Volvo BM A35C

- **Engine output:**
  SAE J1349 Net
  240 kW (322 hp)
- **Body volume:**
  19 m³ (25 yd³)
- **Load capacity:**
  32 t (35 sh tn)
- Direct-injected, turbo-charged, intercooled Volvo low emission high performance diesel engine.
- Electronically controlled, fully automatic powershift transmission. High and low gear ranges.
- Variable hydraulic retarder as standard.
- One longitudinal and three transverse diff-locks. All with 100% locking capability.
- Volvo BM rough terrain suspension, high ground clearance and individually oscillating bogie and front axles.
- Low interior noise level.
- Adjustable steering wheel.

Volvo BM
**ENGINE**

Volvo 6-cylinder, inline, direct-injected, turbocharged, intercooled 4-cycle low emission diesel engine with overhead valves and wet replaceable cylinder linings.


Fan: Hydrostatic driven, thermostatically controlled radiator fan consuming power only when needed.

<table>
<thead>
<tr>
<th>Make</th>
<th>Model</th>
<th>Max power at SAE J1349 Gross</th>
<th>Flywheel power at SAE J1349 Gross</th>
<th>SAE J1349 Net</th>
<th>Displacement total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volvo</td>
<td>TD 122 KAE</td>
<td>245 (328)</td>
<td>240 (322)</td>
<td>240 (322)</td>
<td></td>
</tr>
</tbody>
</table>

Max torque at SAE J1349 Gross:

- Volvo TD 122 KAE: 235 (318) kW

Volvo BM SUSPENSION SYSTEM

**Front axle:** One rubber spring with bottoming absorption on each side. Stabilizer. Two shock absorbers on each side. The front axle is suspended at three points, allowing oscillation in rough terrain.

**Bogie:** Volvo BM's unique rough terrain bogie, which permits individual oscillation between the axles.

**DRIVETRAIN**

Torque converter: Single stage with free-wheeling stator and automatic lock-up in all ranges.

Transmission: Electronically controlled, fully automatic planetary transmission with six gears forward and two in reverse.

Dropbox: Volvo BM with 2-stage design, power take-off and differential locking.

Axles: Volvo BM. 6-wheel drive. All axles have transverse diff-locks with 100% locking capability and fully floating axle shafts with planetary type hub reductions.

**ELECTRICAL SYSTEM**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Battery capacity</th>
<th>Alternator</th>
<th>Starter motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Ah</td>
<td>kW</td>
<td>kW</td>
</tr>
<tr>
<td>24</td>
<td>2x170</td>
<td>1.68</td>
<td>6.6</td>
</tr>
</tbody>
</table>

**SERVICE REFILL CAPACITIES**

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crankcase</td>
<td>(US gal) 31</td>
</tr>
<tr>
<td>Fuel tank</td>
<td>(US gal) 360</td>
</tr>
<tr>
<td>Cooling system</td>
<td>(US gal) 88</td>
</tr>
<tr>
<td>Transmission</td>
<td>(US gal) 41</td>
</tr>
<tr>
<td>Hub</td>
<td>(US gal) 6</td>
</tr>
<tr>
<td>Front axle</td>
<td>(US gal) 40</td>
</tr>
<tr>
<td>First bogie axle</td>
<td>(US gal) 41</td>
</tr>
<tr>
<td>Second bogie axle</td>
<td>(US gal) 40</td>
</tr>
<tr>
<td>Brake hydraulics</td>
<td>(US gal) 31</td>
</tr>
<tr>
<td>Brake oil tank</td>
<td>(US gal) 11</td>
</tr>
<tr>
<td>Hydraulic system</td>
<td>(US gal) 194</td>
</tr>
<tr>
<td>Hydraulic tank</td>
<td>(US gal) 175</td>
</tr>
</tbody>
</table>

**SUSPENSION**

Fan: Hydrostatic driven, thermostatically controlled radiator fan consuming power only when needed.

*) with fan at normal speed. With fan operating at full speed, the flywheel power is 228 kW (306 hp) which corresponds to DIN 70020.

**) with fan at normal speed. With fan operating at full speed, the maximum torque is 1340 Nm (988 lbf ft) which corresponds to DIN 70020.
**BRAKE SYSTEM**

Fully hydraulic disc brakes on all axles. Two circuits. Designed to comply with ISO 3450 and SAE J1473 at gross machine weight.

**Circuit Division:** One for front axle and one for bogie axles.

**Parking brake:** Spring-applied, air-released disc brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%. When the parking brake is applied, the longitudinal differential is locked.

**Retarder:** Hydraulic, infinitely variable, integrated in transmission as standard.

For retarding capability incl. retarder, engine and exhaust brake, see graph on page 4.

**HYDRAULIC SYSTEM**

**Pumps:** Four engine-dependent, variable piston pumps mounted on flywheel power take-offs. Ground-dependent hydraulic pump for supplementary steering mounted on dropdown.

**Filter:** Filtration of oil through two paper filters with magnetic cores.

<table>
<thead>
<tr>
<th>Pump capacity per pump</th>
<th>l/min (US gal/min)</th>
<th>100 (26.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>at shaft speed</td>
<td>r/s (r/min)</td>
<td>34 (2040)</td>
</tr>
<tr>
<td>Working pressure</td>
<td>MPa (psi)</td>
<td>21 (3048)</td>
</tr>
</tbody>
</table>

**STEERING SYSTEM**

Hydromechanical articulated steering. 3.4 turns lock-to-lock.

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

**Supplementary steering:** Standard. Complies with ISO 5010 standard at total machine weight.

**Steering angle:** ± 45°

**BODY**

**Body:** Hardened and tempered steel body with high impact strength.

**Cylinders:** Two 3-stage, of which one stage is double-acting.

<table>
<thead>
<tr>
<th>Tipping angle</th>
<th>°</th>
<th>73</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tipping time with load</td>
<td>s</td>
<td>15</td>
</tr>
<tr>
<td>Lowering time</td>
<td>s</td>
<td>18</td>
</tr>
</tbody>
</table>

**WEIGHTS**

Operating weight includes all fluids and operator. Standard machine.

<table>
<thead>
<tr>
<th>Operating weight</th>
<th>kg (lb)</th>
<th>13250 (29211)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>kg (lb)</td>
<td>12450 (27447)</td>
</tr>
<tr>
<td>Rear</td>
<td>kg (lb)</td>
<td>25700 (56658)</td>
</tr>
<tr>
<td>Total</td>
<td>kg (lb)</td>
<td>32000 (70547)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total weight</th>
<th>kg (lb)</th>
<th>16450 (36265)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>kg (lb)</td>
<td>41250 (90939)</td>
</tr>
<tr>
<td>Rear</td>
<td>kg (lb)</td>
<td>57700 (127204)</td>
</tr>
</tbody>
</table>

**GROUND PRESSURE**

At 15% sinkage of unloaded radius and specified weights.

<table>
<thead>
<tr>
<th>Unloaded</th>
<th>kPa (psi)</th>
<th>111 (16.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>kPa (psi)</td>
<td>52 (7.5)</td>
</tr>
<tr>
<td>Rear</td>
<td>kPa (psi)</td>
<td>138 (20.0)</td>
</tr>
<tr>
<td>Loaded</td>
<td>kPa (psi)</td>
<td>174 (25.2)</td>
</tr>
</tbody>
</table>

**CAB**

*Volvo BM cab,* tested and approved according to ROPS standard ISO/3471 and SAE J1040/ APR 88. Mounted on rubber pads which effectively reduce vibrations. Adjustable steering wheel. Radio/Contronic console in ceiling.

**Heater and defroster:** Filtered air and pressurized cab. Three-speed fan.

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

<table>
<thead>
<tr>
<th>Number of exits</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal sound level acc. to ISO 6394 and at max. speed</td>
<td>dB (A) 76</td>
</tr>
</tbody>
</table>
INSTRUCTIONS
Diagonal lines represent total resistance (grade % plus rolling resistance %).
Charts based on 0% rolling resistance, standard tyres and gearing, unless otherwise stated.

In the retardation chart, the diagonal lines represent the "total resistance" as well (here in downhill grades it is the total extra pushing force), which is the grade in % minus the rolling resistance in %.

A. Find the diagonal line with the appropriate total resistance on the right-hand edge of the chart.
B. Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW.
C. Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
D. Read down for vehicle speed.

RIM_PULL
1 Rimpull in kp (lbf)
2 Speed in km/h (mile/h)
3 Machine weight in kg (lb)
4 Grade in % + rolling resistance in %.

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

In the retardation chart, the diagonal lines represent the "total resistance" as well (here in downhill grades it is the total extra pushing force), which is the grade in % minus the rolling resistance in %.

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B. Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW.
C. Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
D. Read down for vehicle speed.
### Dimensions

#### Volvo BM A35C 6x6 (unloaded with 26.5 R 25 tyres)

<table>
<thead>
<tr>
<th>A (mm)</th>
<th>10898 (35'9&quot;)</th>
<th>F (mm)</th>
<th>4495 (14'9&quot;)</th>
<th>N₁ (mm)</th>
<th>4300 (14'1&quot;)</th>
<th>V (mm)</th>
<th>2522 (8'3&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁ (mm)</td>
<td>5232 (17')</td>
<td>G (mm)</td>
<td>1820 (6')</td>
<td>O (mm)</td>
<td>3006 (9'10&quot;)</td>
<td>W (mm)</td>
<td>3200 (10'6&quot;)</td>
</tr>
<tr>
<td>A₂ (mm)</td>
<td>6348 (20'10&quot;)</td>
<td>H (mm)</td>
<td>1624 (5'4&quot;)</td>
<td>P (mm)</td>
<td>2770 (9'1&quot;)</td>
<td>X (mm)</td>
<td>519 (1'8&quot;)</td>
</tr>
<tr>
<td>B (mm)</td>
<td>5554 (18'3&quot;)</td>
<td>I (mm)</td>
<td>725 (2'5&quot;)</td>
<td>Q (mm)</td>
<td>2510 (8'3&quot;)</td>
<td>X₁ (mm)</td>
<td>559 (11'0&quot;)</td>
</tr>
<tr>
<td>C (mm)</td>
<td>3604 (11'10&quot;)</td>
<td>J (mm)</td>
<td>2922 (9'7&quot;)</td>
<td>R (mm)</td>
<td>570 (1'10&quot;)</td>
<td>X₂ (mm)</td>
<td>696 (2'3&quot;)</td>
</tr>
<tr>
<td>C₁ (mm)</td>
<td>3510 (11'6&quot;)</td>
<td>K (mm)</td>
<td>2231 (7'4&quot;)</td>
<td>R₁ (mm)</td>
<td>670 (2'2&quot;)</td>
<td>Y (mm)</td>
<td>2522 (8'3&quot;)</td>
</tr>
<tr>
<td>C₂ (mm)</td>
<td>1330 (4'4&quot;)</td>
<td>L (mm)</td>
<td>1054 (3'5&quot;)</td>
<td>S (mm)</td>
<td>1274 (4'2&quot;)</td>
<td>Z (mm)</td>
<td>3200 (10'6&quot;)</td>
</tr>
<tr>
<td>D (mm)</td>
<td>2959 (9'8&quot;)</td>
<td>M (mm)</td>
<td>7529 (24'8&quot;)</td>
<td>T (mm)</td>
<td>595 (1'11&quot;)</td>
<td>a₁</td>
<td>25</td>
</tr>
<tr>
<td>E (mm)</td>
<td>1270 (4'2&quot;)</td>
<td>N (mm)</td>
<td>8694 (28'6&quot;)</td>
<td>U (mm)</td>
<td>3486 (11'5&quot;)</td>
<td>a₂</td>
<td>73</td>
</tr>
</tbody>
</table>

### Load Capacity

#### (Body volumes according to SAE 2:1)

<table>
<thead>
<tr>
<th>Load capacity</th>
<th>kg (sh tn)</th>
<th>32000 (35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body, struck</td>
<td>m³ (yd³)</td>
<td>14.8 (19)</td>
</tr>
<tr>
<td>heaped</td>
<td>m³ (yd³)</td>
<td>19 (25)</td>
</tr>
</tbody>
</table>

#### With overhung tailgate (optional)

<table>
<thead>
<tr>
<th>Load capacity</th>
<th>m³ (yd³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body, struck</td>
<td>15.2 (20)</td>
</tr>
<tr>
<td>heaped</td>
<td>19.8 (26)</td>
</tr>
</tbody>
</table>
## STANDARD EQUIPMENT

**Safety and comfort**
- ROPS cab
- Cab heater with filtered fresh air and defroster.
- Ergonomically designed and adjustable operator’s seat
- Windshield wipers
- Windshield washer
- Rear view mirrors
- Sun-visor
- Seat belt
- Anti-slip material on hood and fenders
- Cigarette lighter
- Ashtray
- Horn
- Protective grille for rear window
- Hazard flashers
- Tinted glass
- Lights:
  - Headlights, main/dipped parking lights
direction indicators
- rear lights
- back-up lights
- brake lights
- cab lighting
- instrument lighting

**Engine and electrical system**
- Adjustable steering wheel
- Steering joint locking assembly
- Radio/Contronic console in ceiling
- Speedometer
- Secondary steering

**Engine**
- Low emission engine
- Turbocharger
- Intercooler
- Oil drainage hose
- Alternator
- Preheating
- Battery disconnect switch
- Electrical outlet
- Gauges for:
  - Air pressure
  - Engine temperature
  - Engine revs
  - Fuel
  - Hours
  - Transmission oil temperature
- Pilot lamps for:
  - Direction indicators
  - Bogie axles
  - Front axle
  - Longitudinal
  - Diff-lock
  - Lights
  - Main beam
  - Preheating

**Warning lamps for:**
- Air filter
- Battery charging
- Body up
- Brake pressure
- Brake fluid level
- Coolant level
- Engine oil pressure
- Engine-dependent steering pump
- Ground-dependent steering pump
- Parking brake
- Transmission temperature
- Central warning for:
  - Air pressure
  - Battery charging
  - Brake fluid level
  - Engine oil pressure
  - Engine overspeed
  - Engine temperature
  - Engine-dependent steering function
  - Transmission temperature

**Cab**
- Extra seat for trainer

## OPTIONAL EQUIPMENT

**Service and maintenance**
- Tool kit with Tyre inflation unit

**Engine**
- Oil-bath air cleaner
- Coolant filter
- Exhaust brake

**Electrical**
- Work lights, roof-mounted
- Rotating beacon

**Cab**
- Air-suspended, electrically heated operator’s seat
- Electrically heated rear-view mirrors
- Air conditioning
- Contronic display
- Radio installation kit

**Protection**
- Overhead guards, FOPS
- Mudguards in front of bogie

**Body**
- Extra front spillguard
- Body heating
- Overhung tailgate
- Wear plates, kit delivery
- Upper side extensions, 200 mm

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Under our policy of continual 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.

Volvo Construction Equipment