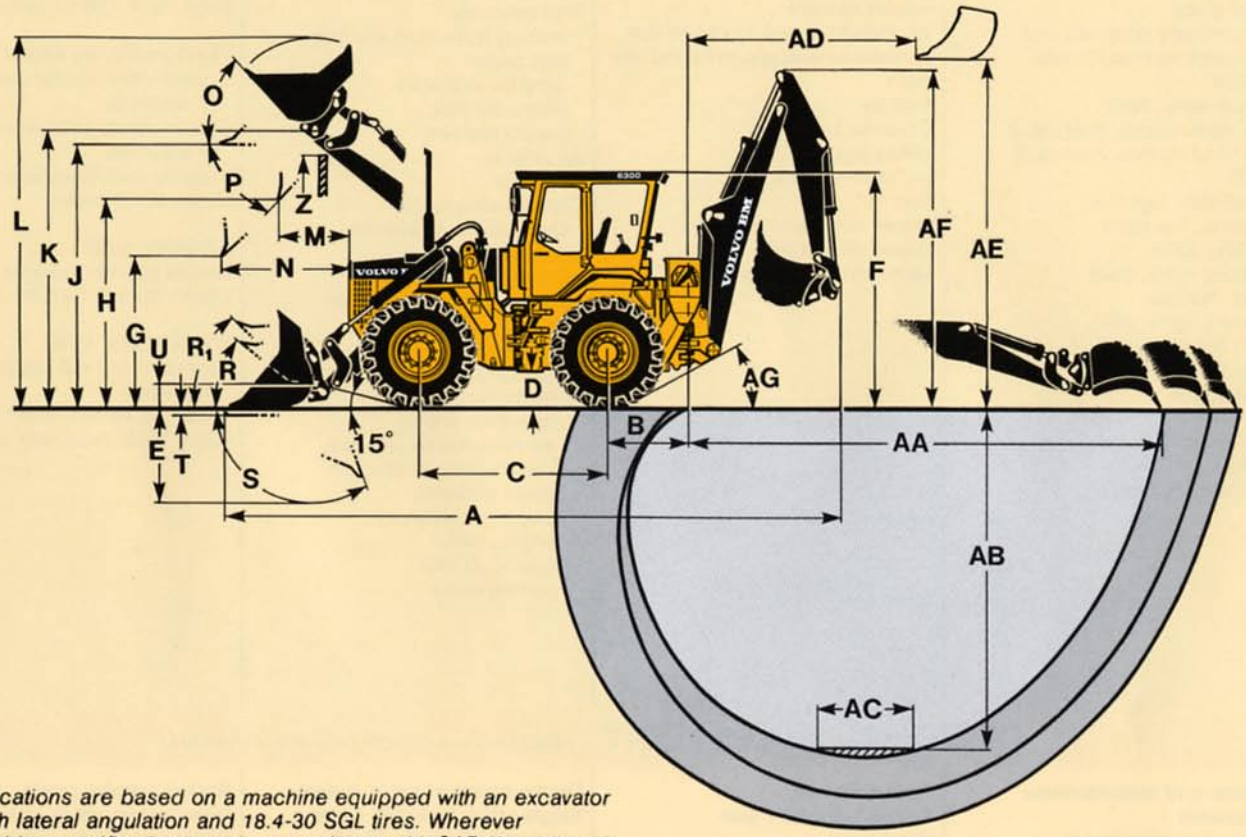
STEERING SYSTEM

Load-sensing hydrostatic steering. Common pump with hydraulic system, with priority for steering.

Steering angle	± °		35	
Lock-to-lock turns of the wheel			3,75	
Steering cylinders				
Bore	mm	(in)	80	(3,1)
Stroke	mm	(in)	310	(12,2)
Piston rod diameter	mm	(in)	50	(2)
Max. flow	l/min		45	
	(US gal/min)			(11,9)
at	MPa	(psi)	17	(2465)
and revolutions	r/s	(r/min)	16,7	(1000)
Max. working pressure	MPa	(psi)	17	(2465)

OPERATING DATA VOLVO BM 6300

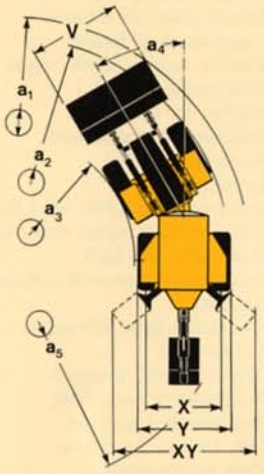
Straight front end bucket without teeth



Specifications are based on a machine equipped with an excavator unit with lateral angulation and 18.4-30 SGL tires. Wherever applicable, specifications are in accordance with SAE J31, J49 and J1179 with regard to the excavator unit and SAE J732, J742, J818 and ISO 8313 with regard to the loader unit.

B	mm (ft in)	1050	(3'5")	R_2*	°		51*	
C	mm (ft in)	2510	(8'3")	S	°		114	
D	mm (ft in)	480	(1'7")	T	mm (ft in)		110	(4,3")
E	mm (ft in)	740	(2'5")	U_1	mm (ft in)		410	(1'4")
F	mm (ft in)	3080	(10'1")	U_2	mm (ft in)		755	(2'6")*
G	mm (ft in)	2000	(6'7")	X	mm (ft in)		1885	(6'2")
J	mm (ft in)	3480	(11'5")	Y	mm (ft in)		2350	(7'9")
K	mm (ft in)	3700	(12'2")	XY	mm (ft in)		3740	(12'3")
L	mm (ft in)	4880	(16'0")	Z	mm (ft in)		3430	(11'3")
O	°	50		a_2	mm (ft in)		5130	(16'10")
P	°	45		a_3	mm (ft in)		2780	(9'1")
R	°	38		a_4	°		35	
R_1	°	43		a_5	mm (ft in)		5150	(16'11")

* In practical carry position



ATTACHMENTS *(for further information please contact your local dealer)*

Loader unit

Straight bucket without teeth	m^3 (yd^3)	1,45	(1,9)
Straight bucket with teeth	m^3 (yd^3)	1,45	(1,9)
Light materials bucket	m^3 (yd^3)	3,0	(3,9)
Grading bucket	m^3 (yd^3)	1,6	(2,1)
Sand spreading bucket	m^3 (yd^3)	2,0	(2,6)

Forks
Breakout forks
Fork arm extension
Fork with fork positioner
Material handling arm
Snow blade
Sweeper

Excavator unit

Excavator bucket	l (yd^3)	430/ 380/ 320	(0,56/ 0,50/ 0,42)
Cable bucket	l (yd^3)	200/120	(0,26/0,16)
Tapered cable bucket	l (yd^3)	220	(0,29)
Cable bucket with ejector	l (yd^3)	130	(0,17)
Profile bucket	l (yd^3)	540	(0,70)
Grading and ditch-cleaning bucket	l (yd^3)	470/440	(0,61/0,58)
Posthole bucket	l (yd^3)	90	(0,12)

Hydraulic post-raiser
Material handling arm
Ripper
Asphalt cutter

LOADER UNIT

Attachments for loader unit			Hook-on bucket without teeth		Hook-on bucket with teeth		Pin-on bucket with teeth	
Order No.			91449		99252		91284	
Capacity	m^3	(yd^3)	1,45	(1,9)	1,45	(1,9)	1,45	(1,9)
Density	kg/m^3	(lb/yd^3)	1800	(3000)	1800	(3000)	1800	(3000)
H	mm	(ft in)	2810	(9'3")	2680	(8'10")	2740	(3000)
M	mm	(ft in)	880	(2'11")	880	(2'11")	820	(2'8")
N	mm	(ft in)	1390	(4'7")	1390	(4'9")	1350	(4'5")
A	mm	(ft in)	8100	(26'7")	8300	(27'3")	8200	(26'11")
a_1	mm	(ft in)	11460	(37'7")	11560	(37'11")	11570	(37'11")
V	mm	(ft in)	2500	(8'2")	2430	(7'11")	2500	(8'2")
Breakout force	kN	(lbf)	71,9	(16160)	71,5	(16070)	80,4	(18070)
Static tipping load								
straight	kg	(lb)	7040	(15520)	7020	(15480)	7670	(16910)
35° full turn	kg	(lb)	6200	(13670)	6180	(13630)	6770	(14930)
Operating load								
at full turn	kg	(lb)	3100	(6830)	3090	(6810)	3385	(7460)
Hydraulic lift force								
at ground level	kN	(lbf)	88,0	(19780)	87,6	(19690)	87,3	(19620)
at max. height	kN	(lbf)	33,0	(7420)	32,7	(7350)	34,5	(7750)
Operating weight *)	kg	(lb)	10790	(23790)	10830	(23880)	10720	(23630)
Weight distribution, front	kg	(lb)	4045	(8920)	4120	(9080)	3900	(8600)
Weight distribution, rear	kg	(lb)	6745	(14870)	6710	(14800)	6820	(15030)

*) Incl. operator and full fuel tank

EXCAVATOR UNIT

Excavator unit type			With lateral angulation		Without lateral angulation		With lateral angulation and bucket arm extension	
Bucket	l	(yd^3)	430	(0,56)	430	(0,56)	320	(0,42)
A	mm	(ft in)	8100	(26'6")	8000	(26'2")	8100	(26'7")
AA	mm	(ft in)	6370	(20'11")	6940	(22'9")	6370/7320	(20'11"/24'0")
AB	mm	(ft in)	4630	(15'2")	5180	(16'12")	4630/5640	(15'2"/18'6")
AC	mm	(ft in)	600	(2'0")	600	(2'0")	600	(2'0")
AD	mm	(ft in)	2130	(7'0")	2500	(8'2")	2145/3105	(7'0"/10'2")
AE	mm	(ft in)	3860	(12'8")	4320	(14'2")	3830/4170	(12'7"/13'8")
AF	mm	(ft in)	4150	(13'7")	4440	(14'7")	4150	(13'7")
AG	°		30		30		30	
Max. bucket angle	°		185		185		185	
Max. digging force at bucket lip	kN	(lbf)	41,3	(9280)	39,3	(8832)	41,3/30,6	(9280/6880)
Max. lift force in hook *)	kN	(lbf)	15,4	(3460)	13,7	(3080)	13,0/10,5	(2920/2360)
Lateral angulation	± °		30				30	
Breakout force at bucket lip	kN	(lbf)	61,0	(13710)	61,0	(13710)	61,0/61,0	(13710/13710)
Slewing moment	kNm	(lbf ft)	36,8	(27140)	36,8	(27140)	36,8	(27140)

*) at full reach (bucket hinge pin on a level with boom hinge pin), without attachment, measured in the lifting hook.

Changes in data with alternative tires or excavator unit

			17.5 - 25		17.5 - R 25		20.5-25		20.5- R25	
Change in basic data										
Width over tires	mm	(ft in)	- 50	(2")	- 40	(1,6")	+ 160	(6,3")	+ 150	(6")
Ground clearance	mm	(ft in)	- 70	(2,8")	- 60	(2,4)				
Change in operating weight	kg	(lb)	- 65	(140)	+ 165	(360)	+ 260	(570)	+ 550	(1210)
Change in static tipping load at full turn										
Pin-on	kg	(lb)	-50	(110)			+ 130	(286)	+ 230	(507)
Hook-on	kg	(lb)	-50	(110)			+ 120	(265)	+ 210	(463)

			600-30.5		600-34		Excavator unit without lateral angulation		Excavator unit with extension	
Change in basic data										
Width over tires	mm	(ft in)	+ 170	(6")	+ 250	(10")				
Ground clearance	mm	(ft in)			+ 83					
Change in operating weight	kg	(lb)	+ 190	(418)	+ 600	(1320)	- 165	(363)	+ 325	(716)
Change in static tipping load at full turn										
Pin-on	kg	(lb)			+ 325	(716)	- 275	(606)	+ 840	(1850)
Hook-on	kg	(lb)			+ 300	(660)	- 255	(562)	+ 780	(1720)

CAB

Tested and approved as a safety cab in accordance with Chapter 3 of the Swedish Work Environment Act and meets ISO 3471 ROPS, ISO 3449 FOPS and ISO 6055 "overhead guards for forklift trucks"

Noise level in cab max. (as per SMP)	dB (A)	73
Ventilation	m^3/min	9
Operator's seat		ISRI GI 6000/575
Number of exits		3

HYDRAULIC SYSTEM

The hydraulic system is flow-regulated, load-sensing and of the closed centre type, which means that the load on the engine is no more than the utilized power. The system has two circuits with automatic or manual flow feed integration.

Pump: Two axial-flow piston pumps with variable flow.

Max. flow at 215 MPa (3118 psi)

Engine speed	l/min	US gal/min	US gal/min
1500 r/min (25r/s)	2×64	2×17	2×14
2000 r/min (33r/s)	2×85	2×22,5	2×18,7

Working pressure	MPa (psi)	22,5 (3263)

Oil filter: Full-flow filtration through 10 µm filter cartridge with magnetic core.

Hydraulic system - excavator:
Circuit 1 feeds the bucket, bucket arm and slew functions.
Circuit 2 feeds the boom function. Flow that is not utilised is automatically fed over to circuit 1 as needed.
Flow feed integration of circuit 1 to circuit 2 can be performed manually for the boom lift function.

Hydraulic system - loader:
Circuit 1 feeds the tilt function, circuit 2 prioritises the lift function. Flow that is not utilised in circuit 2 is automatically fed over to circuit 1 as needed.
Flow feed integration of circuit 1 to circuit 2 can be performed manually for the lift function on the loader.

LOADER UNIT

Loader unit with hydraulic cylinders installed in line with the lift arms. Good parallel lift-arm action, extremely good dump angle.
Bucket can be tilted forward 114° in the bottom position.

Lift cylinder			
Cylinder bore	mm (ft in)	90	(3,5")
Piston rod diameter	mm (ft in)	60	(2,4")
Stroke	mm (ft in)	845	(2'9")
Tilt cylinder			
Cylinder bore	mm (ft in)	90	(3,5")
Piston rod diameter	mm (ft in)	60	(2,4")
Stroke	mm (ft in)	1095	(3'7")
Raise with SAE workload with/without flow feed integration	s	6/12	
Lower, without load	s	4	
Dump, with load	s	3	

EXCAVATOR UNIT

Three alternative excavator units are available:
- Excavator unit without lateral angulation
- Excavator unit with lateral angulation
- Excavator unit with lateral angulation and bucket arm extension.

The three units differ in terms of digging force, reach and digging depth. All units have a slender boom, only 230 mm (9,0 in) for optimum visibility.

Slewing cylinders		2	
Cylinder bore	mm (ft in)	100	(4")
Piston rod diameter	mm (ft in)	50	(2")
Stroke	mm (ft in)	315	(1')
Boom cylinder		1	
Cylinder bore	mm (ft in)	130	(5,1")
Piston rod diameter	mm (ft in)	60	(2,4")
Stroke	mm (ft in)	930	(3'1")
Bucket cylinder		1	
Cylinder bore	mm (ft in)	100	(4")
Piston rod diameter	mm (ft in)	60	(2,4")
Stroke	mm (ft in)	780	(2'6")
Outrigger cylinders		2	
Cylinder bore	mm (ft in)	100	(4")
Piston rod diameter	mm (ft in)	60	(2,4")
Stroke	mm (ft in)	480	(1'7")
Oscillator lock (option)		1	
Cylinder bore	mm (ft in)	90	(3,5")
Piston rod diameter	mm (ft in)	50	(2")
Stroke	mm (ft in)	136	(5")
Without lateral angulation			
Bucket arm cylinder		1	
Cylinder bore	mm (ft in)	125	(5")
Piston rod diameter	mm (ft in)	70	(2,8")
Stroke	mm (ft in)	825	(2'8")
With lateral angulation			
Bucket arm cylinder		1	
Cylinder bore	mm (ft in)	125	(5")
Piston rod diameter	mm (ft in)	70	(2,8")
Stroke	mm (ft in)	755	(2'6")
Lateral angulation cylinder		1	
Cylinder bore	mm (ft in)	100	(4")
Piston rod diameter	mm (ft in)	50	(2")
Stroke	mm (ft in)	255	(10")
Bucket cylinder for post raising			
Cylinder bore	mm (ft in)	110	(4'4")
Piston rod diameter	mm (ft in)	60	(2'4")
Stroke	mm (ft in)	765	(2'6")
With lateral angulation and bucket arm extension			
Bucket arm cylinder		1	
Cylinder bore	mm (ft in)	125	(5")
Piston rod diameter	mm (ft in)	70	(2,8")
Stroke	mm (ft in)	755	(2'6")
Lateral angulation cylinder		1	
Cylinder bore	mm (ft in)	100	(4")
Piston rod diameter	mm (ft in)	50	(2")
Stroke	mm (ft in)	255	(10")
Extension cylinder		1	
Cylinder bore	mm (ft in)	80	(3,1")
Piston rod diameter	mm (ft in)	50	(2")
Stroke	mm (ft in)	1000	(3'3")

STANDARD EQUIPMENT

Safety and comfort
ROPS and FOPS cab
Cab heating with filtered fresh air intake and defroster
Tinted glass
Ergonomically designed and adjustable operator's seat
Lap belt
Interval wiper, front
Rear-view mirrors, external, 2
Rear-view mirrors, internal, 2
Lights:
- headlights, high/low (asym., halogen)
- parking lights,
- working lights, front (2) halogen
- working lights, rear (2) halogen
- side marker lights
- brake lights
- tail lights
- cab lights
- instrument lighting
- direction indicators

Sun visor
Safety start
Fenders
Hazard flashers
Windshield wipers, front and rear
Windshield washers, front and rear
Horn
Ashtray
Cigarette lighter
Lifting lugs
Lockable tool box
Tool kit
Wheel nut wrench kit
Openable windows
Lamp test, pilot lamps

Engine & electrical system
Electrical outlet 24 V
Battery disconnect switch
Pilot lamps for:
- working lights front and rear
- high beam
- direction indicators
- differential lock
- hazard flashers

Air cleaner
Alternator
Central instruments:
- speedometer/tachometer
- hour counter
- fuel gauge
- engine temperature gauge
- central warning lamp
- pilot lamps:
  - charging
  - hydraulic oil temp
  - hydraulic oil filter
  - transmission oil pressure
  - transmission oil temp
  - brake pressure
  - engine oil pressure
  - engine temp
  - engine air filter
  - parking brake

Drive train
Power Shift transmission
Differential lock (rear axle)
Single-lever gear control
Tires: 18.4 - 30/14 SGL

Hydraulic system
Control valve, loader unit (2 sections)
Control valve, excavator unit (6 sections)
Variable axial flow piston pumps
Hydraulic oil cooler

Loader unit
Bucket position indicator
Loader bucket 1,45 m^3 (1,9 yd^3)

Excavator unit
Excavator unit with lateral angulation
Excavator bucket, 430 l
Lifting hook, excavator unit

OPTIONAL EQUIPMENT *(Standard equipment on certain markets)*

Service and maintenance equipment
Electric fuel filling pump
Engine equipment
Diesel-powered interior/engine block heater
Electric engine block heater
Preheating coil
Muffler for low sound
Electrical equipment
Roof search light
Lighting:
extra working lights, front (halogen)
extra working lights, rear (halogen)
Automatic dim light
Rotating beacon with collapsible mount
Oscillation lock for rear axle
Drive train
Transmission, 8-speed
Automatic Power Shift
Transmission cut-out
Diff. lock for front axle
Cab equipment
Radio console without radio

Air conditioning
Heated operator's seat
Hand lamp
Intermittent wiper front / rear
Hand brake alarm
Instructor's seat
Adjustable steering wheel
Antenna for 2-way radio
Outlet for interior heater
Tachometer in excavator panel
Proportionally controlled dual controls
Dual controls
Cab heater
Net pocket
Socket for 220V cab heater
Hydraulic equipment
Single-acting lift function, loader unit
Floating position for excavator boom
Single-acting hydraulic outlet on loader unit (EVL)
Single-acting hydraulic outlet on excavator unit (EVG)

Electro-hydraulic servo system
Single-acting hydraulic outlet for hand-held tools (EVH)
Hydraulic attachment bracket
1st double-acting hydraulic outlet (DVL-1) for attachment locking
2nd double-acting hydraulic outlet, proportionally controlled, loader unit (DVL-2)
Hydraulic attachment bracket
1st double-acting hydraulic outlet (DVG-1), excavator unit
2nd double-acting hydraulic outlet, excavator unit (DVG-2)
Proportionally controlled lateral angulation on excavator unit
External equipment
Hitch, rearmounted
Factory-installed post holder crane incl. working platform
Protective equipment
Underbody protection plate, front
Underbody protection plate, rear
Lift cylinder lock

Bucket cylinder guard
Hose rupture valve, outriggers
SMW emblem for machines with bucket cylinder guard
Rotating warning beacon with collapsible mount
Other equipment
Supplementary steering
Winch
Post-raising assembly (excavator unit with heavy-duty bucket cylinder)
Automatic digging brake incl. springapplied parking brake
Seconary steering
Tires
17.5-25/123 FG
17.5 R 25* RL2 +
20.5 R 25* RL2 +
600/60-30.5/12
600/65-34/14 SB
Excavator unit
Excavator unit without lateral angulation
Excavator unit with bucket arm extension and lateral angulation

VME Industries Sweden AB
S-631 85 ESKILSTUNA SWEDEN

Ref.No. 21 1 669 1949 ENGELSKA
Printed in Sweden 04.08.92
Kuriritryck, Katrineholm 74445