

**VOLVO BM**

**A 20**

**6x6**



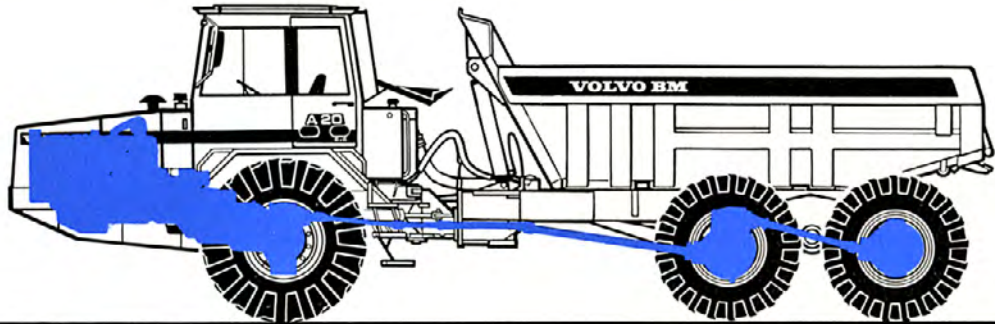
# **VOLVO BM A20 6x6 - A RELIABLE 20 TON HAULER FOR DIFFICULT CONDITIONS**

*The Volvo BM A20 6x6 is the 6-wheel-drive dumper that can work where ground conditions are difficult and where production delays due to the dumper bogging down cannot be tolerated.*

*The A20 features a simple and robust construction with articulated steering and an effective all-terrain bogie.*

*The machine is strong and rugged for work under punishing conditions.*

*The cab design and features enable the operator to achieve the full capacity of the dumper almost regardless of terrain and outside temperature.*



## **RELIABLE VOLVO BM DRIVETRAIN**

The Volvo BM A20 6x6 is powered by an in-line 148 kW (201 hp) SAE direct-injected 6-cylinder Volvo engine - the most reliable and fuel-efficient type of engine in this power class. The engine is turbocharged for more efficient combustion and thereby higher power and lower fuel consumption than an equivalent conventional aspiration engine.

## **DIFFERENTIAL LOCKS FOR INCREASED OFF-ROAD MOBILITY**

The A20 6x6 has 6-wheel drive on all gears and differential locks on all driving axles as well as on the longitudinal differential.

## **GROUND-HUGGING ALL-TERRAIN BOGIE**

Fundamental to the design of the A20 6x6 are the frame joint and the bogie unit. The frame joint enables the machine's tractor unit and front axle to move completely independently of the trailer unit and rear bogie. Thus all wheels follow irregularities in the terrain without losing ground contact. The Volvo BM bogie has high ground clearance and the axles have individual suspension, enabling the machine to cope with the most demanding ground conditions. The bogie, in combination with articulated steering and 6-wheel drive, affords a rough terrain ability second to none, allowing Volvo BM machines to keep working in the worst of conditions.

## **AUTOMATIC SHIFT INCREASES PRODUCTIVITY**

Automatic gear-changing through a range consisting of four forward and three reverse gears permits optimum utilization of available engine power while simplifying the work of the operator.



## COMFORT AND SAFETY

Off-road hauling at an efficient work pace requires a comfortable and functional cab. The operator must stay fresh until the end of a long work spell. The A20 6x6 has a sound-insulated and snug cab. The individually adjustable operator's seat, provides optimum sitting comfort.



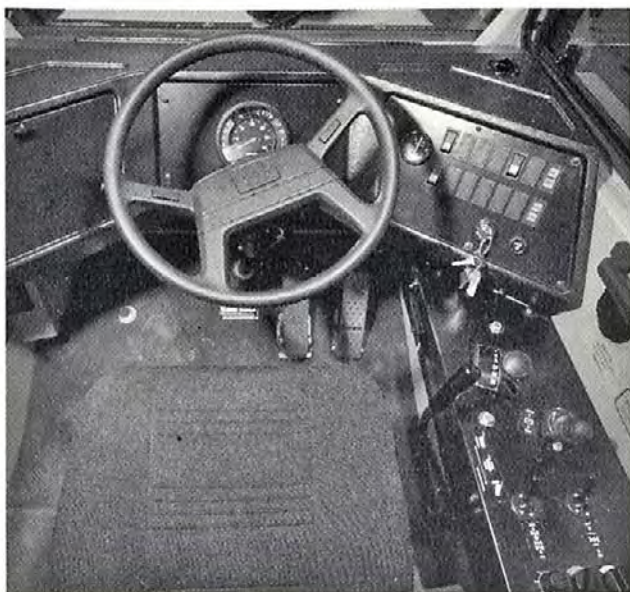
The cab is tested and approved according to ROPS /FOPS standard. An operator has excellent visibility, enabling him to keep watch over everything that is happening on the work site. The brake system is split into two circuits, with disc brakes on all axles. This is comforting to know when hauling heavy loads on downhill grades.

The A20 6x6 is also equipped with an exhaust brake with automatic kick-down function.

## CONTROLS

The easy-to-steer machine is very well planned ergonomically for easier control. The A20 6x6 has logically located and tightly grouped controls and instruments.

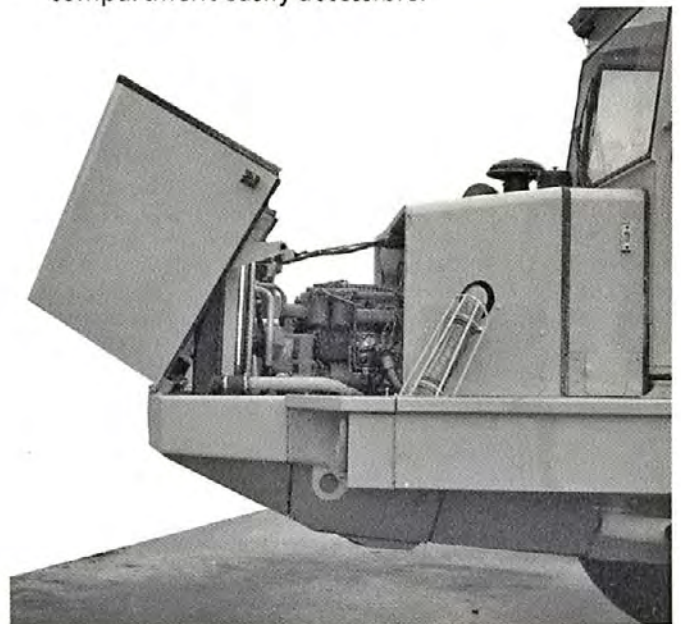
The differential locks are engaged by means of easy-to-reach controls on the instrument panel to the right of the operator or by means of foot activated switch.



## SERVICE

The Volvo BM A20 6x6 is designed from the ground up for easy service. Easy service means more productive operating hours. This in turn means better economy and greater job satisfaction:

- service points conveniently accessible from ground level
- easy filling and checking of oil
- conveniently located filters
- tilt-up engine hood renders the engine compartment easily accessible.





## ENGINE

Volvo TD 71 G: 6-cylinder-in-line direct-injected turbocharged 4-cycle diesel with overhead valves and wet replaceable cylinder linings.

Max. power at	rps	rpm	36	2200
SAE J 1349 Gross	kW	hp	148	201
Flywheel power at	rps	rpm	36	2200
DIN 70020/6271 /				
SAE J 1349 Net	kW	hp	137	186
Max. torque at	rps	rpm	28	1700
SAE J 1349 Gross	Nm	lbf ft	680	501
DIN 70020/6271 /				
SAE J 1349 Net	Nm	lbf ft	640	472
Displacement, total	dm <sup>3</sup>	in <sup>3</sup>	6,73	411
Bore	mm	in	104,77	4,125
Stroke	mm	in	130	5,12
Compression ratio			15,5:1	



## ELECTRICAL SYSTEM

Voltage	V	24
Battery capacity	Ah/No	140 / 2
Generator rating	W/A	1540 / 55
Starter motor power	kW hp	5,4 7,3



## DRIVE TRAIN

**Torque converter:** Single stage .

**Transmission:** Automatic power-shift .

**Dropbox:** Volvo BM dropbox with longitudinal differential .

**Differential locks:** One longitudinal and three transversal differential locks. All with 100% lock-up.

**Axles:** Volvo BM design. The driving axles have fully floating axle shafts with planetary gear type hub reduction.

Torque converter				2,19:1
Transmission make				Volvo BM
Model				HT 132
Speeds, forward	1	km / h	mph	6 3,7
	2	km / h	mph	12 7,5
	3	km / h	mph	24 15
	4	km / h	mph	34 21,2
Speeds, reverse	1	km / h	mph	6,5 4,0
	2	km / h	mph	13,5 8,4
	3	km / h	mph	27 16,8
Front axle, type				AH 54 J
First bogie axle, type				AH 54 L
Second bogie axle, type				AH 54 M



## TIRES

Front,	radials	18.00 R 25*
Bogie,	radials	20.5 R 25*



## BRAKE SYSTEM

Dual-circuit system with air-hydraulic disc-brakes, designed to comply with ISO 3450 and SAE J 1473 at total weigh 34200 kg.

**Circuit division:** one circuit for front axle and one for bogie.

**Parking brake:** The parking brake is a spring<sup>3</sup>actuated brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%.

**Compressor:** The pneumatic system is fed by a gear driven compressor

**Exhaust brake:** Exhaust brake as standard.



## STEERING SYSTEM

Hydromechanical articulated steering.  
3,6 lock-to-lock turns.

**Cylinders:** Two double-acting cylinders.

**Steering angle:** ± 45°

**Supplementary steering:** Supplementary steering function as standard. Complies with ISO 5010 at total weight 34200 kg.



## CAB

Volvo BM cab, tested and approved in accordance with ROPS standard ISO 3471/SAE J 1040 C and FOPS ISO 3449/SAE J 231 .

The cab is mounted on rubber pads, which reduces vibrations at the operator's station.

**Heater and defroster:** Filtered air and pressurized cab.

**Operator's seat:** Operator's seat with flameproof upholstery. Extra seat for trainer.

Number of exits (includes door)		2
Internal noise level	dB (A)	83



## HYDRAULIC SYSTEM

**Vane pump:** For steering and tipping mounted on transmission power take-off.

Pump capacity	dm <sup>3</sup> (l) /min	145	
	US gal /min	37	
at	rps	41,7	2500
Working pressure	MPa	14	2030
	psi		



## BODY

**Tipping cylinder:** One single-acting, 6-stage-hoist cylinder with automatic tipping stop.

**Body:** Made of hardened-and-tempered steel with particularly high impact strength. Wear plates as standard.

Tipping angle	°	63	
Tipping time with load	s	19	
Lowering time	s	16	
Body, plate thickness			
front/sides	mm	in	6 0,24
bottom/chute	mm	in	10 0,39
Wear plates	mm	in	8 0,31
Body and wearplates			
Yield strength	kp/mm <sup>2</sup>	psi	90 128 000
Tensile strength	kp/mm <sup>2</sup>	psi	125 178 000
Hardness min.	HB		360-440



## LOAD CAPACITY

Body volumes according to SAE 2:1.

In the case of bodies with struck volumes of less than 10 m<sup>3</sup> (13 yd<sup>3</sup>), heaped volume is given to the nearest half m<sup>3</sup>.

In the case of bodies with struck volumes of 10 m<sup>3</sup> (13 yd<sup>3</sup>) or more, heaped volume is given to the nearest whole m<sup>3</sup>.

Struck volume is given in m<sup>3</sup> (yd<sup>3</sup>) to one decimal place.

Load capacity	kg	sh tons	18500	20
Body, struck	m <sup>3</sup>	yd <sup>3</sup>	9,4	12,3
heaped	m <sup>3</sup>	yd <sup>3</sup>	12,5	16,3



## WEIGHTS

Service weights include body with wear plates

Service weight			
Front	kg	lb	7700 16980
Rear	kg	lb	8020 17640
Total	kg	lb	15720 34620
Payload			
Total	kg	lb	18500 40790
Total weight			
Front	kg	lb	10500 23150
Rear	kg	lb	23700 52260
Total	kg	lb	34200 75410



## GROUND PRESSURE

At 15% slump of unloaded diameter and specified weights. Cone penetrometer value at depth of 250 mm (9,8 in).

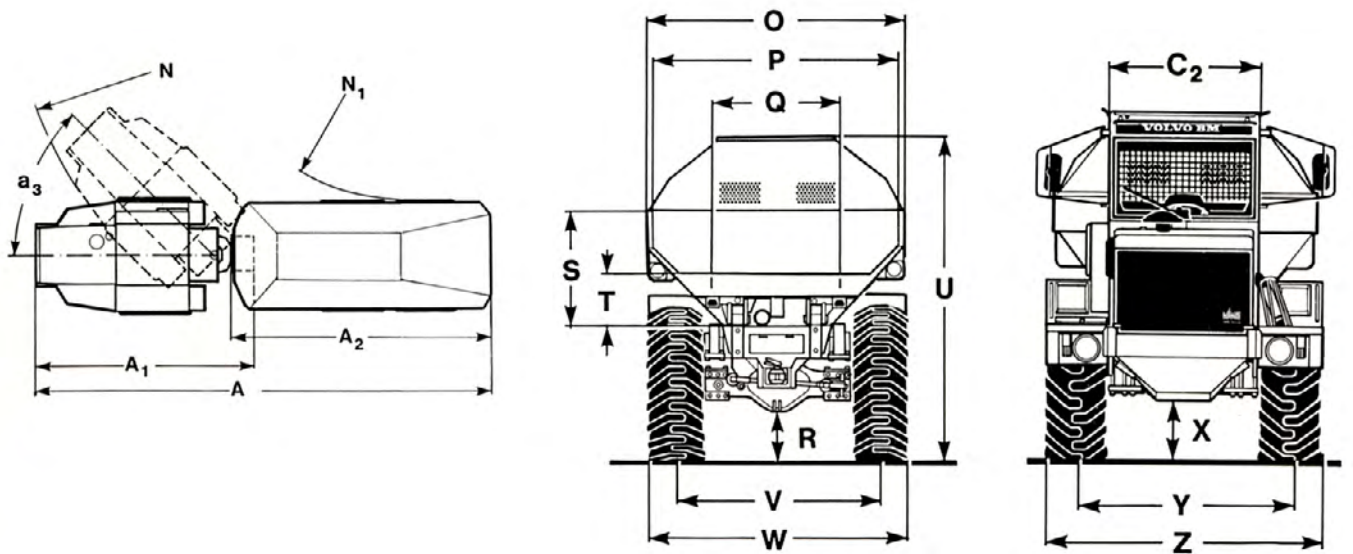
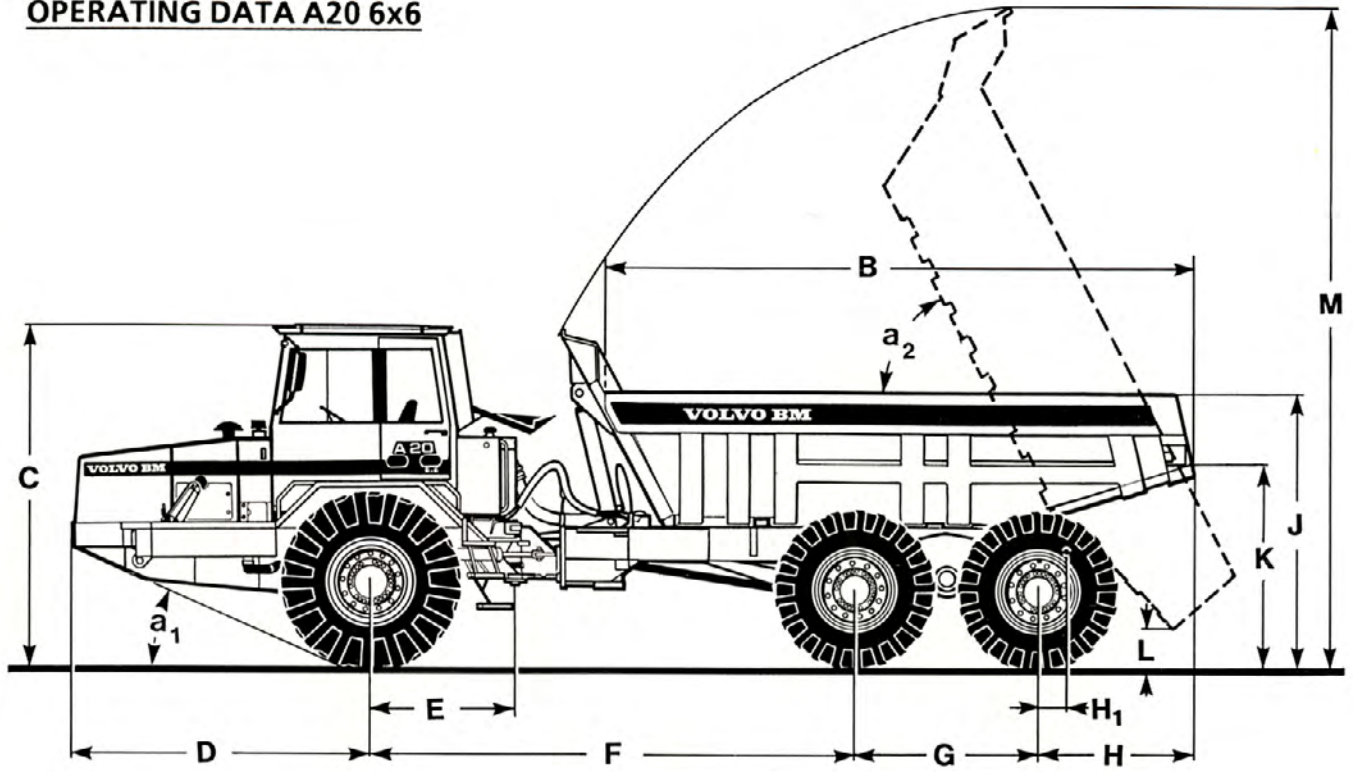
Unloaded			
Front	kPa	psi	97 14,0
Rear	kPa	psi	50 7,2
Loaded			
Front	kPa	psi	130 18,8
Rear	kPa	psi	153 22,2
Cone penetrometer value			67



## SERVICE REFILL CAPACITIES

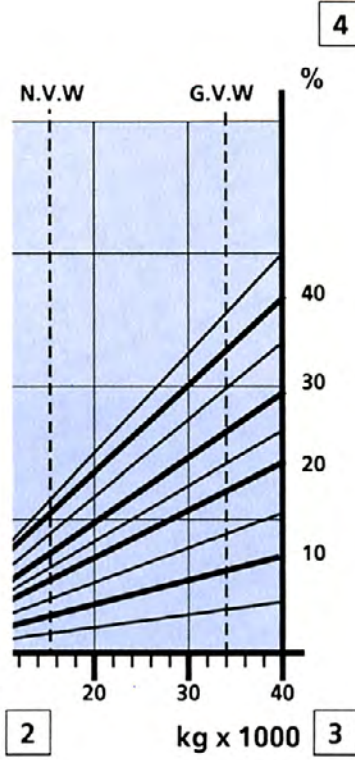
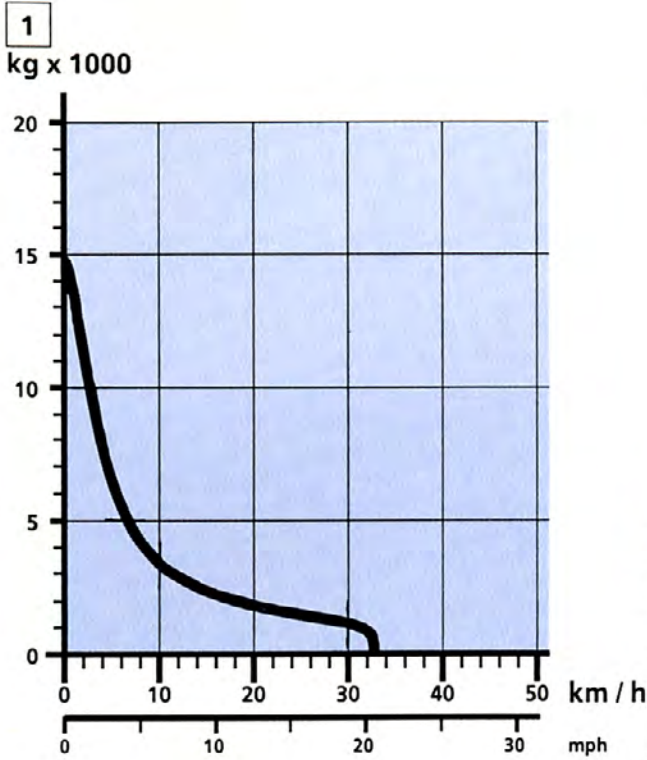
Crankcase	dm <sup>3</sup> (l)	US gal	24	6,3
Fuel tank	dm <sup>3</sup> (l)	US gal	295	80
Cooling system	dm <sup>3</sup> (l)	US gal	24	6,3
Transmission	dm <sup>3</sup> (l)	US gal	21	5,5
Front axle with dropbox	dm <sup>3</sup> (l)	US gal	46	12,2
First bogie axle	dm <sup>3</sup> (l)	US gal	33	8,7
Second bogie axle	dm <sup>3</sup> (l)	US gal	35	9,2
Hydraulic system	dm <sup>3</sup> (l)	US gal	170	44,9
Hydraulic tank	dm <sup>3</sup> (l)	US gal	145	38,3

# OPERATING DATA A20 6x6



\* = unloaded machine

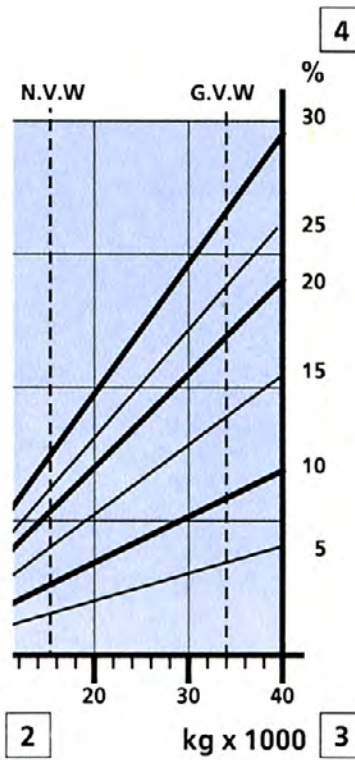
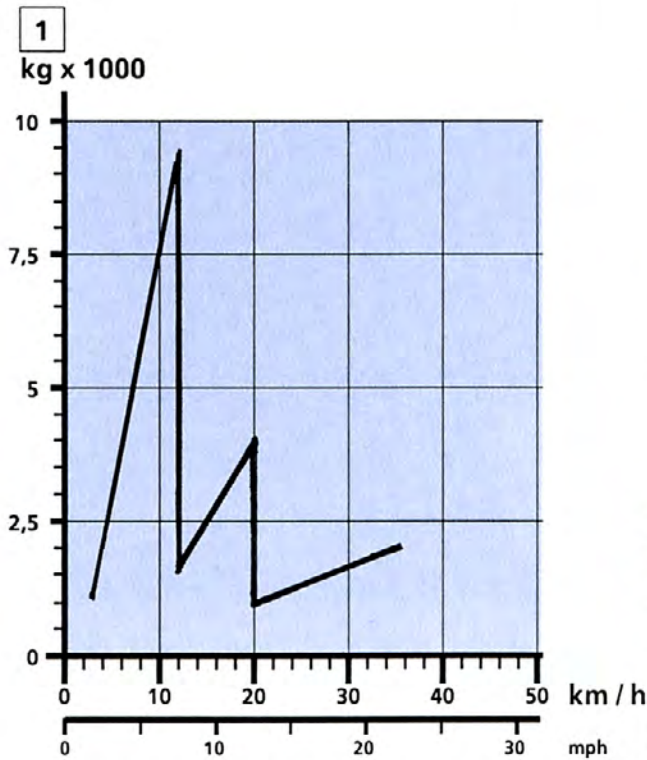
A	mm	ft in	10360	31'11"	J	mm	ft in	2394	7'10"	S	mm	ft in	1155	3'9"
A <sub>1</sub>	mm	ft in	5066	16'7"	J*	mm	ft in	2450	8'1"	T	mm	ft in	396	1'3"
A <sub>2</sub>	mm	ft in	6000	19'8"	K	mm	ft in	1820	5'11"	U	mm	ft in	3059	10'
B	mm	ft in	5440	17'10"	K*	mm	ft in	1870	6'1"	U*	mm	ft in	3115	10'2"
C	mm	ft in	3098	10'2"	L	mm	ft in	370	1'3"	V	mm	ft in	1928	6'4"
C*	mm	ft in	3123	10'3"	M	mm	ft in	6350	20'10"	W	mm	ft in	2490	8'2"
C <sub>2</sub>	mm	ft in	1500	4'11"	N	mm	ft in	8020	26'4"	X	mm	ft in	475	1'7"
D	mm	ft in	2809	9'2"	N <sub>1</sub>	mm	ft in	4400	14'5"	X*	mm	ft in	500	1'8"
E	mm	ft in	1280	4'2"	O	mm	ft in	2480	8'1"	Y	mm	ft in	1954	6'4"
F	mm	ft in	4322	14'2"	P	mm	ft in	2320	7'7"	Z	mm	ft in	2492	8'2"
G	mm	ft in	1650	5'4"	Q	mm	ft in	1500	4'11"	a <sub>1</sub>	°		21	
H	mm	ft in	1580	5'2"	R	mm	ft in	397	1'3"	a <sub>2</sub>	°		63	
					R*	mm	ft in	447	1'5"	a <sub>3</sub>	°		45	



### RIMPULL

Rimpull graph based on practically measured values  
 Dumper weight and ground slope + rolling resistance gives rimpull requirement and speed.

- 1 Rimpull in kg
- 2 Speed in km/h and mph
- 3 Dumper weight in kg
- 4 Rolling resistance + grade resistance in %



### RETARDATION

- 1 Braking effort in kg
- 2 Speed in km/h and mph
- 3 Dumper weight in kg
- 4 Rolling resistance - grade resistance in %

#### INSTRUCTIONS:

Diagonal lines represent total resistance (Grade % plus rolling resistance %). Charts based on 0% rolling resistance, standard tires and gearing unless otherwise stated.

1. Find the total resistance on diagonal lines on righthand border of performance or retarder chart.
2. Follow the diagonal line downward and intersect the NVW or GVW weight line.
3. From intersection, read horizontally left to intersect the performance or retarder curve.
4. Read down for vehicle speed.

# VOLVO BM A20 6x6

## STANDARD EQUIPMENT

### Safety and comfort

ROPS/FOPS cab  
Cab heater with filtered fresh air and defroster  
Ergonomically designed and adjustable operator's seat  
Windshield wipers  
Windshield washers  
Rear-view mirrors  
Sun visor  
Attachment points for seat belt  
Seat belt  
Supplementary steering pump, ground dependent  
Cigarette lighter  
Ashtray  
Horn  
Protective grille for rear window  
Hazard flashers  
Tinted glass  
Lights:  
headlights  
main/dipped/asym.  
parking lights  
reverse lights

direction indicators  
brake lights  
cab lighting  
instrument lighting  
Tool box  
Steering joint locking assembly  
Antislip material on fenders  
Rear mudguards

### Engine and electrical system

Turbocharger  
Alternator  
Preheating  
Extra fuel filter  
Battery disconnect switch  
Gauges for:  
brake pressure  
fuel  
engine temperature  
revolutions and hours  
Pilot lamps for:  
main beam  
direction indicators

Warning lamps for:  
battery charging  
low hydraulic pressure  
brake fluid level  
low brake pressure  
parking brake  
engine oil pressure  
transmission temperature  
air filter

Central warning:  
hydraulic pressure  
brake pressure  
engine oil pressure  
transmission temperature

### Drivetrain

Torque converter  
Automatic gear-shifting  
Exhaust brake  
Longitudinal differential lock  
Differential lock, front axle  
Differential lock, first bogie axle  
Differential lock, second bogie axle

### Body

Body with wear plates and exhaust gas ducts

### Tires

Front : Rear  
18.00 25\* XRA : 20.5 25\* XRA

## OPTIONAL EQUIPMENT

### Electrical equipment

Rotating beacon with collapsible mount  
Working lights

### Cab equipment

Air condition

### Body equipment

Body heating

### Other equipment

Air horns

### External equipment

Towing shackle

Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

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